

WORLD STEEL DYNAMICS

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North American and World Flat-Rolled Steelmakers' Process-by-Process Costs

SAMPLE

WORLDSTEELDYNAMICS

Steelmakers' Process-by-Process Costs

Steel Mill Product Coverage

WORLD: Flat-Rolled Producers	Slab	HRB /CP	CRC	HDG	EGL	TM	Plate	Bar	Shp /RL	Rod	ST	P&T
Brazil												
Cosipa	X	X	X	X	X	X	X					
CSN	X	X	X	X	X	X						
CST	X											
Usiminas	X	X	X	X	X	X	X					
Canada												
Dofasco	X	X	X	X		X						
China												
Baoshan	X	X	X	X	X	X	X				X	
Eastern Europe												
VSC Ocel - Slovakia	X	X	X	X		X						
European Union												
Arvedi - Italy	X	X										
BSC - U.K.	X	X	X	X	X							
Bremen Stahl - Germany	X	X	X	X								
Hoogovens - Netherlands	X	X	X	X		X		X				
Riva - Italy	X	X	X	X	X		X					
Thyssen - Germany	X	X	X	X	X		X					
Sollac-Dunkirk - France	X	X	X	X	X	X						
India												
Bokaro	X	X	X	X			X	X	X			
Essar	X	X	X									
Nippon Dendro	X	X										
Tisco	X	X	X				X	X	X			
Japan												
NKK - Ogishima	X	X	X	X	X	X	X				X	X
Tokyo Steel	X	X										
Korea												
POSCO - Pohang	X	X	X	X	X		X	X				
POSCO - Kwangyang	X	X	X	X	X		X					
Mexico												
AHMSA	X	X	X	X		X	X	X	X	X		
Hylsa	X	X	X	X								
Imexsa	X											
Taiwan												
CSC	X	X	X	X	X		X			X		
Turkey												
Erdimir	X	X	X	X		X	X					
U.S.A.												
AK Steel	X	X	X	X	X							
Bethlehem - Burns Harbor/Lackawanna	X	X	X	X			X					
Bethlehem - Sparrows Point	X	X	X	X		X	X					
Inland - Indiana Harbor	X	X	X	X	X		X					
Nucor - Crawfordsville	X	X	X	X								
Venezuela												
Sidor	X	X	X	X	X	X				X		

Note: HRB/CP = Hot rolled band and coiled plate

CRC = Cold rolled coil

HDG = Hot dip galvanized

EGL = Electro galvanized

TM = Tin mill products

PLT = Plate

SHP/RL = Shapes and rails

Rod = Wire Rod

ST = Seamless tube

P&T = Pipe & tube

WORLDSTEELDYNAMICS

Flat-Rolled Producer: Executive Summary

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A. Capacity, Prod'n, Capacity Util'n, Prod'n Costs, MHPT (ex SG&A) & Energy use in mmbtu/ton (EUPT)

(tons in millions)	Capac.	Prod'n	CU(%)	ProdnC:	ProcCs	MHPT	ProcMHPT	EUPT
Hot Metal	3.100		72.68		57.26		0.37	15.48
BOF	3.700		76.43		49.95		0.38	12.71
EAF	0.950		0.00		89.33		0.58	5.72
VDG	1.000		56.56		1.84		0.02	12.79
CCSlab	3.300		82.70		34.68		0.41	13.75
Ingot	0.001		0.00		22.18		0.23	13.24
ICSlab	0.001		0.00		62.86		0.75	15.06
HRBand	3.300		79.81		47.89		0.48	17.68
HRBFin	0.600		66.67		16.13		0.22	18.47
HRPickle	2.500		84.63		34.22		0.47	19.08
CR-Tandem	1.800		81.43		30.74		0.38	20.47
CRBA	1.800		81.43		27.33		0.39	22.18
CRC-Fin	1.600		87.48		102.04		1.48	23.74
EGL	0.435		97.70		127.44		0.77	29.99
HDG	0.450		61.11		97.85		0.96	24.06

B. Raw Material & Labor Use, & cif Prices (tons in millions)

Item	Use	Cost	Item	Use	Cost
Labor		per hr	Elect.		0.050 per kwh
Iron Ore: pellets	3.154 mmt	38.25 per ton	Nat. Gas		2.90 per MCF
fines	0.000 mmt	30.50 per ton	Scrap (net)	0.866 mmtn	130.00 per ton
Coal: Met.	0.000 mmt	54.00 per ton	Slab: purch.	0.000 mmtn	245.00 per ton
PCI	0.000 mmt	40.00 per ton	HRBand: purch.	0.000 mmtn	297.00 per ton
Coke: purchased	0.953 mmt	120.00 per ton			

C. Shipments, Revenues/ton, Product Cost/ton, MHPT/ton (w SG&A)

(tons in millions)	Ship'ts	Rev.	ProdCst	SG&A	CshProf	Dep.	Int.	NetProf	MHPTw
HRBFin	0.400		10.71	2.81	3.80	0.00	-0.99	1.86	
HRC (pickled)	0.650		11.57	3.63	4.03	0.00	-0.39	2.12	
CRC	0.950		16.53	5.31	5.28	0.00	0.03	3.67	
EGL	0.425		20.97	46.33	6.59	0.00	39.74	4.48	
HDG	0.275		16.98	41.74	0.00	0.00	41.74	3.53	
Total	2.700		15.22	14.71	4.43	0.00	6.02	2.78	

D. Financials (mm\$)	Rev	COGS	NRCC	SG&A	CshProf	Dep.	Int.	NetProf
Total								

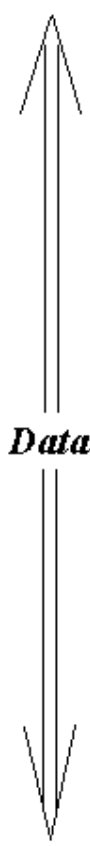
* Revenues are based on indicative industry prime and second product prices for period.

Note: Selected data has been deleted in this sample.

WORLDSTEELDYNAMICS

**Conversion Costs for HRB, CRC, EGL,
Flat-Rolled Producer
(US\$/net ton)**

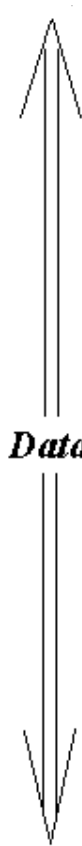
					Costs	Costs Cumul.
						MHPT mmbtu
Iron Ore: Pellets	B=	3.154				
Pellet Cost/ton fob					27.00	
Mine Profit				3	2.75	
Transport-to Port					3.00	
Pellet Cost/ton cif Mill						
Iron Ore: Sinter Feed	B=	0.000				
Sinter Feed Cost/ton fob					20.00	
Mine Profit					2.00	
Transport-to Port					3.00	
Sinter Feed Cost/ton cif mill						
Iron Ore: Lump	B=	0.000				
Lump Cost/ton fob Port						
Transport						
Lump Cost/ton cif mill						
Sinter	P=	0.000				
Sinter Feed	30.500 x	0.850			25.93	
SSD	6.100 x	0.250			1.53	
Labor-Direct						
M & MH						
Elect.	0.050 x	30.000	kwh		1.50	
Other Energy	2.900 x	0.500	mmbtu		1.45	
Breeze	48.600 x	0.060	ton		2.92	
Fluxes	17.000 x	0.250	ton		4.25	
Supplies					1.94	
Maint. & Rep.					1.62	
Operating Costs						
PCI Coal	P=	0.000				
Coal Cost/ton fob Mine					24.00	
Transport					16.00	
Coal Cost/ton Cif Mill					40.00	
PCI Make	P=	0.000				
Steam Coal	40.000 x	1.000	ton		40.00	
Labor-Direct						
M & MH						
Elect.	0.050 x	40.000	kwh		2.00	
Other Energy	2.900 x	0.220	mmbtu		0.64	
Supplies					2.27	
Maint. & Rep.					1.30	
Operating Costs						



Note: Data deleted

WORLDSTEELDYNAMICS

Met. Coal	B=	0.000			
Coal Cost/ton fob Mine					
Transport					
Coal Cost/ton cif Mill					
Coke-Unscreened	P=	0.000			
Coal	54.000 x	1.060 x	1.430	81.85	
Labor-Direct					
M & MH					
Elect.	0.050 x	35.000	kwh	1.75	
Other Energy	2.900 x	3.500	mmbtu	10.15	3.50
By-Products	2.900 x	11.000	mmbtu	-31.90	-11.00
Supplies				7.12	
Maint. & Rep.				9.07	
Operating Costs					0.92 30.00
	B=	0.953			
Own Coke					
Purchased Coke					
Total Coke					
	P=	0.890			
Coke-Screened					
Breeze Credit					
BF Coke					
Hot Metal					
Pellets			ore/HM	53.55	
Sinter			ore/HM	0.00	
Lump			ore/HM	0.00	
Scrap			scp/HM	11.12	
DRI			dri/HM	2.80	
SSD			ssd/HM	0.85	
Coke			coke	49.91	
PCI			PCI	0.00	
Labor-Direct					
M & MH					
Elect.			kwh	1.50	
Stove Fuels			mmbtu	5.08	
Injected Fuels			ton	8.70	
Wind			mmbtu	5.00	
Reline Res.			reline	0.00	
O2			ton	2.80	
Fluxes				2.91	
Supplies				5.18	
Maint. & Rep.				4.21	
Gas Credit			tons	-10.15	-0.08
Operating Costs					0.37 15.25



Note: Data deleted

WORLDSTEELDYNAMICS

Molten Steel BOF		P=	2.828	S=	0.821			
Hot Metal								12.15
Scrap						37.73		
Labor-Direct					MHPT			
M & MH					MHPT		0.38	
O2					ton	3.15		
Elect.					kwh	1.25		0.26
Other Energy					mmbtu	0.87		0.30
FA & Alum.						11.00		
Fluxes						4.86		
Refractories						5.18		
Supplies						5.83		
Maint. & Rep.						4.86		
Gas Credit		1.450	x	0.000	nmbtu	0.00		0.00
		Operating Costs						0.68
Molten Steel EAF		P=	0.000	S=	0.000			
DRI		x				0.00		0.00
Scrap		x				137.80		
Labor-Direct		x			MHPT			
M & MH		x			MHPT		0.58	
O2		x			ton	1.93		
Elect.		x			kwh	25.00		
Other Energy		x			mmbtu	1.45		
FA & Alum.						10.50		
Fluxes						4.53		
Electrodes		x			lbs	10.10		
Refractories						6.48		
Supplies						5.83		
Maint. & Rep.						3.89		
Gas Credit		x			mmbtu	0.00		
		Operating Costs						
MS Normalization								
BOF		x		1.000				
EAF		x		0.000				
Total								
Vacuum Degass & Ladle Met.		P=	0.566					
Molten Steel		x		0.000		0.00		
Scrap	130.000	x		0.000		0.00		
Labor-Direct		x		0.044	MHPT	1.50		
M & MH		x		0.072	MHPT	2.43		
Elect.	0.050	x		10.000	kwh	0.50		
Other Energy	2.900	x		0.300	mmbtu	0.87		
N&H						0.65		
Refractories						0.65		
Supplies						1.30		
Maint. & Rep.						1.30		
		Operating Costs				9.18	0.79	13.11
VDG Normalization								
VDG		x		0.200				
NON-VDG		x		0.800			0.70	12.79

Note: Data deleted

WORLDSTEELDYNAMICS

Slab Caster	P=	2.729	S=	-0.076		
Yield Loss	x	0.035			7.55	
Scrap Credit	130.000	x	0.028		-3.64	
Labor-Direct				MHPT		
M & MH				MHPT		0.36
Elect.	0.050	x	20.000	kwh	1.00	0.21
Other Energy	2.900	x	0.300	mmbtu	0.87	0.30
Refractories					5.18	
Supplies					4.53	
Maint. & Rep.					5.18	
Operating Costs					1.08	13.75

Ingot Cast	P=	0.000	S=	0.000		
Yield Loss					7.55	
Scrap Credit					-4.10	
Labor-Direct				MHPT	2.69	
M & MH				MHPT	4.38	
Supplies					9.07	
Maint. & Rep.					2.59	
Operating Costs						

Slab Mill	P=	0.000	S=	0.000		
Yield Loss	x	0.180			42.81	
Scrap Credit	130.000	x	0.153		-19.89	
Labor-Direct				MHPT		
M & MH				MHPT		
Elect.	0.050	x	40.000	kwh	2.00	
Other Energy	2.900	x	1.400	mmbtu	4.06	
Rolls					2.59	
Supplies					6.48	
Maint. & Rep.					5.18	
Operating Costs						

	B=	0.000				
Own Slab: CC	x	1.000				
IC	x	0.000				
Purchased Slab	x	0.000				

HR Band	P=	2.634	S=	-0.078		
Yield Loss	x	0.035			8.70	
Scrap Credit	130.000	x	0.030		-3.87	
Labor-Direct				MHPT		
M & MH				MHPT		0.44
Elect.	0.050	x	115.000	kwh	5.75	1.20
Other Energy	2.900	x	2.250	mmbtu	6.53	2.25
Supplies					5.83	
Rolls					3.89	
Maint. & Rep.					6.15	
Operating Costs					1.56	17.68

Note: Data deleted

WORLDSTEELDYNAMICS

HR Temper & Finish	P=	0.400	S=	-0.012		
Yield Loss	x	0.030				
Scrap Credit	130.000	x	0.030		-3.90	
Labor-Direct		x		MHPT		
M & MH		x		MHPT		0.17
Elect.	0.050	x	15.000	kwh	0.75	0.16
Other Energy	2.900	x	0.100	mmbtu	0.29	0.10
Supplies					1.94	
Maint. & Rep.					2.27	
Operating Costs					1.78	18.47

Sales & Overhead	S=	0.400				
Labor-Ship	x			MHPT		
Admin	x			MHPT		0.09
Misc.					7.81	
Operating Costs					1.86	18.47

Financial Costs			
Depreciation			3.80
Interest			0.00
Taxes			0.00
Total Costs			3.80

Revenue:Primes	x	0.920		
Seconds	x	0.080		326.04

Gross Cash Generation =				2.81
Net Profit =				-0.99

HR Pickle	P=	2.116	S=	-0.080		
Yield Loss	x	0.048				
Scrap Credit	130.000	x	0.038		-4.94	
Labor-Direct		x		MHPT		
M & MH		x		MHPT		
Elect.	0.050	x	20.000	kwh	1.00	
Other Energy	2.900	x	0.350	mmbtu	1.02	
Liquor					1.94	
Supplies					3.89	
Maint. & Rep.					3.89	
Operating Costs					8.26	

Sales & Overhead	S=	0.650				
Labor-Ship	x			MHPT		
Admin	x			MHPT		
Misc.					8.26	
Operating Costs					11.57	

Financial Costs			
Depreciation			4.03
Interest			0.00
Taxes			0.00
Total Costs			4.03

Revenue:Primes	x	0.920		
Seconds	x	0.080		345.80

Gross Cash Generation =				3.63
Net Profit =				-0.39

↑
Note: Data deleted
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WORLDSTEELDYNAMICS

CRC

CR Tandem & Clean	P=	1.466	S=	0.000		
Yield Loss	x	0.000			0.00	
Scrap Credit	130.000 x	0.000			0.00	
Labor-Direct	x			MHPT		
M & MH	x			MHPT		0.38
Elect.	0.050 x	90.000		kwh	4.50	0.94
Other Energy	2.900 x	0.450		mmbtu	1.31	0.45
Supplies					4.21	
Rolls					3.24	
Maint. & Rep.					4.53	
Operating Costs						2.41 20.47

CR Batch Anneal	P=	1.466	S=	0.000		
Yield Loss	x	0.000			0.00	
Scrap Credit	130.000 x	0.000			0.00	
Labor-Direct	x			MHPT		
M & MH	x			MHPT		0.39
Elect.	0.050 x	30.000		kwh	1.50	0.31
Other Energy	2.900 x	1.400		mmbtu	4.06	1.40
N&H					2.59	
Supplies					2.27	
Maint. & Rep.					3.56	
Operating Costs						

CR Cont. Anneal	P=	0.000	S=	0.000		
Yield Loss	x	0.040				
Scrap Credit	130.000 x	0.040			-5.20	
Labor-Direct	x			MHPT		
M & MH	x			MHPT		
Elect.	0.050 x	30.000		kwh	1.50	
Other Energy	2.900 x	1.800		mmbtu	5.22	
N & H					2.59	
Supplies					3.24	
Maint. & Rep.					3.24	
Operating Costs						

CA vs BA

CA	x	0.000				
BA	x	1.000				

CR Temper & Trim	P=	1.400	S=	-0.063		
Yield Loss	x	0.045				
Scrap Credit	130.000 x	0.045			-5.85	
Labor-Direct	x			MHPT		
M & MH	x			MHPT		
Elect.	0.050 x	35.000		kwh	1.75	
Other Energy	2.900 x	0.200		mmbtu	0.58	
Supplies					4.21	
Rolls					1.94	
Maint. & Rep.					4.21	
Operating Costs						3.50 23.74

Note: Data deleted

WORLDSTEELDYNAMICS

Sales & Overhead	S=	0.950		
Labor-Ship	x		MHPT	
Admin	x		MHPT	
Misc.				10.82
			Operating Costs	16.53
				3.67 23.74

Financial Costs		
Depreciation		5.28
Interest		0.00
Taxes		0.00
	Total Costs	5.28

Revenue:Primes	x	0.920	
Seconds	x	0.080	454.48

Gross Cash Generation =	5.31
Net Profit =	0.03

EGL(G60 good two side, 0.035 in. thick, 0.48 in. wide)

EGL	P=	0.425	S= -0.021
Yield Loss	x		
Scrap Credit	x		-6.44

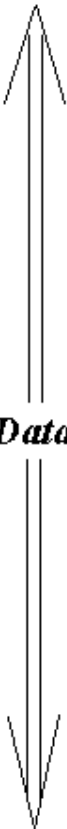
Labor-Direct	x	MHPT	
M & MH	x	MHPT	
Elect.	x	kwh	16.50
Other Energy	x	mmbtu	4.35
Zinc	x	lb	32.50
Refractories			6.48
Supplies			9.07
Rolls			1.94
Maint. & Rep.			9.07
		Operating Costs	

Sales & Overhead	S=	0.425		
Labor-Ship	x		MHPT	
Admin	x		MHPT	
Misc.				14.00
			Operating Costs	20.97
				4.48 29.99

Financial Costs		
Depreciation		6.59
Interest		0.00
Taxes		0.00
	Total Costs	6.59

Revenue:Primes	x	0.920	
Seconds	x	0.080	627.38

Gross Cash Generation =	46.33
Net Profit =	39.74



Note: Data deleted

WORLDSTEELDYNAMICS

HDG(G60 good two side, 0.035 in thick, 0.48 in wide)

HDG Coat & Finish	P=	0.275	S=	-0.011		
Yield Loss	x				16.26	
Scrap Credit	x					
Labor-Direct	x			MHPT		
M & MH	x			MHPT		0.85
Elect.	x			kwh	3.25	0.68
Other Energy	x			mmbtu	5.80	2.00
Zinc	x			lb	33.15	
Refractories					2.00	
Supplies					5.18	
Rolls					2.59	
Maint. & Rep.					5.83	
				Operating Costs		3.37 24.06

HDG Post Anneal	P=	0.000	S=	0.000		
Yield Loss	x			0.010	4.59	
Scrap Credit	130.000	x		0.009		
Labor-Direct	x			MHPT		
M & MH	x			MHPT		
Elect.	0.050	x		20.000	kwh	1.00
Other Energy	2.900	x		1.000	mmbtu	2.90
N&NH						1.00
Supplies						2.27
Maint. & Rep.						2.91
				Operating Costs		

HDG Normalization						
HDG	x			1.000		
HDGPA	x			0.000		

Sales & Overhead	S=	0.275				
Labor-Ship	x			MHPT		
Admin	x			MHPT		
Misc.						
				Operating Costs		16.98

Financial Costs						
Depreciation					5.60	
Interest					0.00	
Taxes					0.00	
				Total Costs		5.60

Revenue:Primes	x			0.910		
Seconds	x			0.090		517.91

Gross Cash Generation =						41.74
Net Profit =						36.14

Note: Data deleted

WORLDSTEELDYNAMICS

STEELMAKER'S PROCESS-BY-PROCESS COSTS

For flat-rolled steelmakers in North America	\$15,000
For selected flat-rolled steelmakers in the World	\$15,000
Forecast for selected flat steelmakers - 2005 (with purchase of current year)	\$15,000

Please call or fax **Peter F. Marcus** or **Karlis M. Kirsis**, Managing Partners.

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