

## 7. Metal Components

The fabricated metal products industry encompasses both a wide range of products and production techniques, producing metal components for such applications as building products (hardware), automotive, agricultural, drilling/mining, transportation, appliances, and others. In the United States alone, this industry provided over 1.5 million jobs in 2007, with shipments valued at more than \$300 billion.

### a) Representative Operation – Metal Machining

The representative operation modeled is a small manufacturer of metal building products using machining tools. As illustrated in Exhibit 3.26, this operation is characterized by:

- Moderately high facility and equipment requirements
- A workforce with some professional/technical positions, many skilled operators, and some unskilled positions
- Moderate energy requirements.

The business is assumed to operate as a stand-alone profit center.

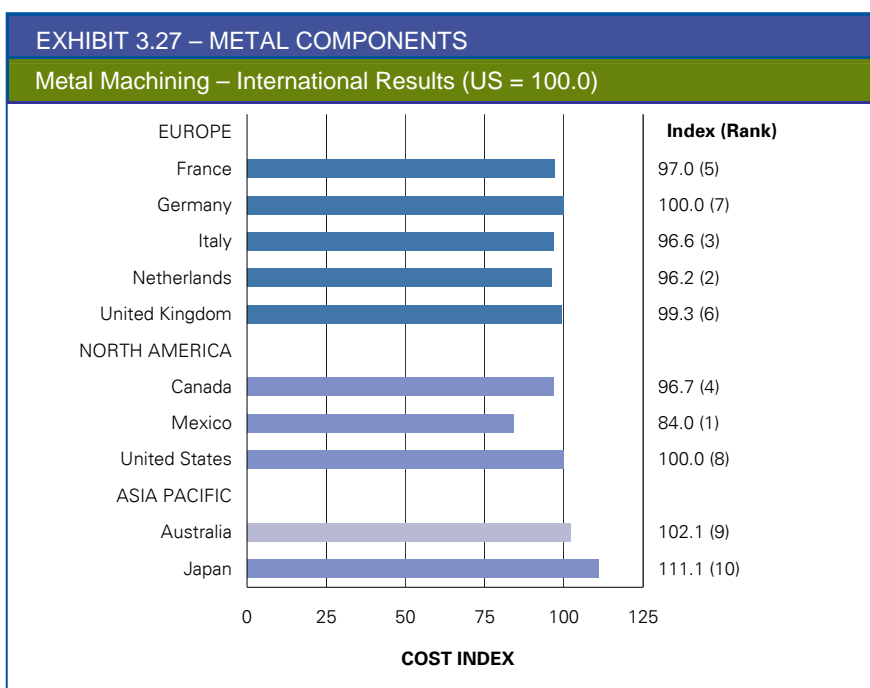
### b) International Results

International results are illustrated in Exhibit 3.27. These results reflect the combined impact of 26 location-sensitive cost components applied to the modeled operation. Detailed results, by key cost component, are presented in Exhibit 3.28.

### c) Selected Cities

Exhibit 3.29 profiles results for selected cities, by country, from among the 95 cities featured in this report. Results for all other featured cities can be found in Chapter 4, Exhibit 4.7.

EXHIBIT 3.26 – METAL COMPONENTS	
Metal Machining – Summary of Operating Parameters	
<b>Facilities Requirements</b>	
Leased industrial facility	6 acres (24,281 m <sup>2</sup> )
Size of factory built	100,000 ft <sup>2</sup> (9,290 m <sup>2</sup> )
<b>Other Initial Investment Requirements</b>	
Machinery and equipment – US \$'000	\$19,500
Office equipment – US \$'000	\$500
R&D equipment – US \$'000	–
Inventory – US \$'000	\$2,700
Equity financing – % of project costs	50%
<b>Workforce</b>	
Management	4
Sales and administration	16
Production/non-dedicated product development	
- Professional, technical	11
- Operators	45
- Unskilled laborers	19
Other	5
<b>Total employees</b>	<b>100</b>
<b>Energy Requirements</b>	
Electricity monthly consumption/peak demand	240,000 kWh and 780 kW
Gas monthly consumption	10,200 CCF (28,895 m <sup>3</sup> )
<b>Other Annual Operating Characteristics</b>	
Sales at full production – US \$'000	\$27,000
Materials and other direct costs – % of sales	36%
Other operating costs – % of sales	3%
Investment in tax-eligible R&D – % of sales	–



## EXHIBIT 3.28 – METAL COMPONENTS

## Metal Machining – Costs, by Major Component, US \$'000

	Europe					North America			Asia Pacific	
	France	Germany	Italy	Netherlands	UK	Canada	Mexico	US	Australia	Japan
<b>Revenues</b>	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
<b>Costs</b>										
- Salaries & Wages	4,124	5,687	4,402	5,063	4,606	4,918	1,719	4,904	5,078	6,580
- Statutory Plans	1,897	1,028	953	684	430	550	122	503	661	638
- Other Benefits	864	1,198	1,259	1,288	1,555	1,257	519	1,906	1,123	1,697
- Total Labor & Benefits	6,884	7,913	6,614	7,034	6,592	6,724	2,361	7,313	6,862	8,915
- Facility Lease	683	853	820	909	1,394	531	483	506	718	1,584
- Transportation	1,495	1,303	1,622	1,358	1,360	2,255	3,035	2,175	3,232	1,591
- Utilities	421	560	795	521	511	346	349	322	575	526
- Interest & Depreciation	2,391	2,474	2,394	2,407	2,527	2,398	1,913	2,416	2,369	2,706
- Non-Income Taxes	500	261	59	56	796	450	48	635	217	1,174
- Location-Insensitive Costs	10,140	10,140	10,140	10,140	10,140	10,140	10,140	10,140	10,140	10,140
<b>Profit Before Income Tax</b>	3,486	2,497	3,557	3,577	2,682	3,156	7,672	2,491	1,889	(635)
- Income Taxes <sup>1</sup>	771	500	749	670	513	381	1,832	502	404	42
Effective Rate	22.1%	20.0%	21.1%	18.7%	19.1%	12.1%	23.9%	20.2%	21.4%	n/a
<b>After-Tax Profit</b>	2,715	1,997	2,808	2,907	2,169	2,775	5,840	1,989	1,485	(677)
<b>Total Annual Costs</b>	23,285	24,003	23,193	23,093	23,832	23,225	20,161	24,010	24,515	26,678
<b>Index (US=100.0)</b>	<b>97.0</b>	<b>100.0</b>	<b>96.6</b>	<b>96.2</b>	<b>99.3</b>	<b>96.7</b>	<b>84.0</b>	<b>100.0</b>	<b>102.1</b>	<b>111.1</b>
<b>Rank</b>	<b>5</b>	<b>7</b>	<b>3</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>1</b>	<b>8</b>	<b>9</b>	<b>10</b>

1 Income taxes may be either positive or negative, irrespective of whether profit before income tax is positive or negative, due to the impact of specific expense deduction rules, minimum taxes, and refundable income tax credits. Effective tax rates are not shown where results are not meaningful because of low profitability.

## EXHIBIT 3.29 – METAL COMPONENTS

## Metal Machining – Results for Selected Cities, by Country

Country and City	Index	Rank <sup>1</sup>	Country and City	Index	Rank <sup>1</sup>	Country and City	Index	Rank <sup>1</sup>
<b>International Locations – All Cities</b>						<b>North America – Lowest Cost Cities</b>		
<b>AU</b> Adelaide	102.3	87	<b>JP</b> Osaka	109.0	92	<b>CA</b> Sherbrooke, QC	94.1	3
Brisbane	102.1	86	Tokyo	113.2	93	Moncton, NB	94.8	4
Melbourne	101.0	80			Quebec City, QC	95.4	10	
Sydney	103.2	90	<b>MX</b> Mexico City	84.9	2	Charlottetown, PE	95.5	11
			Monterrey	83.0	1			
<b>FR</b> Lyon	96.9	29			<b>US</b> Youngstown, OH	94.9	5	
Paris	97.0	31	<b>NL</b> Amsterdam	96.0	17	Shreveport, LA	95.1	6
			Brabant Stad	95.8	14	Lexington, KY	95.3	7
<b>GE</b> Berlin	99.0	65	The Hague	96.4	27	Charleston, WV	95.3	9
Frankfurt	100.9	79	Utrecht	96.2	23	Atlanta, GA	95.7	13
					Greenville-Spartanburg, SC	95.9	15	
<b>IT</b> Milan	95.9	16	<b>UK</b> London	103.2	89	Bangor, ME	96.0	18
Rome	97.2	38	Manchester	95.3	7	Raleigh, NC	96.0	20

1 Rank among 95 cities.