



## Manufacturing Update

### August 2019

The Mufson Howe Hunter Manufacturing Update is designed to provide business leaders, investors, and industry professionals an update on current market trends and important developments within the manufacturing sector of the economy. This monthly report contains information on select companies in various subsectors within manufacturing emphasizing financial performance, stock performance, and recent news.

#### Macro-Economic Trends

	Jun-19	Jul-19	Trend
PMI	51.7	51.2	Negative
Total Unemployment	3.7	3.7	Neutral
CPI Monthly Change	0.1	0.3	Negative
PPI Monthly Change	0.1	0.2	Negative
Industrial Production	109.4	109.2	Negative
Capacity Utilization	77.8	77.5	Negative
Manufacturing Production	105.1	104.7	Negative
Manufacturing Utilization	75.8	75.4	Negative

#### Sector Index Performance

	3-Year	1-Year	3-Month
Aerospace & Defense	59.5%	1.0%	-0.5%
Components & Materials	-3.1%	-26.2%	-10.6%
Industrial Equipment	60.7%	11.1%	6.2%
Engineering & Industrial Services	17.3%	-4.9%	-1.8%
NASDAQ	58.4%	6.6%	1.0%
S&P	37.1%	5.8%	1.2%

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## MHH Sectors/Sub-sectors

### Aerospace & Defense

- Aerospace
- Defense

### Components & Materials

- Electronic Components
- Specialty Materials
- Vehicle Parts and Supplies

### Industrial Equipment

- Construction Equipment
- Electrical Equipment
- Semiconductor Capital Equipment
- Measurement, Control and Testing Devices

### Engineering & Industrial Services

- Technical Services
- Industrial Distribution
- Industrial Recycling

**Note:** Please refer to Page 22 for the Universe components.

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MHH's coverage of the Manufacturing Sector spans companies in the following four sectors for each of which our index has been calculated as follows:

**The MMH Aerospace & Defense Index** is currently comprised of Airbus Group NV, BAE Systems plc, The Boeing Company, Embraer SA, General Dynamics Corp., Honeywell International Inc., Huntington Ingalls Industries, L3Harris Technologies, Lockheed Martin Corp., Northrop Grumman Corp., Raytheon Company, Rolls Royce Holdings plc, Textron Inc., Thales SA, and United Technologies Corp.

**The MMH Components & Materials Index** is currently comprised of 3M Company, Akzo Nobel NV, Alps Electric Ltd., Amphenol Corp., Aptiv plc, Autoliv Inc., AVX Corp., BASF SE, Belden Inc., Bosch Ltd., Celanese Corp., Continental AG, Corning Inc., Denso Corp., Delphi Automotive plc, DowDuPont Inc., Encore Wire Corp., Evonik Industries, Ferro Corp., Johnson Controls Inc., Lear Corp., OMRON Corp., PPG Industries Inc., Solvay SA, Stanley Electric Co. Ltd., TE Connectivity Ltd., and Vishay Intertechnology.

**The MMH Industrial Equipment Index** is currently comprised of Ametek Inc., Applied Materials Inc., ASML Holding NV, Axcelis Technologies Inc., Brooks Automation Inc., Caterpillar Inc., Cohu Inc., Cummins Inc., Danaher Corp., Deere & Company, Eaton Corp. plc, Emerson Electric Co., Entegris Inc., FARO Technologies Inc., FormFactor Inc., Hubbell Inc., Hyundai Heavy Industries Co. Ltd, KLA-Tencor Corp., LamResearch Corp., MKS Instruments Inc., Nanometrics Inc., Navistar International Corp., Nova Measuring Instruments Ltd., Oshkosh Corp., Powell Industries, Inc., Regal Beloit Corp., Rockwell Automation Inc., Rudolph Technologies Inc., Schneider Electric SE, Teradyne Inc., Terex Corp., Tokyo Electron Ltd., Veeco Instruments Inc., and Xcerra Corp.

**The MMH Engineering & Industrial Services Index** is currently comprised of AECOM Technology Corp., Aurubis AG, Balfour Beatty plc, Cardno Ltd., Clean Harbors Inc., Commercial Metals Company, Dowa Holdings Co. Ltd., Fastenal Company, Fluor Corp., HD Supply Holdings Inc., Jacobs Engineering Group Inc., John Wood Group plc, KBR Inc., Lawson Products Inc., MRC Global Inc., MSC Industrial Direct Co. Inc., NV5 Global Inc., Primoris Services Corp., Sims Metal Management Ltd., Tetra Tech Inc., Transcat Inc., Veolia Environnement SA, WW Grainger Inc., and WESCO International Inc.

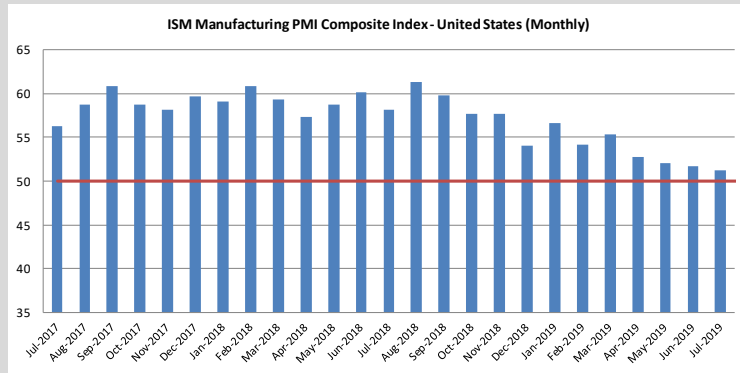
The companies that comprise each Index can change periodically as a result of a variety of reasons, including mergers, acquisitions, initial public offerings, and other transactions; therefore, comparisons to historical time periods and historical performance for each Index may not entirely correspond and correlate to the Index's current performance. In addition, historical performance is not a guarantee or prediction of future results.

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# Major U.S. Economic Indicators

## PMI (Purchase Manager Index)

A PMI reading above 50 percent (red line below) indicates that the manufacturing economy is generally expanding and below 50 percent means it is contracting.



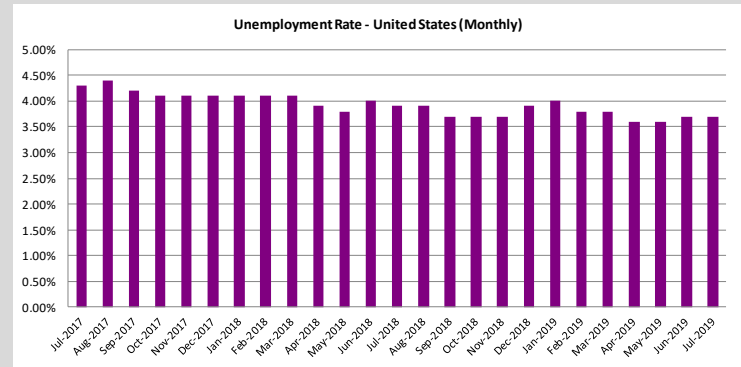
Source: Institute for Supply Management

### Commentary

Economic activity in the manufacturing sector expanded in July as the economy grew for the 123<sup>rd</sup> consecutive month. New Orders, Production and Employment all grew. Backlog and Prices contracted. The PMI fell in July but remains in expansionary territory.

## Unemployment Rate

Unemployment rate is traditionally defined as the percentage of the total labor force that is actively looking for gainful employment.



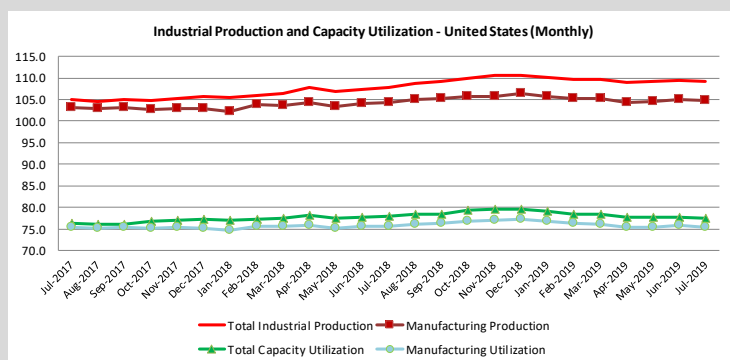
Source: United States Bureau of Labor

### Commentary

In July, the unemployment rate was unchanged at 3.7% and the number of unemployed persons was little changed at 6.1 million. Total nonfarm payroll employment increased by 164,000 with gains in professional/technical services and healthcare. Manufacturing jobs changed little (+16,000) in July and thus far in 2019.

## Industrial Production and Capacity Utilization

The Production Index (in red below) measures real output and is expressed as a percentage of real output in a base year, currently 2007. The Capacity Index (in green below), which is an estimate of sustainable potential output, is also expressed as a percentage of real output in 2007.



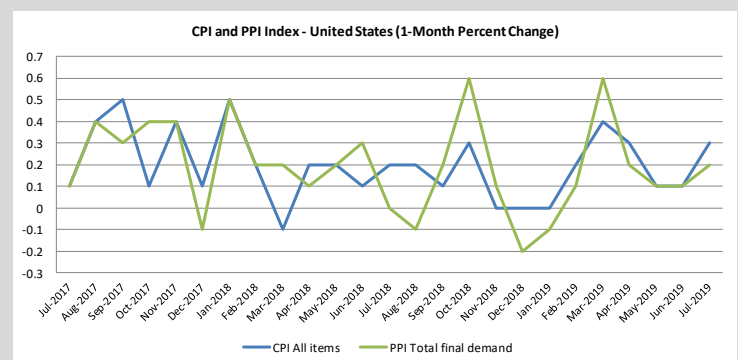
Source: United States Federal Reserve

### Commentary

Industrial production declined 0.2% in July. At 109.2% of its 2012 average, total industrial production was 0.5% higher in July than it was a year earlier. Both manufacturing production and capacity utilization for manufacturing fell 0.4% in July, weakened primarily by decreases in the output and operating rates of both durables and nondurables.

## Producer Price Index (PPI) and Consumer Price Index (CPI)

The PPI measures the average change over time in prices received (price changes) by producers for domestically produced goods, services and construction. The CPI measures changes in the prices paid by urban consumers for a representative basket of goods and services.



Source: United States Bureau of Labor

### Commentary

CPI for all items increased 0.3% in July. The gasoline index was a major factor in the July CPI increase, rising 2.5% after falling 3.6% in June. PPI for final demand rose 0.2% in July. The rise in this index can be traced to an increase of 0.4% for final demand goods, which was largely driven by prices for final demand energy. Prices for final demand services fell 0.1%.

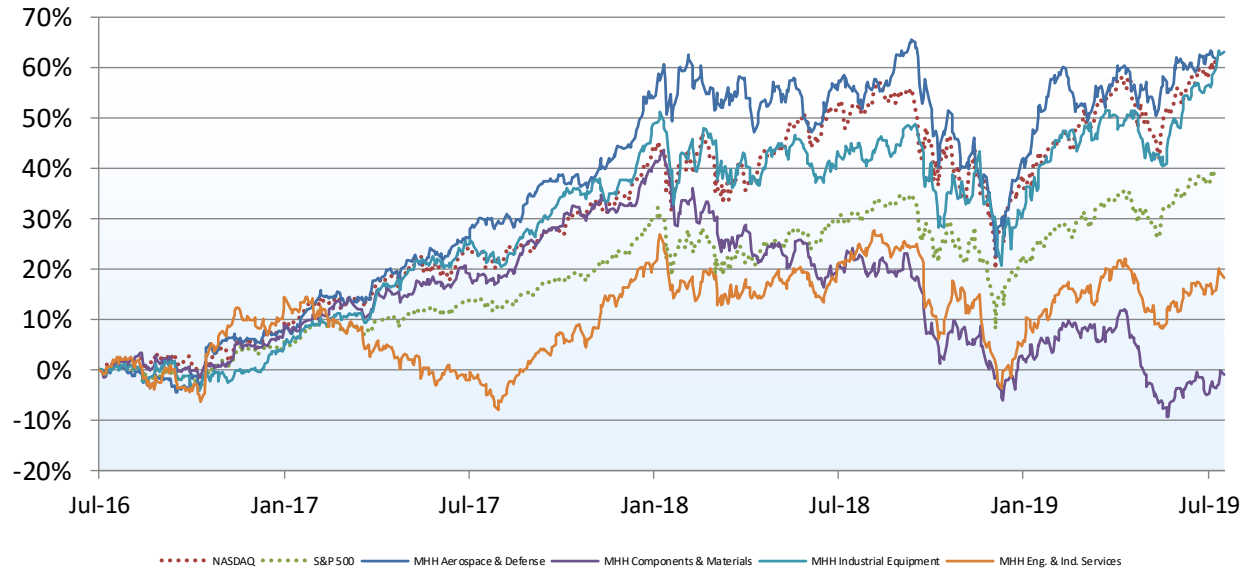
# Sector Index Performance

## Comparative Sector Index Performance (Last Three Years)

### Last Three Years

Daily from July 29, 2016 to July 31, 2019

Price as Percent of Base (July 29, 2016 = 0%)



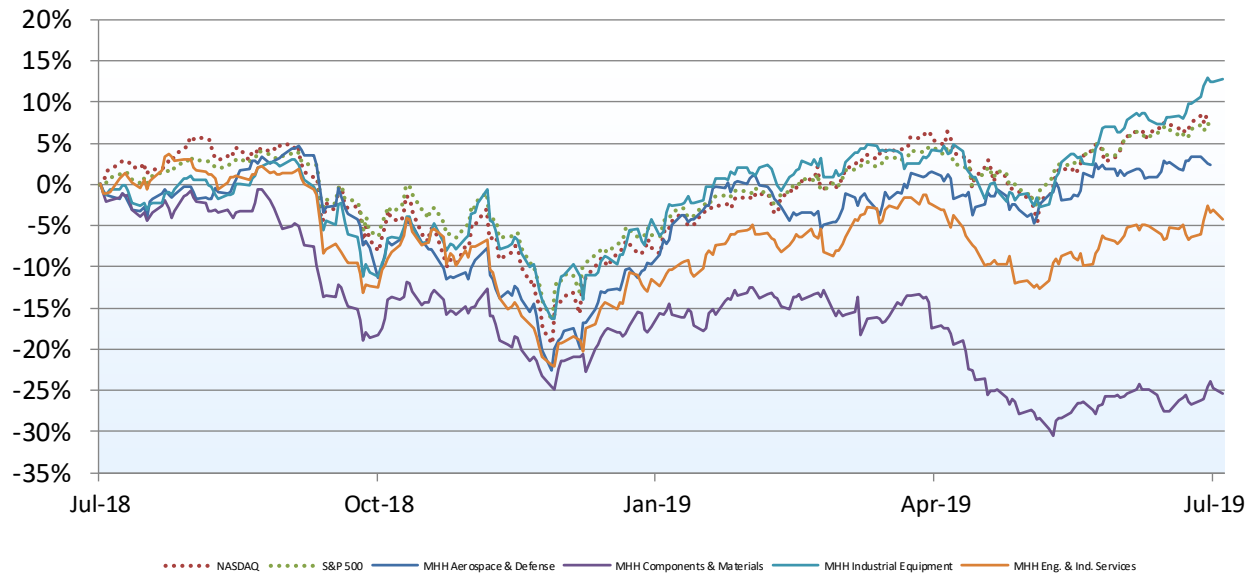
Source: CapitalIQ

## Comparative Sector Index Performance (Last Twelve Months)

### Last Twelve Months

Daily from July 31, 2018 to July 31, 2019

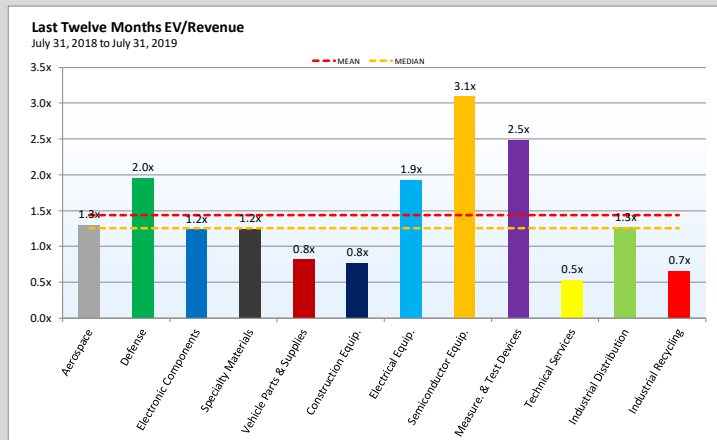
Price as Percent of Base (July 31, 2018 = 0%)



Source: CapitalIQ

# Subsector Trading Multiples & Margins

## Comparative Subsector LTM EV/Revenue

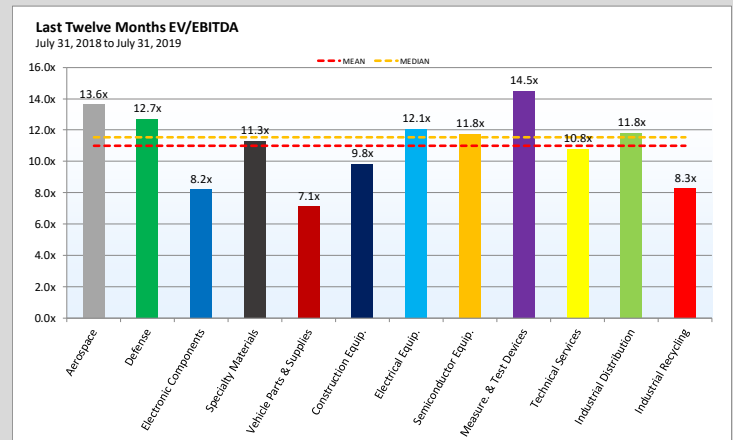


Source: CapitalIQ

### Commentary

During the last twelve months, our index subsectors had a mean EV/Revenue of 1.4x and a median of 1.3x. Of the subsectors, Semiconductor Capital Equipment had the high multiple at 3.1x and Technical Services had the low multiple at 0.5x.

## Comparative Subsector LTM EV/EBITDA

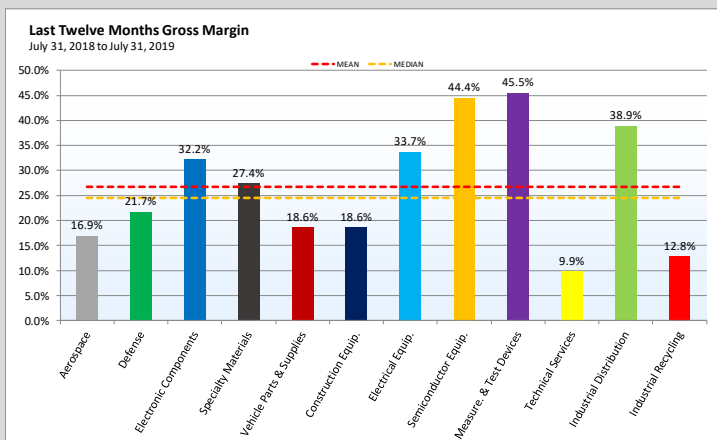


Source: CapitalIQ

### Commentary

During the last twelve months, our index subsectors had a mean EV/EBITDA of 11.0x and a median of 11.5x. Of the subsectors, Measurement, Control & Test Devices had the high multiple at 14.5x and Vehicle Parts & Supplies had the low multiple at 7.1x.

## Comparative Subsector LTM Gross Margin

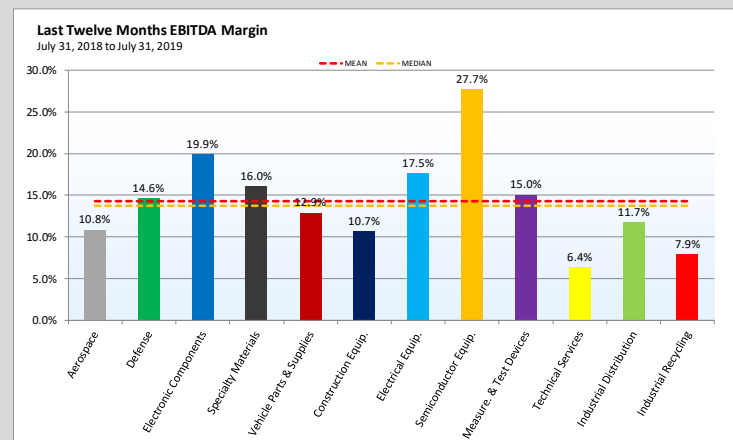


Source: CapitalIQ

### Commentary

During the last twelve months, our index subsectors had a mean Gross Margin of 26.7% and a median of 24.5%. Of the subsectors, Measurement, Control & Testing Devices had the high margin at 45.5% and Technical Services had the low margin at 9.9%.

## Comparative Subsector LTM EBITDA Margin

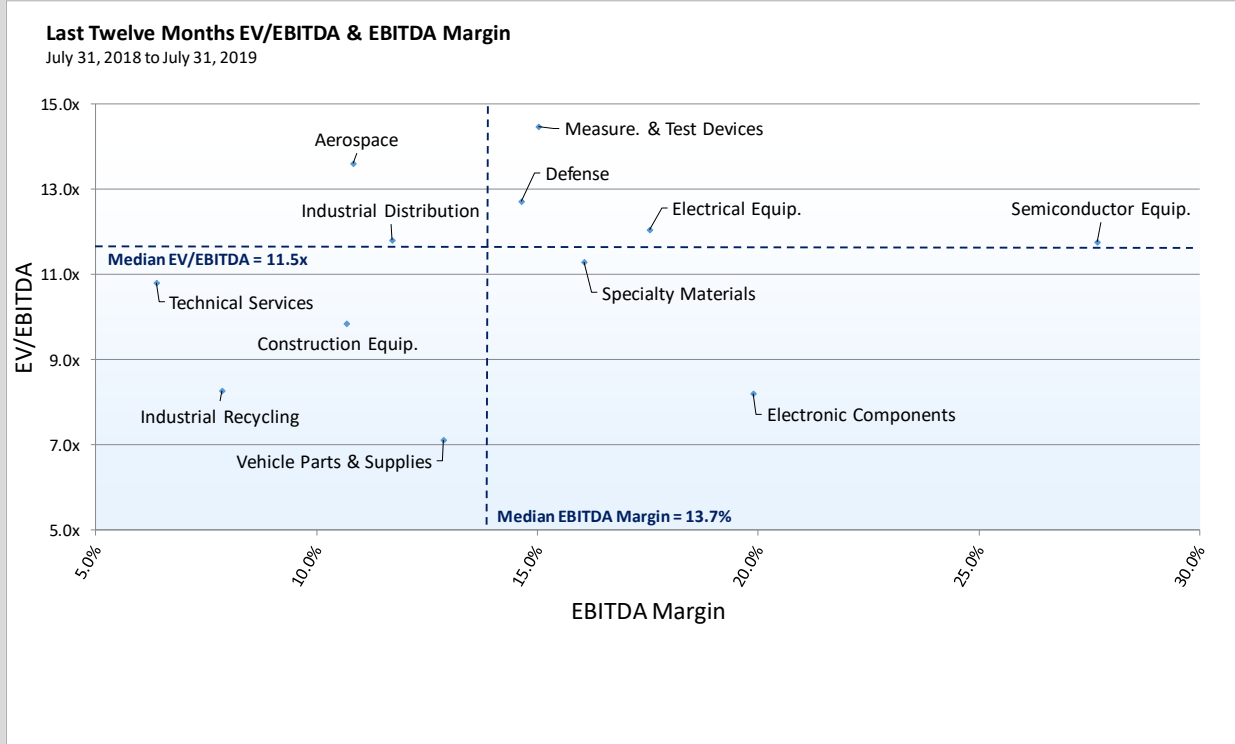


Source: CapitalIQ

### Commentary

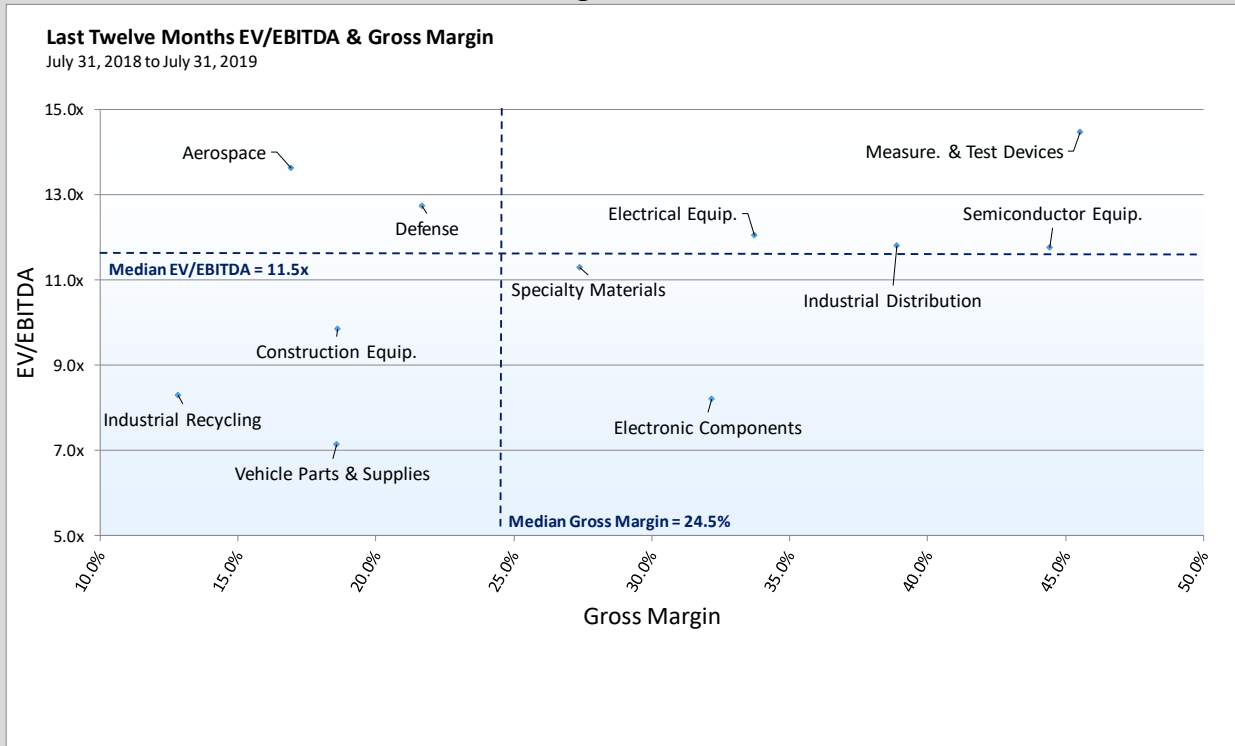
During the last twelve months, our index subsectors had a mean EBITDA Margin of 14.3% and a median of 13.7%. Of the subsectors, Semiconductor Capital Equipment had the high margin at 27.7% and Technical Services had the low margin at 6.4%.

## Index Subsector LTM EV/EBITDA vs. EBITDA Margin



Source: CapitalIQ

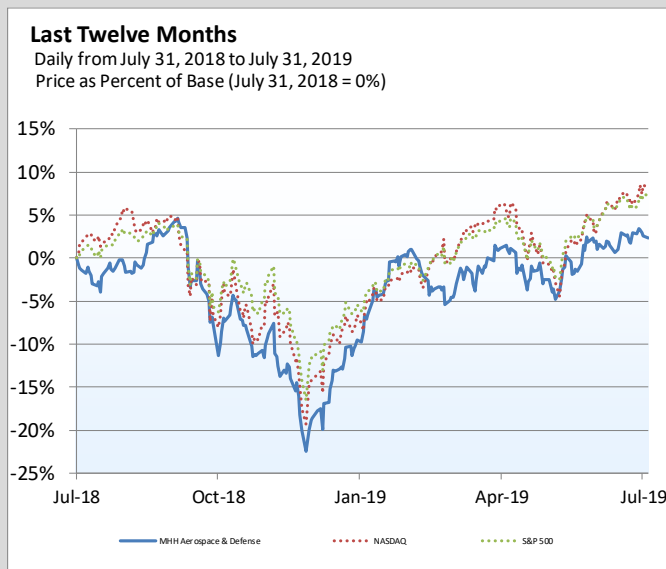
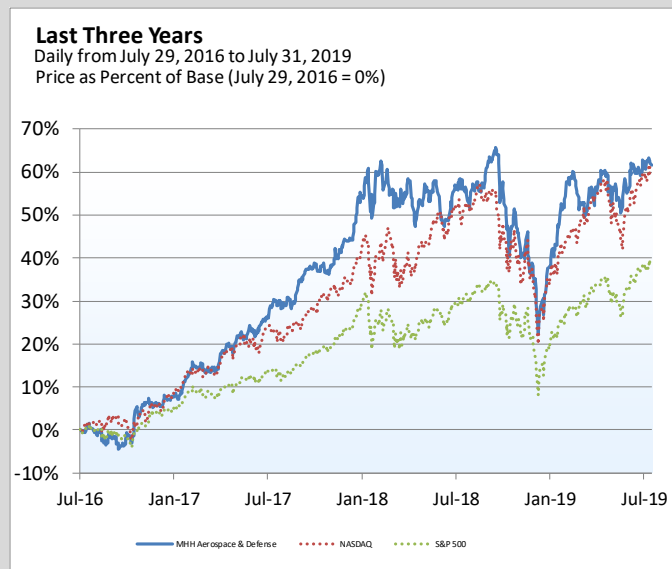
## Index Subsector LTM EV/EBITDA vs. Gross Margin



Source: CapitalIQ

## Comparative Index Performance

The Mufson Howe Hunter Aerospace & Defense Index<sup>(a)</sup> decreased by 0.5% during the three months ending July 31, 2019.





### Price Performance

	3-Year	LTM	3 Month
Mufson Howe Hunter Aerospace & Defense Index <sup>(a)</sup>	59.5%	1.0%	-0.5%
NASDAQ	58.4%	6.6%	1.0%
S&P 500	37.1%	5.8%	1.2%

(a) Market cap weighted index assuming no dividend reinvestment. Mufson Howe Hunter Aerospace & Defense Index is comprised of all companies listed on the following page.

**Please see Page 13 for sector news**

## Highlighted M&A Transaction – Aerospace and Defense

Target	Acquirer	Value*
		ND
<p>Honeywell International Inc. (NYSE:HON) completed the acquisition of TruTrak Flight Systems, Inc. on July 24, 2019. TruTrak Flight Systems, Inc. designs and manufactures digital and standard autopilots for experimental and light sport aircraft. The acquisition will become part of Honeywell Aerospace's BendixKing division. BendixKing will add TruTrak's engineers to its staff, and TruTrak's Chief Executive Officer and Owner, Andrew Barker, will join the BendixKing executive team.</p>		

\*ND – Not disclosed. Transaction values reported on the basis of enterprise value in USD millions.

## Selected Valuation Metrics

(\$ in USD millions, except per share data)

(\$ in USD millions, except per share data)		Market & Capitalization			LTM Performance <sup>(3)</sup>			Valuation			Margins	
Company	Ticker	Price <sup>(1)</sup>	Equity	Enterprise	Revenue	EBITDA <sup>(4)</sup>	EPS	Enterprise Value/		Price/	Gross Profit	EBITDA
			Value	Value <sup>(2)</sup>				Revenue	EBITDA	EPS		
Aerospace												
The Boeing Company (BA)	BA	\$341.18	\$191,985	\$203,091	\$92,155	\$7,317	\$5.25	2.20x	27.8x	NM	13.6%	7.9%
United Technologies Corporation (UTX)	UTX	133.60	115,274	158,876	72,553	12,780	5.74	2.19x	12.4x	23.3x	25.3%	17.6%
Honeywell International Inc. (HON)	HON	172.46	124,086	131,204	38,618	8,674	6.31	3.40x	15.1x	27.3x	32.1%	22.5%
Airbus SE (ENXTPA:AIR)	ENXTPA:AIR	142.53	110,814	114,489	79,202	7,737	5.07	1.45x	14.8x	28.1x	14.8%	9.8%
Thales S.A. (ENXTPA:HO)	ENXTPA:HO	113.58	24,135	20,884	18,153	2,153	4.72	1.15x	9.7x	24.1x	25.8%	11.9%
Rolls-Royce Holdings plc (LSE:RR.)	LSE:RR.	10.53	20,163	19,836	20,491	779	-0.05	0.97x	25.5x	NM	12.5%	3.8%
Textron Inc. (TXT)	TXT	49.30	11,345	14,940	13,286	1,586	2.67	1.12x	9.4x	18.5x	16.9%	11.9%
Embraer S.A. (BOVESPA:EMBR3)	BOVESPA:EMBR3	5.14	3,780	2,571	5,206	299	0.08	0.49x	8.6x	NM	16.9%	5.8%
Mean			\$75,198	\$83,237	\$42,458	\$5,166	\$3.72	1.62x	15.4x	24.3x	19.7%	11.4%
Median			67,474	67,686	29,555	4,735	4.89	1.30x	13.6x	24.1x	16.9%	10.8%
Defense												
Lockheed Martin Corporation (LMT)	LMT	\$362.17	\$102,276	\$115,792	\$57,492	\$9,060	\$14.55	2.01x	12.8x	24.9x	14.0%	15.8%
Northrop Grumman Corporation (NOC)	NOC	345.57	58,470	73,390	32,886	5,306	14.01	2.23x	13.8x	24.7x	21.7%	16.1%
General Dynamics Corporation (GD)	GD	185.94	53,580	68,165	38,288	5,380	8.61	1.78x	12.7x	21.6x	17.7%	14.1%
Raytheon Company (RTN)	RTN	182.29	50,774	55,020	28,054	4,104	7.73	1.96x	13.4x	23.6x	27.5%	14.6%
L3Harris Technologies, Inc. (LHX)	LHX	207.60	45,965	48,957	6,801	1,350	5.77	7.20x	NM	36.0x	34.3%	19.9%
BAE Systems plc (BA.)	BA.	6.70	21,463	25,688	22,027	2,569	0.38	1.17x	10.0x	17.7x	63.3%	11.7%
Huntington Ingalls Industries, Inc. (HII)	HII	228.30	9,486	11,115	8,550	1,065	12.20	1.30x	10.4x	18.7x	19.2%	12.5%
Mean			\$48,859	\$56,875	\$27,728	\$4,119	\$9.03	2.52x	12.2x	23.9x	28.2%	14.9%
Median			50,774	55,020	28,054	4,104	8.61	1.96x	12.7x	23.6x	21.7%	14.6%

NA = Not Available; NM = Not Meaningful; LTM = Latest Twelve Months

‡ = excluded from Mean and Median calculations

Source: CapitalIQ

(1) As of close July 31, 2019.

(2) Enterprise value is defined as equity value plus net debt, preferred stock and minority interests. Net Debt includes long term debt, short term debt, post-retirement benefits and unfunded pensions, if applicable, less cash and cash equivalents.

(3) As of June 30, 2019 excluding TXT (June 29, 2019); LHX (June 28, 2019); and HO (December 31, 2018).

(4) Excludes non-recurring and discontinued operations.

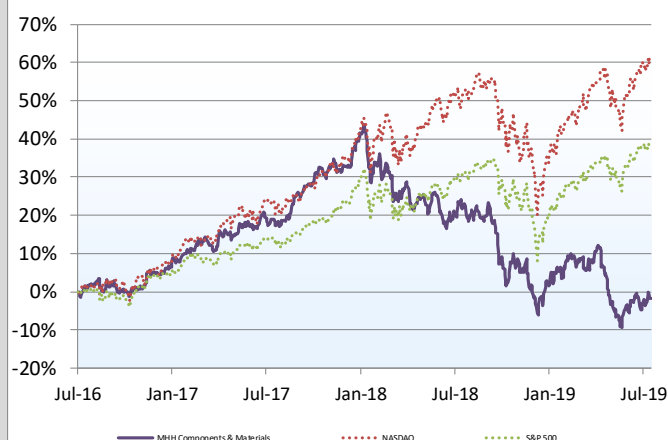


## Comparative Index Performance

The Mufson Howe Hunter Components & Materials Index<sup>(a)</sup> decreased by 10.6% during the three months ending July 31, 2019.

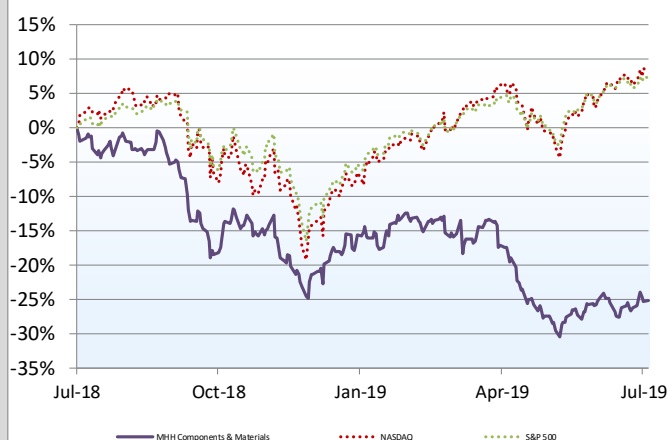
### Last Three Years

Daily from July 29, 2016 to July 31, 2019  
Price as Percent of Base (July 29, 2016 = 0%)



### Last Twelve Months

Daily from July 31, 2018 to July 31, 2019  
Price as Percent of Base (July 31, 2018 = 0%)





Price Performance	3-Year	LTM	3 Month
Mufson Howe Hunter Components & Materials Index <sup>(a)</sup>	-3.1%	-26.2%	-10.6%
NASDAQ	58.4%	6.6%	1.0%
S&P 500	37.1%	5.8%	1.2%

(a) Market cap weighted index assuming no dividend reinvestment. Mufson Howe Hunter Components & Materials Index is comprised of all companies listed on the following page.

*Please see Page 15 for sector news*

## Highlighted M&A Transaction – Components & Materials

Target	Acquirer	Value*
		ND

PPG Industries, Inc. (NYSE:PPG) entered into an agreement to acquire Dexmet Corporation from Sverica Capital Management LP and others on July 22, 2019. Dexmet Corporation manufactures precision expanded metal foils and polymers, serving the electronics, aerospace, wind energy, battery, industrial, fuel cell, filtration media, packaging, medical and automotive industries.

\*ND – Not disclosed. Transaction values reported on the basis of enterprise value in USD millions.

# Components & Materials

## Selected Valuation Metrics

(\$ in USD millions, except per share data)

Company	Market & Capitalization			LTM Performance <sup>(3)</sup>			Valuation			Margins	
	Price <sup>(1)</sup>	Equity Value	Enterprise Value <sup>(2)</sup>	Revenue	EBITDA <sup>(4)</sup>	EPS	Enterprise Value/Revenue	EBITDA	Price/EPS	Gross Profit	EBITDA
<b>Electronic Components</b>											
TE Connectivity Ltd (TEL)	\$92.40	\$31,040	\$34,566	\$13,657	\$3,020	\$4.13	2.53x	11.4x	22.4x	33.1%	22.1%
Corning Inc. (GLW)	30.75	24,012	32,278	11,795	2,989	1.14	2.74x	10.8x	26.9x	39.0%	25.3%
Amphenol Corp. (APH)	93.32	27,758	30,968	8,328	2,045	3.20	3.72x	15.1x	29.2x	32.2%	24.6%
Omron Corp. (TSE:6645)	48.25	9,909	9,285	7,513	906	1.74	1.24x	10.3x	27.7x	41.7%	12.1%
Alps Electric Ltd (TSE:6770)	18.42	3,796	4,042	7,931	855	0.80	0.51x	4.7x	23.0x	18.4%	10.8%
Belden Inc. (BDC)	45.46	2,083	3,329	2,536	429	3.56	1.31x	7.8x	12.8x	39.5%	16.9%
Vishay Intertechnology (VSH)	17.00	2,456	2,288	2,987	594	1.70	0.77x	3.9x	10.0x	28.2%	19.9%
AVX Corp. (AVX)	15.23	2,567	1,776	1,739	388	1.15	1.02x	4.6x	13.2x	27.3%	22.3%
Encore Wire Corp. (WIRE)	54.92	1,148	963	1,312	117	3.10	0.73x	8.2x	17.7x	14.9%	8.9%
<b>Mean</b>		<b>\$11,641</b>	<b>\$13,277</b>	<b>\$6,422</b>	<b>\$1,260</b>	<b>\$2.28</b>	<b>1.62x</b>	<b>8.5x</b>	<b>20.3x</b>	<b>30.5%</b>	<b>18.1%</b>
<b>Median</b>		<b>3,796</b>	<b>4,042</b>	<b>7,513</b>	<b>855</b>	<b>1.74</b>	<b>1.24x</b>	<b>8.2x</b>	<b>22.4x</b>	<b>32.2%</b>	<b>19.9%</b>
<b>Specialty Materials</b>											
3M Company (MMM)	\$174.72	\$100,513	\$114,452	\$32,131	\$7,987	\$6.52	3.56x	14.3x	26.8x	48.4%	24.9%
DuPont de Nemours (DD)	72.16	53,245	88,698	85,405	16,160	7.89	1.04x	5.5x	9.1x	25.0%	18.9%
BASF SE (DE:BAS)	67.32	61,835	83,774	71,150	7,634	2.27	1.18x	11.0x	29.6x	27.9%	10.7%
Dow Inc. (DOW)	48.44	36,001	54,534	46,561	7,510	3.12	1.17x	7.3x	15.5x	16.0%	16.1%
PPG Industries, Inc. (PPG)	117.39	27,738	33,064	15,110	2,233	4.56	2.19x	14.8x	25.7x	41.9%	14.8%
Akzo Nobel N.V. (ENXTAM:AKZA)	95.10	20,326	21,029	10,548	1,120	1.85	1.99x	18.8x	NM	42.4%	10.6%
Celene Corp. (CE)	112.17	13,880	17,767	6,739	1,466	6.42	2.64x	12.1x	17.5x	26.9%	21.8%
Evonik Industries AG (DE:EVK)	28.89	13,440	17,254	17,019	2,715	1.93	1.01x	6.4x	14.9x	29.8%	16.0%
Solvay SA (ENXTBR:SOLB)	103.35	10,661	14,473	12,982	2,434	6.74	1.11x	5.9x	15.3x	26.6%	18.7%
Ferro Corporation (FOE)	14.73	1,207	2,073	1,572	179	0.62	1.32x	11.6x	23.8x	26.8%	11.4%
<b>Mean</b>		<b>\$33,885</b>	<b>\$44,712</b>	<b>\$29,922</b>	<b>\$4,944</b>	<b>\$4.19</b>	<b>1.72x</b>	<b>10.77x</b>	<b>19.82x</b>	<b>31.2%</b>	<b>16.4%</b>
<b>Median</b>		<b>24,032</b>	<b>27,047</b>	<b>16,064</b>	<b>2,575</b>	<b>3.84</b>	<b>1.25x</b>	<b>11.29x</b>	<b>17.47x</b>	<b>27.4%</b>	<b>16.0%</b>
<b>Vehicle Parts and Supplies</b>											
Johnson Controls Inc. (JCI)	\$42.44	\$33,770	\$38,456	\$31,877	\$4,761	\$2.13	1.21x	8.1x	19.9x	29.7%	14.9%
Continental AG (DB:CON)	140.10	28,021	33,465	50,442	4,694	11.38	0.66x	7.1x	12.3x	24.4%	9.3%
Denso Corp. (TSE:6902)	42.71	33,093	32,704	49,689	5,538	2.29	0.66x	5.9x	18.7x	15.0%	11.1%
Aptiv PLC (APTIV)	87.65	22,455	27,259	14,323	2,149	3.21	1.90x	12.7x	27.3x	18.2%	15.0%
Lear Corp. (LEA)	126.78	7,740	9,558	20,002	2,012	12.56	0.48x	4.7x	10.1x	10.7%	10.1%
Autoliv, Inc. (ALV)	72.15	6,294	8,284	8,555	1,067	4.99	0.97x	7.8x	14.5x	18.6%	12.5%
Bosch Ltd. (BSE:500530)	209.83	6,189	5,967	1,698	298	5.67	3.52x	20.0x	37.0x	44.2%	17.5%
Stanley Electric Co. Ltd. (TSE:6923)	24.94	4,061	3,244	3,967	799	1.80	0.82x	4.1x	13.8x	22.9%	20.2%
Delphi Automotive PLC (DLPH)	18.74	1,648	3,216	4,602	592	2.05	0.70x	5.4x	9.2x	16.1%	12.9%
<b>Mean</b>		<b>\$15,919</b>	<b>\$18,017</b>	<b>\$20,573</b>	<b>\$2,435</b>	<b>\$5.12</b>	<b>1.21x</b>	<b>8.4x</b>	<b>18.1x</b>	<b>22.2%</b>	<b>13.7%</b>
<b>Median</b>		<b>7,740</b>	<b>9,558</b>	<b>14,323</b>	<b>2,012</b>	<b>3.21</b>	<b>0.82x</b>	<b>7.1x</b>	<b>14.5x</b>	<b>18.6%</b>	<b>12.9%</b>

NA = Not Available; NM = Not Meaningful; LTM = Latest Twelve Months

‡ = excluded from Mean and Median calculations

Source: CapitalIQ

(1) As of close July 31, 2019.

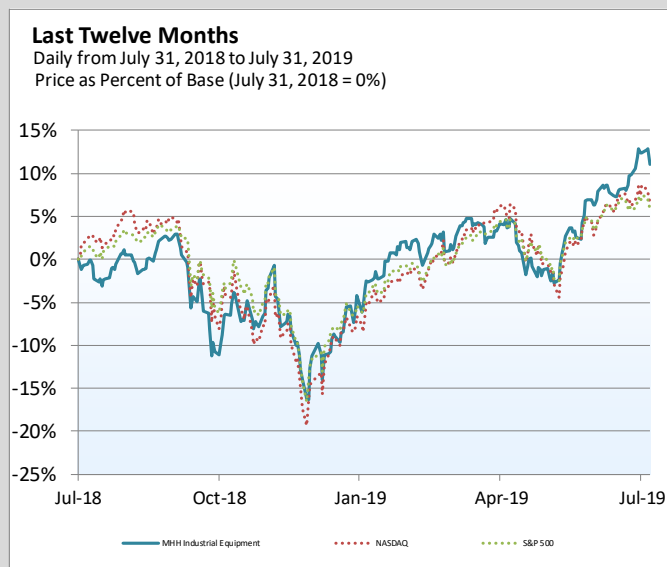
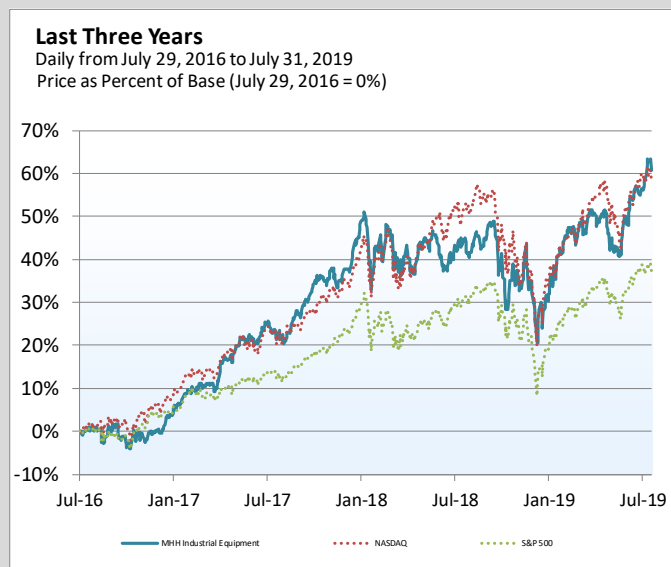
(2) Enterprise value is defined as equity value plus net debt, preferred stock and minority interests. Net Debt includes long term debt, short term debt, post-retirement benefits and unfunded pensions, if applicable, less cash and cash equivalents.

(3) As of June 30, 2019 excluding LEA and VSH (June 29, 2019); and TEL (June 28, 2019).

(4) Excludes non-recurring and discontinued operations.

## Comparative Index Performance

The Mufson Howe Hunter Industrial Equipment Index<sup>(a)</sup> increased by 6.2% during the three months ending July 31, 2019.



Price Performance	3-Year	LTM	3 Month
Mufson Howe Hunter Industrial Equipment Index <sup>(a)</sup>	60.7%	11.1%	6.2%
NASDAQ	58.4%	6.6%	1.0%
S&P 500	37.1%	5.8%	1.2%

(a) Market cap weighted index assuming no dividend reinvestment. Mufson Howe Hunter Industrial Equipment Index is comprised of all companies listed on the following page.

*Please see Page 18 for sector news*

## Highlighted M&A Transaction – Industrial Equipment

Target	Acquirer	Value*
 KOKUSAI ELECTRIC	 APPLIED MATERIALS® make possible	\$2,200.0

Applied Materials, Inc. (NasdaqGS:AMAT) announced the acquisition of Kokusai Electric Corporation from KKR HKE Investment L.P., a fund managed by Kohlberg Kravis Roberts & Co. L.P., for \$2.2 billion on July 1, 2019. Kokusai Electric manufactures semiconductor equipment. Following the close of the transaction, Kokusai Electric will operate as a business unit of Applied's Semiconductor Products Group and continue to be based in Tokyo, with technology and manufacturing centers in Toyama, Japan and Cheonan, Korea as a wholly owned subsidiary of Applied Materials.

\*ND – Not disclosed. Transaction values reported on the basis of enterprise value in USD millions.

# Industrial Equipment

## Selected Valuation Metrics

(\$ in USD millions, except per share data)

Company	Market & Capitalization			LTM Performance <sup>(3)</sup>			Valuation			Margins	
	Price <sup>(1)</sup>	Equity Value	Enterprise Value <sup>(2)</sup>	Revenue	EBITDA <sup>(4)</sup>	EPS	Enterprise Value/Revenue	EBITDA	Price/EPS	Gross Profit	EBITDA
<b>Construction Equipment</b>											
Caterpillar Inc. (CAT)	\$131.67	\$75,299	\$104,189	\$55,750	\$11,054	\$8.64	1.87x	9.4x	15.2x	26.9%	19.8%
Deere & Company (DE)	165.65	52,510	94,374	38,738	6,150	8.33	2.44x	15.3x	19.9x	23.8%	15.9%
Cummins Inc. (CMI)	164.00	25,828	27,683	24,294	3,505	12.37	1.14x	7.9x	13.3x	25.8%	14.4%
Navistar International Corp. (NAV)	31.24	3,097	7,509	11,352	732	2.11	0.66x	10.3x	14.8x	16.8%	6.4%
Hyundai Heavy Industries Co. Ltd (KOSE:A009540)	91.77	6,490	7,123	12,206	206	(1.79)	0.58x	NM	NM	4.5%	1.7%
Oshkosh Corp. (OSK)	83.57	5,843	6,339	8,243	880	6.29	0.77x	7.2x	13.3x	17.8%	10.7%
Terex Corp. (TEX)	30.45	2,168	3,278	5,199	286	1.19	0.63x	11.5x	25.5x	18.6%	5.5%
<b>Mean</b>		<b>\$24,462</b>	<b>\$35,785</b>	<b>\$22,255</b>	<b>\$3,259</b>	<b>\$5.31</b>	<b>1.16x</b>	<b>10.3x</b>	<b>17.0x</b>	<b>19.2%</b>	<b>10.6%</b>
<b>Median</b>		<b>6,490</b>	<b>7,509</b>	<b>12,206</b>	<b>880</b>	<b>6.29</b>	<b>0.77x</b>	<b>9.8x</b>	<b>15.0x</b>	<b>18.6%</b>	<b>10.7%</b>
<b>Electrical Equipment</b>											
Schneider Electric SE (ENXTPA:SU)	\$86.90	\$47,493	\$57,283	\$30,274	\$5,156	\$4.39	1.89x	11.1x	19.8x	39.2%	17.0%
Emerson Electric Co. (EMR)	64.88	39,877	44,876	18,289	3,715	2.81	2.45x	12.1x	23.1x	42.5%	20.3%
Eaton Corporation plc (ETN)	82.19	34,520	42,327	21,709	3,917	4.08	1.95x	10.8x	20.1x	33.0%	18.0%
Ametek Inc. (AME)	89.61	20,417	22,316	5,041	1,364	2.79	4.43x	16.4x	32.1x	34.4%	27.1%
Rockwell Automation Inc. (ROK)	160.78	18,812	20,140	6,694	1,507	6.72	3.01x	13.4x	23.9x	43.3%	22.5%
Hubbell Inc. (HUBB)	129.88	7,067	8,745	4,608	727	5.62	1.90x	12.0x	23.1x	29.3%	15.8%
Regal Beloit Corporation (RBC)	79.62	3,409	4,480	3,535	517	4.50	1.27x	8.7x	17.7x	27.0%	14.6%
Powell Industries, Inc. (POWL)	36.99	427	356	504	20	0.41	0.71x	18.2x	NM	16.4%	3.9%
<b>Mean</b>		<b>\$21,503</b>	<b>\$25,065</b>	<b>\$11,332</b>	<b>\$2,115</b>	<b>\$3.92</b>	<b>2.20x</b>	<b>12.8x</b>	<b>22.8x</b>	<b>33.1%</b>	<b>17.4%</b>
<b>Median</b>		<b>19,615</b>	<b>21,228</b>	<b>5,868</b>	<b>1,436</b>	<b>4.23</b>	<b>1.92x</b>	<b>12.1x</b>	<b>23.1x</b>	<b>33.7%</b>	<b>17.5%</b>
<b>Semiconductor Capital Equipment</b>											
ASML Holding NV (ASML)	\$225.71	\$95,033	\$95,921	\$12,193	\$3,198	\$4.15	7.87x ‡	30.0x ‡	NM	44.4%	26.2%
Applied Materials, Inc. (AMAT)	49.37	46,216	47,904	15,161	4,073	2.32	3.16x	11.8x	21.3x	44.3%	26.9%
Lam Research Corp. (LRCX)	208.61	30,130	29,189	9,654	2,774	9.56	3.02x	10.5x	21.8x	45.1%	28.7%
Tokyo Electron Ltd (TSE:8035)	172.15	27,726	24,587	11,125	2,843	10.26	2.21x	8.6x	16.8x	41.2%	25.6%
KLA-Tencor Corp. (KLAC)	136.32	22,032	23,594	4,569	1,621	5.17	5.16x	14.6x	26.4x	59.1%	35.5%
Teradyne Inc. (TER)	55.73	9,552	9,108	2,145	611	1.66	4.25x	14.9x	33.6x	58.5%	28.5%
Veeco Instruments Inc. (VECO)	11.91	580	647	423	NM	(0.77)	1.53x	NA ‡	NM	36.1%	NM
<b>Mean</b>		<b>\$33,038</b>	<b>\$32,993</b>	<b>\$7,896</b>	<b>\$2,520</b>	<b>\$4.62</b>	<b>3.22x</b>	<b>12.1x</b>	<b>24.0x</b>	<b>47.0%</b>	<b>28.6%</b>
<b>Median</b>		<b>27,726</b>	<b>24,587</b>	<b>9,654</b>	<b>2,808</b>	<b>4.15</b>	<b>3.09x</b>	<b>11.8x</b>	<b>21.8x</b>	<b>44.4%</b>	<b>27.7%</b>
<b>Measurement, Control, and Testing Devices</b>											
Danaher Corporation (DHR)	\$140.50	\$100,790	\$108,240	\$20,253	\$4,851	\$3.02	5.34x	22.3x	NM	55.6%	24.0%
Xcerra Corporation (XCRA)	32.94	26,664	35,067	31,933	4,297	1.72	1.10x	8.2x	19.1x	32.5%	13.5%
Entegris, Inc. (ENTG)	43.51	5,881	6,347	1,570	423	1.09	4.04x	15.0x	39.7x	45.5%	26.9%
MKS Instruments, Inc. (MKSI)	85.13	4,627	5,177	1,885	445	3.73	2.75x	11.6x	22.8x	45.5%	23.6%
Brooks Automation, Inc. (BRKS)	38.80	2,722	3,131	741	95	0.19	4.22x	NM	NM	40.3%	12.8%
FormFactor, Inc. (FORM)	16.78	1,253	1,160	546	83	0.31	2.12x	13.9x	NM	39.8%	15.2%
Cohu, Inc. (COHU)	15.16	622	843	555	37	(0.48)	1.52x	23.1x	NM	42.1%	6.6%
FARO Technologies, Inc. (FARO)	53.39	926	800	400	18	-0.09	2.00x	NM	NM	56.1%	4.4%
Rudolph Technologies, Inc. (RTEC)	26.92	838	673	246	40	0.72	2.74x	16.9x	37.4x	52.1%	16.2%
Nova Measuring Instruments Ltd. (NVMI)	29.05	812	650	234	56	1.08	2.77x	11.6x	26.9x	56.7%	23.8%
Nanometrics Incorporated (NANO)	31.38	779	645	288	43	0.83	2.24x	15.1x	38.0x	54.0%	14.8%
Axcelis Technologies, Inc. (ACLS)	16.05	529	422	367	35	0.51	1.15x	11.9x	31.8x	41.6%	9.6%
<b>Mean</b>		<b>\$12,204</b>	<b>\$13,596</b>	<b>\$4,918</b>	<b>\$868</b>	<b>\$1.05</b>	<b>2.67x</b>	<b>15.0x</b>	<b>30.8x</b>	<b>46.8%</b>	<b>16.0%</b>
<b>Median</b>		<b>1,090</b>	<b>1,001</b>	<b>550</b>	<b>70</b>	<b>0.77</b>	<b>2.49x</b>	<b>14.5x</b>	<b>31.8x</b>	<b>45.5%</b>	<b>15.0%</b>

NA = Not Available; NM = Not Meaningful; LTM = Latest Twelve Months

‡ = excluded from Mean and Median calculations

Source: CapitalIQ

(1) As of close July 31, 2019.

(2) Enterprise value is defined as equity value plus net debt, preferred stock and minority interests. Net Debt includes long term debt, short term debt, post-retirement benefits and unfunded pensions, if applicable, less cash and cash equivalents.

(3) As of June 30, 2019 excluding AMAT and DE (July 28, 2019); COHU, ENTG, FORM, NANO and RBC (June 29, 2019); DHR (June 28, 2019); and NAV (April 30, 2019).

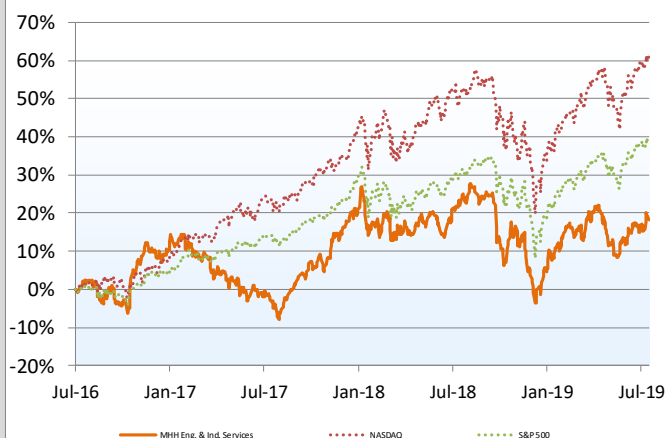
(4) Excludes non-recurring and discontinued operations.

## Comparative Index Performance

The Mufson Howe Hunter Engineering & Industrial Services Index<sup>(a)</sup> decreased by 1.8% during the three months ending July 31, 2019.

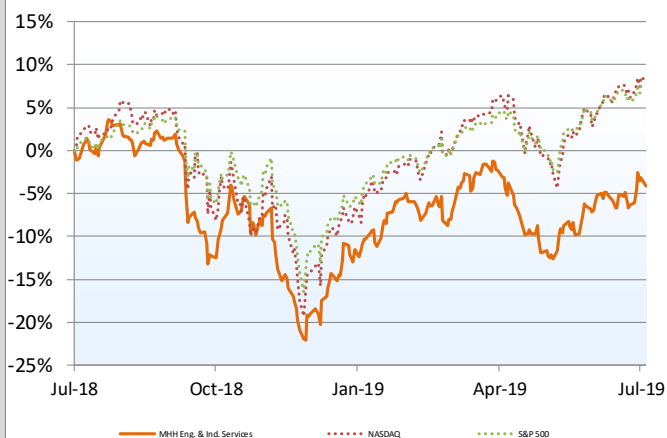
### Last Three Years

Daily from July 29, 2016 to July 31, 2019  
Price as Percent of Base (July 29, 2016 = 0%)



### Last Twelve Months

Daily from July 31, 2018 to July 31, 2019  
Price as Percent of Base (July 31, 2018 = 0%)



## Price Performance

	3-Year	LTM	3 Month
Mufson Howe Hunter Engineering & Industrial Services Index <sup>(a)</sup>	17.3%	-4.9%	-1.8%
NASDAQ	58.4%	6.6%	1.0%
S&P 500	37.1%	5.8%	1.2%

(a) Market cap weighted index assuming no dividend reinvestment. Mufson Howe Hunter Industrial Equipment Index is comprised of all companies listed on the following page.

*Please see Page 21 for sector news*

## Highlighted M&A Transaction – Engineering & Industrial Services

Target	Acquirer	Value*
		\$1.1

Transcat, Inc. (NasdaqGM:TRNS) acquired Infinite Integral Solutions Inc. for \$1.1 million on July 19, 2019. Infinite Integral Solutions Inc. develops and offers CalTree, a suite of software solutions for the automation of calibration procedures and datasheet generation. Infinite Integral is headquartered in Canada and now operates as a subsidiary of Transcat, Inc., which provides calibration and laboratory instrument services in North America and internationally.

*\*ND – Not disclosed. Transaction values reported on the basis of enterprise value in USD millions.*

## Selected Valuation Metrics

(\$ in USD millions, except per share data)

Company	Market & Capitalization			LTM Performance <sup>(3)</sup>			Valuation			Margins	
	Price <sup>(1)</sup>	Equity Value	Enterprise Value <sup>(2)</sup>	Revenue	EBITDA <sup>(4)</sup>	EPS	Enterprise Value/Revenue	EBITDA	Price/EPS	Gross Profit	EBITDA
<b>Technical Services</b>											
Jacobs Engineering Group Inc. (JEC)	\$82.51	\$11,272	\$13,528	\$16,742	\$1,066	\$3.17	0.81x	12.7x	26.0x	18.4%	6.4%
AECOM (ACM)	35.95	5,657	8,917	20,364	856	1.50	0.44x	10.4x	24.0x	3.7%	4.2%
John Wood Group PLC (LSE:WG.)	6.49	4,350	5,888	9,886	545	0.23	0.60x	10.8x	27.8x	12.2%	5.5%
Fluor Corporation (FLR)	32.51	4,549	4,820	17,746	-124	(1.75)	0.27x	NM	NM	NM	NM
KBR, Inc. (KBR)	26.38	3,734	4,623	5,370	383	1.13	0.86x	12.1x	23.3x	9.1%	7.1%
Tetra Tech, Inc. (TTEK)	79.20	4,345	4,571	2,315	241	2.20	1.97x	19.0x	35.9x	17.4%	10.4%
Balfour Beatty plc (LSE:BBY)	2.52	1,723	1,888	8,655	186	0.11	0.22x	10.2x	22.0x	5.7%	2.1%
Primoris Services Corporation (PRIM)	20.96	1,068	1,534	3,238	237	1.41	0.47x	6.5x	14.8x	10.6%	7.3%
NV5 Global, Inc. (NVEE)	79.47	999	1,036	465	61	1.90	2.23x	17.0x	NM	47.5%	13.1%
Cardno Limited (ASX:CDD)	0.63	281	358	925	38	0.02	0.39x	9.4x	33.5x	7.4%	4.1%
<b>Mean</b>		<b>\$3,798</b>	<b>\$4,716</b>	<b>\$8,571</b>	<b>\$349</b>	<b>\$0.99</b>	<b>0.83x</b>	<b>12.0x</b>	<b>25.9x</b>	<b>14.7%</b>	<b>6.7%</b>
<b>Median</b>		<b>4,040</b>	<b>4,597</b>	<b>7,013</b>	<b>239</b>	<b>1.27</b>	<b>0.53x</b>	<b>10.8x</b>	<b>25.0x</b>	<b>10.6%</b>	<b>6.4%</b>
<b>Industrial Distribution</b>											
Fastenal Company (FAST)	\$30.80	\$17,662	\$18,223	\$5,189	\$1,175	\$1.11	3.51x	15.5x	27.8x	47.6%	22.6%
W.W. Grainger, Inc. (GWM)	291.03	15,882	18,172	11,286	1,645	14.05	1.61x	11.0x	20.7x	38.6%	14.6%
HD Supply Holdings, Inc. (HDS)	40.51	6,921	9,465	6,151	829	2.17	1.54x	11.4x	18.7x	39.1%	13.5%
MSC Industrial Direct Co., Inc. (MSM)	71.05	3,922	4,420	3,359	527	4.99	1.32x	8.4x	14.2x	42.8%	15.7%
WESCO International, Inc. (WCC)	50.74	2,154	3,545	8,190	410	3.95	0.43x	8.6x	12.8x	19.3%	5.0%
MRC Global Inc. (MRC)	15.64	1,299	2,578	4,034	202	0.70	0.64x	12.8x	22.2x	17.1%	5.0%
Lawson Products, Inc. (LAWS)	41.87	376	392	362	16	0.67	1.08x	24.2x	NM	53.6%	4.5%
Transcat, Inc. (TRNS)	23.82	174	202	167	17	0.76	1.21x	12.2x	31.5x	24.2%	9.9%
<b>Mean</b>		<b>\$6,049</b>	<b>\$7,125</b>	<b>\$4,842</b>	<b>\$603</b>	<b>\$3.55</b>	<b>1.42x</b>	<b>13.0x</b>	<b>21.1x</b>	<b>35.3%</b>	<b>11.4%</b>
<b>Median</b>		<b>3,038</b>	<b>3,982</b>	<b>4,612</b>	<b>469</b>	<b>1.64</b>	<b>1.26x</b>	<b>11.8x</b>	<b>20.7x</b>	<b>38.9%</b>	<b>11.7%</b>
<b>Industrial Recycling</b>											
Veolia Environnement S.A. (ENXTPA:VIE)	\$25.43	\$14,071	\$26,099	\$30,322	\$3,077	\$0.76	0.86x	8.5x	33.6x	16.1%	10.1%
Clean Harbors, Inc. (CLH)	77.81	4,347	5,855	3,351	501	1.31	1.75x	11.7x	NM	30.3%	14.9%
Commercial Metals Company (CMC)	17.51	2,065	3,306	5,594	409	1.31	0.59x	8.1x	13.4x	13.3%	7.3%
Dowa Holdings Co., Ltd. (TSE:5714)	31.86	1,886	3,028	4,212	354	2.25	0.72x	8.6x	14.1x	12.3%	8.4%
Aurubis AG (DE:NDA)	44.03	1,979	2,270	11,904	306	2.26	0.19x	7.4x	19.5x	7.9%	2.6%
Sims Metal Management Limited (ASX:SGM)	7.51	1,523	1,407	4,664	196	0.42	0.30x	7.2x	18.0x	11.7%	4.2%
<b>Mean</b>		<b>\$4,312</b>	<b>\$6,994</b>	<b>\$10,008</b>	<b>\$807</b>	<b>\$1.38</b>	<b>0.74x</b>	<b>8.6x</b>	<b>19.7x</b>	<b>15.3%</b>	<b>7.9%</b>
<b>Median</b>		<b>2,022</b>	<b>3,167</b>	<b>5,129</b>	<b>382</b>	<b>1.31</b>	<b>0.65x</b>	<b>8.3x</b>	<b>18.0x</b>	<b>12.8%</b>	<b>7.9%</b>

NA = Not Available; NM = Not Meaningful; LTM = Latest Twelve Months

‡ = excluded from Mean and Median calculations

Source: CapitalIQ

(1) As of close July 31, 2019.

(2) Enterprise value is defined as equity value plus net debt, preferred stock and minority interests. Net Debt includes long term debt, short term debt, post-retirement benefits and unfunded pensions, if applicable, less cash and cash equivalents.

(3) As of June 30, 2019 excluding NVEE and TRNS (June 29, 2019); BBY and JEC (June 28, 2019); MSM (June 1, 2019); CMC (May 31, 2019); HDS (May 5, 2019); and SGM (December 31, 2018).

(4) Excludes non-recurring and discontinued operations.

## Selected News – Aerospace & Defense

**Airbus SE (ENXTPA:AIR)** reported second quarter net income of \$1,316.6 million for fiscal year 2019 as compared to \$248.5 million for the prior year period. Earnings per share were \$1.68 versus \$0.32 for the prior year period. Revenues for the quarter increased to \$20,843.2 million from \$17,327.0 million for the same period in fiscal year 2018.

**BAE Systems plc (LSE:BA.)** reported second quarter net income of \$505.1 million for fiscal year 2019 as compared to \$310.7 million for the prior year period. Earnings per share were \$0.16 versus \$0.10 for the prior year period. Revenues for the quarter increased to \$5,511.3 million from \$5,384.2 million for the same period in fiscal year 2018.

**General Dynamics Corporation (NYSE:GD)** reported second quarter net income of \$806.0 million for fiscal year 2019 as compared to \$786.0 million for the prior year period. Earnings per share were \$2.77 versus \$2.62 for the prior year period. Revenues for the quarter increased to \$9,555.0 million from \$9,186.0 million for the same period in fiscal year 2018.

**Honeywell International Inc. (NYSE:HON)** reported second quarter net income of \$1,541.0 million for fiscal year 2019 as compared to \$1,267.0 million for the prior year period. Earnings per share were \$2.10 versus \$1.68 for the prior year period. Revenues for the quarter decreased to \$9,243.0 million from \$10,919.0 million for the same period in fiscal year 2018.

**Lockheed Martin Corporation (NYSE:LMT)** reported second quarter net income of \$1,420.0 million for fiscal year 2019 as compared to \$1,163.0 million for the prior year period. Earnings per share were \$5.00 versus \$4.05 for the prior year period. Revenues for the quarter increased to \$14,427.0 million from \$13,398.0 million for the same period in fiscal year 2018.

**L3 Technologies, Inc.** announced the reconstitution of its Board of Directors to consist of three directors: **Mr. William M. Brown**, **Mr. Christopher E. Kubasik** and **Mr. Scott T. Mikuenas**, in accordance with the Merger Agreement with Harris Corporation (nka:L3Harris Technologies, Inc. (NYSE:LHX)).

**Northrop Grumman Corporation (NYSE:NOC)** announced the election of **Kathy J. Warden** as Chairman of the Board of Directors, Chief Executive Officer and President.

**Northrop Grumman Corporation (NYSE:NOC)** reported second quarter net income of \$861.0 million for fiscal year 2019 as compared to \$789.0 million for the prior year period. Earnings per share were \$5.06 versus \$4.50 for the prior year period. Revenues for the quarter increased to \$8,456.0 million from \$7,119.0 million for the same period in fiscal year 2018.

**Raytheon Company (NYSE:RTN)** reported second quarter net income of \$817.0 million for fiscal year 2019 as compared to \$800.0 million for the prior year period. Earnings per share were \$2.92 versus \$2.78 for the prior year period. Revenues for the quarter increased to \$7,159.0 million from \$6,625.0 million for the same period in fiscal year 2018.

### Selected News – Aerospace & Defense (cont'd)

**Textron Inc. (NYSE:TXT)** reported second quarter net income of \$217.0 million for fiscal year 2019 as compared to \$224.0 million for the prior year period. Earnings per share were \$0.93 versus \$0.87 for the prior year period. Revenues for the quarter decreased to \$3,227.0 million from \$3,726.0 million for the same period in fiscal year 2018.

**The Boeing Company (NYSE:BA)** reported second quarter net income of (\$2,942.0) million for fiscal year 2019 as compared to \$2,196.0 million for the prior year period. Earnings per share were (\$5.21) versus \$3.73 for the prior year period. Revenues for the quarter decreased to \$15,751.0 million from \$24,258.0 million for the same period in fiscal year 2018.

**United Technologies Corporation (NYSE:UTX)** reported second quarter net income of \$1,900.0 million for fiscal year 2019 as compared to \$2,048.0 million for the prior year period. Earnings per share were \$2.20 versus \$2.56 for the prior year period. Revenues for the quarter increased to \$19,634.0 million from \$16,705.0 million for the same period in fiscal year 2018.

*Note: All per share results are reported on a fully-diluted basis.*



## Selected News – Components & Materials

**Alps Alpine Co., Ltd. (TSE:6770)** reported first quarter net income of (\$10.3) million for fiscal year 2020 as compared to \$34.7 million for the prior year period. Earnings per share were (\$0.05) versus \$0.18 for the prior year period. Revenues for the quarter increase to \$1,908.6 million from \$1,824.4 million for the same period in fiscal year 2019.

**Amphenol Corporation (NYSE:APH)** reported second quarter net income of \$288.4 million for fiscal year 2019 as compared to \$284.8 million for the prior year period. Earnings per share were \$0.93 versus \$0.91 for the prior year period. Revenues for the quarter increase to \$2,015.3 million from \$1,981.4 million for the same period in fiscal year 2018.

**Aptiv PLC (NYSE:APTIV)** announced the appointment of **Paul M. Meister** to the Board of Directors.

**Aptiv PLC (NYSE:APTIV)** reported second quarter net income of \$274.0 million for fiscal year 2019 as compared to \$291.0 million for the prior year period. Earnings per share were \$1.07 versus \$1.10 for the prior year period. Revenues for the quarter decrease to \$3,627.0 million from \$3,684.0 million for the same period in fiscal year 2018.

**Aqua Metals, Inc. (NasdaqCM:AQMS)** announced the appointment of **Susanne Meline** to the Board of Directors.

**Autoliv, Inc. (NYSE:ALV)** reported second quarter net income of \$109.1 million for fiscal year 2019 as compared to \$37.2 million for the prior year period. Earnings per share were \$1.25 versus \$0.42 for the prior year period. Revenues for the quarter decrease to \$2,154.7 million from \$2,211.5 million for the same period in fiscal year 2018.

**AVX Corporation (NYSE:AVX)** reported first quarter net income of \$54.7 million for fiscal year 2020 as compared to \$56.0 million for the prior year period. Earnings per share were \$0.32 versus \$0.33 for the prior year period. Revenues for the quarter decrease to \$401.8 million from \$454.1 million for the same period in fiscal year 2019.

**BASF SE (DE:BAS)** reported second quarter net income of \$7,350.9 million for fiscal year 2019 as compared to \$1,726.8 million for the prior year period. Earnings per share were \$8.00 versus \$1.88 for the prior year period. Revenues for the quarter decrease to \$17,248.5 million from \$18,414.4 million for the same period in fiscal year 2018.

**Belden Inc. (NYSE:BDC)** announced the appointment of **Roel Vestjens**, Executive Vice President, Industrial Solutions, as the company's Chief Operating Officer.

**Belden Inc. (NYSE:BDC)** reported second quarter net income of \$42.2 million for fiscal year 2019 as compared to \$28.9 million for the prior year period. Earnings per share were \$0.84 versus \$0.49 for the prior year period. Revenues for the quarter decrease to \$637.5 million from \$668.6 million for the same period in fiscal year 2018.

## Selected News – Components & Materials (cont'd)

**Celanese Corporation (NYSE:CE)** reported second quarter net income of \$209.0 million for fiscal year 2019 as compared to \$344.0 million for the prior year period. Earnings per share were \$1.66 versus \$2.52 for the prior year period. Revenues for the quarter decrease to \$1,592.0 million from \$1,844.0 million for the same period in fiscal year 2018.

**Corning Incorporated (NYSE:GLW)** reported second quarter net income of \$92.0 million for fiscal year 2019 as compared to \$738.0 million for the prior year period. Earnings per share were \$0.09 versus \$0.78 for the prior year period. Revenues for the quarter increase to \$2,940.0 million from \$2,747.0 million for the same period in fiscal year 2018.

**DENSO Corporation (TSE:6902)** reported first quarter net income of \$530.3 million for fiscal year 2020 as compared to \$697.4 million for the prior year period. Earnings per share were \$0.68 versus \$0.89 for the prior year period. Revenues for the quarter increase to \$12,284.8 million from \$12,009.7 million for the same period in fiscal year 2019.

**Dow Inc. (NYSE:DOW)** reported second quarter net income of \$75.0 million for fiscal year 2019 as compared to \$1,333.0 million for the prior year period. Earnings per share were \$0.10 versus \$1.78 for the prior year period. Revenues for the quarter decrease to \$11,014.0 million from \$12,789.0 million for the same period in fiscal year 2018.

**Encore Wire Corporation (NasdaqGS:WIRE)** reported second quarter net income of \$17.8 million for fiscal year 2019 as compared to \$18.1 million for the prior year period. Earnings per share were \$0.85 versus \$0.86 for the prior year period. Revenues for the quarter increase to \$336.9 million from \$336.8 million for the same period in fiscal year 2018.

**Ferro Corporation (NYSE:FOE)** reported second quarter net income of \$10.9 million for fiscal year 2019 as compared to \$29.7 million for the prior year period. Earnings per share were \$0.13 versus \$0.35 for the prior year period. Revenues for the quarter decrease to \$393.9 million from \$416.2 million for the same period in fiscal year 2018.

**Johnson Controls International plc (NYSE:JCI)** reported third quarter net income of \$4,192.0 million for fiscal year 2019 as compared to \$723.0 million for the prior year period. Earnings per share were \$4.79 versus \$0.78 for the prior year period. Revenues for the quarter increase to \$6,451.0 million from \$6,282.0 million for the same period in fiscal year 2018.

**Lear Corporation (NYSE:LEA)** reported second quarter net income of \$182.8 million for fiscal year 2019 as compared to \$331.4 million for the prior year period. Earnings per share were \$2.92 versus \$4.83 for the prior year period. Revenues for the quarter decrease to \$5,007.6 million from \$5,580.8 million for the same period in fiscal year 2018.

**OMRON Corporation (TSE:6645)** reported first quarter net income of \$79.2 million for fiscal year 2020 as compared to \$132.4 million for the prior year period. Earnings per share were \$0.39 versus \$0.63 for the prior year period. Revenues for the quarter decrease to \$1,484.8 million from \$1,892.7 million for the same period in fiscal year 2019.

## Selected News – Components & Materials (cont'd)

**PPG Industries, Inc. (NYSE:PPG)** reported second quarter net income of \$272.0 million for fiscal year 2019 as compared to \$371.0 million for the prior year period. Earnings per share were \$1.14 versus \$1.51 for the prior year period. Revenues for the quarter decrease to \$4,024.0 million from \$4,131.0 million for the same period in fiscal year 2018.

**Quanergy Systems, Inc.** announced the appointment of **Enzo Signore** as the company's Chief Marketing Officer.

**Solvay SA (ENXTBR:SOLB)** announced the appointment of **Herve Tiberghien** as Chief People Officer and as a member of the Executive Committee.

**Solvay SA (ENXTBR:SOLB)** reported second quarter net income of \$306.1 million for fiscal year 2019 as compared to \$280.0 million for the prior year period. Earnings per share were \$2.96 versus \$2.70 for the prior year period. Revenues for the quarter decrease to \$3,277.2 million from \$3,291.3 million for the same period in fiscal year 2018.

**Stanley Electric Co., Ltd. (TSE:6923)** reported first quarter net income of \$87.3 million for fiscal year 2020 as compared to \$90.1 million for the prior year period. Earnings per share were \$0.54 versus \$0.55 for the prior year period. Revenues for the quarter decrease to \$958.0 million from \$990.6 million for the same period in fiscal year 2019.

**TE Connectivity Ltd. (NYSE:TEL)** reported third quarter net income of \$757.0 million for fiscal year 2019 as compared to \$454.0 million for the prior year period. Earnings per share were \$2.24 versus \$1.29 for the prior year period. Revenues for the quarter decrease to \$3,389.0 million from \$3,581.0 million for the same period in fiscal year 2018.

**Vishay Intertechnology, Inc. (NYSE:VSH)** reported second quarter net income of \$44.5 million for fiscal year 2019 as compared to \$103.1 million for the prior year period. Earnings per share were \$0.31 versus \$0.65 for the prior year period. Revenues for the quarter decrease to \$685.2 million from \$761.0 million for the same period in fiscal year 2018.

*Note: All per share results are reported on a fully-diluted basis.*

## Selected News – Industrial Equipment

**AMETEK, Inc. (NYSE:AME)** reported second quarter net income of \$215.5 million for fiscal year 2019 as compared to \$193.9 million for the prior year period. Earnings per share were \$0.94 versus \$0.83 for the prior year period. Revenues for the quarter increased to \$1,289.4 million from \$1,208.9 million for the same period in fiscal year 2018.

**Applied Materials, Inc. (NasdaqGS:AMAT)** announced the appointment of **Yvonne McGill** to the Board of Directors.

**ASML Holding N.V. (ENXTAM:ASML)** reported second quarter net income of \$541.6 million for fiscal year 2019 as compared to \$681.4 million for the prior year period. Earnings per share were \$1.29 versus \$1.60 for the prior year period. Revenues for the quarter decreased to \$2,922.1 million from \$3,197.3 million for the same period in fiscal year 2018.

**Caterpillar Inc. (NYSE:CAT)** reported second quarter net income of \$1,620.0 million for fiscal year 2019 as compared to \$1,707.0 million for the prior year period. Earnings per share were \$2.83 versus \$2.82 for the prior year period. Revenues for the quarter increased to \$14,432.0 million from \$14,011.0 million for the same period in fiscal year 2018.

**Cummins Inc. (NYSE:CMI)** reported second quarter net income of \$675.0 million for fiscal year 2019 as compared to \$545.0 million for the prior year period. Earnings per share were \$4.27 versus \$3.32 for the prior year period. Revenues for the quarter increased to \$6,221.0 million from \$6,132.0 million for the same period in fiscal year 2018.

**Danaher Corporation (NYSE:DHR)** reported second quarter net income of \$731.3 million for fiscal year 2019 as compared to \$673.8 million for the prior year period. Earnings per share were \$0.97 versus \$0.95 for the prior year period. Revenues for the quarter increased to \$5,156.6 million from \$4,981.0 million for the same period in fiscal year 2018.

**Eaton Corporation plc (NYSE:ETN)** announced the appointment of **Silvio Napoli** to the Board of Directors.

**Eaton Corporation plc (NYSE:ETN)** reported second quarter net income of \$636.0 million for fiscal year 2019 as compared to \$610.0 million for the prior year period. Earnings per share were \$1.50 versus \$1.39 for the prior year period. Revenues for the quarter increased to \$5,533.0 million from \$5,487.0 million for the same period in fiscal year 2018.

**Entegris, Inc. (NasdaqGS:ENTG)** reported second quarter net income of \$124.0 million for fiscal year 2019 as compared to \$54.3 million for the prior year period. Earnings per share were \$0.91 versus \$0.38 for the prior year period. Revenues for the quarter decreased to \$378.9 million from \$383.1 million for the same period in fiscal year 2018.

**FARO Technologies, Inc. (NasdaqGS:FARO)** announced the appointment of **Allen Muhich** as the company's Chief Financial Officer.

## Selected News – Industrial Equipment (cont'd)

**FARO Technologies, Inc. (NasdaqGS:FARO)** reported second quarter net income of (\$6.4) million for fiscal year 2019 as compared to \$1.2 million for the prior year period. Earnings per share were (\$0.37) versus \$0.07 for the prior year period. Revenues for the quarter decreased to \$93.5 million from \$98.2 million for the same period in fiscal year 2018.

**FormFactor, Inc. (NasdaqGS:FORM)** reported second quarter net income of \$6.9 million for fiscal year 2019 as compared to \$9.1 million for the prior year period. Earnings per share were \$0.09 versus \$0.12 for the prior year period. Revenues for the quarter increased to \$138.0 million from \$135.5 million for the same period in fiscal year 2018.

**Hubbell Incorporated (NYSE:HUBB)** reported second quarter net income of \$96.0 million for fiscal year 2019 as compared to \$100.3 million for the prior year period. Earnings per share were \$1.75 versus \$1.82 for the prior year period. Revenues for the quarter increased to \$1,196.4 million from \$1,166.7 million for the same period in fiscal year 2018.

**Korea Shipbuilding & Offshore Engineering Co., Ltd. (KOSE:A009540)** reported second quarter net income of \$162.7 million for fiscal year 2019 as compared to (\$211.8) million for the prior year period. Earnings per share were \$2.25 versus (\$3.26) for the prior year period. Revenues for the quarter increased to \$3,390.1 million from \$2,819.6 million for the same period in fiscal year 2018.

**Lam Research Corporation (NasdaqGS:LRCX)** reported net income of \$2,191.4 million for fiscal year 2019 as compared to \$2,380.7 million for the prior year. Earnings per share were \$13.70 versus \$13.17 for the prior year. Revenues for the year decreased to \$9,653.6 million from \$11,077.0 million for fiscal year 2018.

**MKS Instruments, Inc. (NasdaqGS:MKSI)** reported second quarter net income of \$37.7 million for fiscal year 2019 as compared to \$122.9 million for the prior year period. Earnings per share were \$0.69 versus \$2.22 for the prior year period. Revenues for the quarter decreased to \$474.1 million from \$573.1 million for the same period in fiscal year 2018.

**Nanometrics Incorporated (NasdaqGS:NANO)** reported second quarter net income of \$3.9 million for fiscal year 2019 as compared to \$17.7 million for the prior year period. Earnings per share were \$0.16 versus \$0.72 for the prior year period. Revenues for the quarter decreased to \$67.6 million from \$88.6 million for the same period in fiscal year 2018.

**Rockwell Automation, Inc. (NYSE:ROK)** reported third quarter net income of \$261.4 million for fiscal year 2019 as compared to \$198.6 million for the prior year period. Earnings per share were \$2.20 versus \$1.58 for the prior year period. Revenues for the quarter decreased to \$1,665.1 million from \$1,698.7 million for the same period in fiscal year 2018.

### Selected News – Industrial Equipment (cont'd)

**Rudolph Technologies, Inc. (NYSE:RTEC)** reported second quarter net income of \$5.5 million for fiscal year 2019 as compared to \$14.7 million for the prior year period. Earnings per share were \$0.18 versus \$0.45 for the prior year period. Revenues for the quarter decreased to \$61.5 million from \$77.5 million for the same period in fiscal year 2018.

**Schneider Electric S.E. (ENXTPA:SU)** reported second quarter net income of \$565.0 million for fiscal year 2019 as compared to \$595.0 million for the prior year period. Earnings per share were \$1.01 versus \$1.06 for the prior year period. Revenues for the quarter increased to \$7,511.4 million from \$7,185.3 million for the same period in fiscal year 2018.

**Teradyne, Inc. (NasdaqGS:TER)** reported second quarter net income of \$97.4 million for fiscal year 2019 as compared to \$101.0 million for the prior year period. Earnings per share were \$0.55 versus \$0.52 for the prior year period. Revenues for the quarter increased to \$564.2 million from \$526.9 million for the same period in fiscal year 2018.

**Terex Corporation (NYSE:TEX)** reported second quarter net income of \$75.1 million for fiscal year 2019 as compared to \$57.8 million for the prior year period. Earnings per share were \$1.05 versus \$0.76 for the prior year period. Revenues for the quarter increased to \$1,306.9 million from \$1,253.0 million for the same period in fiscal year 2018.

**Tokyo Electron Limited (TSE:8035)** reported first quarter net income of \$295.9 million for fiscal year 2020 as compared to \$502.9 million for the prior year period. Earnings per share were \$1.81 versus \$3.05 for the prior year period. Revenues for the quarter decreased to \$2,007.9 million from \$2,666.6 million for the same period in fiscal year 2019.

*Note: All per share results are reported on a fully-diluted basis.*

## Selected News – Engineering & Industrial Services

**Clean Harbors, Inc. (NYSE:CLH)** reported second quarter net income of \$36.2 million for fiscal year 2019 as compared to \$30.7 million for the prior year period. Earnings per share were \$0.65 versus \$0.54 for the prior year period. Revenues for the quarter increased to \$868.7 million from \$849.1 million for the same period in fiscal year 2018.

**Commercial Metals Company (NYSE:CMC)** announced the appointment of **Paul J. Lawrence** as **CFO**.

**Fastenal Company (NasdaqGS:FAST)** reported second quarter net income of \$204.6 million for fiscal year 2019 as compared to \$211.2 million for the prior year period. Earnings per share were \$0.36 versus \$0.37 for the prior year period. Revenues for the quarter increased to \$1,368.4 million from \$1,267.9 million for the same period in fiscal year 2018.

**KBR, Inc. (NYSE:KBR)** reported second quarter net income of \$48.0 million for fiscal year 2019 as compared to \$44.0 million for the prior year period. Earnings per share were \$0.34 versus \$0.31 for the prior year period. Revenues for the quarter increased to \$1,422.0 million from \$1,267.0 million for the same period in fiscal year 2018.

**Lawson Products, Inc. (NasdaqGS:LAWS)** reported second quarter net income of \$1.3 million for fiscal year 2019 as compared to \$3.2 million for the prior year period. Earnings per share were \$0.14 versus \$0.35 for the prior year period. Revenues for the quarter increased to \$96.1 million from \$90.4 million for the same period in fiscal year 2018.

**MSC Industrial Direct Co., Inc. (NYSE:MSM)** reported third quarter net income of \$79.6 million for fiscal year 2019 as compared to \$79.1 million for the prior year period. Earnings per share were \$1.44 versus \$1.39 for the prior year period. Revenues for the quarter increased to \$866.5 million from \$828.3 million for the same period in fiscal year 2018.

**Tetra Tech, Inc. (NasdaqGS:TTEK)** reported third quarter net income of \$49.2 million for fiscal year 2019 as compared to \$33.3 million for the prior year period. Earnings per share were \$0.88 versus \$0.59 for the prior year period. Revenues for the quarter increased to \$623.2 million from \$570.4 million for the same period in fiscal year 2018.

**Transcat, Inc. (NasdaqGM:TRNS)** reported first quarter net income of \$1.7 million for fiscal year 2020 as compared to \$1.4 million for the prior year period. Earnings per share were \$0.23 versus \$0.19 for the prior year period. Revenues for the quarter increased to \$42.4 million from \$36.7 million for the same period in fiscal year 2019.

**W.W. Grainger, Inc. (NYSE:GWW)** reported second quarter net income of \$260.0 million for fiscal year 2019 as compared to \$237.0 million for the prior year period. Earnings per share were \$4.67 versus \$4.16 for the prior year period. Revenues for the quarter increased to \$2,893.0 million from \$2,861.0 million for the same period in fiscal year 2018.

*Note: All per share results are reported on a fully-diluted basis.*



# MHH Manufacturing Universe Directory

Company	Sector
3M Company	Components & Materials
AECOM	Eng. & Ind. Services
Airbus Group SE	Aerospace & Defense
Akzo Nobel N.V.	Components & Materials
Alps Electric Co. Ltd.	Components & Materials
AMETEK, Inc.	Industrial Equipment
Amphenol Corporation	Components & Materials
Applied Materials, Inc.	Industrial Equipment
Aptiv PLC	Components & Materials
ASML Holding N.V.	Industrial Equipment
Aurubis AG	Eng. & Ind. Services
Autoliv, Inc.	Components & Materials
AVX Corp.	Components & Materials
Axcelis Technologies, Inc.	Industrial Equipment
BAE Systems plc	Aerospace & Defense
Balfour Beatty plc	Eng. & Ind. Services
BASF SE	Components & Materials
Belden Inc.	Components & Materials
Bosch Ltd	Components & Materials
Brooks Automation, Inc.	Industrial Equipment
Cardno Ltd.	Eng. & Ind. Services
Caterpillar Inc.	Industrial Equipment
Celanese Corporation	Components & Materials
Clean Harbors, Inc.	Eng. & Ind. Services
Cohu, Inc.	Industrial Equipment
Commercial Metals Company	Eng. & Ind. Services
Continental Aktiengesellschaft	Components & Materials
Corning Inc.	Components & Materials
Cummins Inc.	Industrial Equipment
Danaher Corporation	Industrial Equipment
Deere & Company	Industrial Equipment
Delphi Automotive PLC	Components & Materials
DENSO Corporation	Components & Materials
Dowa Holdings Co., Ltd.	Eng. & Ind. Services
Dow Inc.	Components & Materials
DuPont de Nemours, Inc.	Components & Materials
Eaton Corporation plc	Industrial Equipment
Embraer S.A.	Aerospace & Defense
Emerson Electric Co.	Industrial Equipment
Encore Wire Corp.	Components & Materials
Entegris, Inc.	Industrial Equipment
Evonik Industries AG	Components & Materials
FARO Technologies, Inc.	Industrial Equipment
Fastenal Company	Eng. & Ind. Services
Ferro Corporation	Components & Materials
Fluor Corporation	Eng. & Ind. Services
FormFactor, Inc.	Industrial Equipment
General Dynamics Corporation	Aerospace & Defense
HD Supply Holdings, Inc.	Eng. & Ind. Services
Honeywell International Inc.	Aerospace & Defense
Hubbell Incorporated	Industrial Equipment

Company	Sector
Huntington Ingalls Industries, Inc.	Aerospace & Defense
Jacobs Engineering Group Inc.	Eng. & Ind. Services
John Wood Group plc	Eng. & Ind. Services
Johnson Controls Inc.	Components & Materials
KBR, Inc.	Eng. & Ind. Services
KLA-Tencor Corporation	Industrial Equipment
Korea Shipbuilding Co. Ltd.	Industrial Equipment
L3Harris Technologies	Aerospace & Defense
Lam Research Corporation	Industrial Equipment
Lawson Products, Inc.	Eng. & Ind. Services
Lear Corp.	Components & Materials
Lockheed Martin Corporation	Aerospace & Defense
MKS Instruments, Inc.	Industrial Equipment
MRC Global Inc.	Eng. & Ind. Services
MSC Industrial Direct Co., Inc.	Eng. & Ind. Services
Nanometrics Incorporated	Industrial Equipment
Navistar International Corporation	Industrial Equipment
Northrop Grumman Corporation	Aerospace & Defense
Nova Measuring Instruments Ltd.	Industrial Equipment
NV5 Global, Inc.	Eng. & Ind. Services
OMRON Corporation	Components & Materials
Oshkosh Corporation	Industrial Equipment
Powell Industries, Inc.	Industrial Equipment
PPG Industries, Inc.	Components & Materials
Primoris Services Corporation	Eng. & Ind. Services
Raytheon Company	Aerospace & Defense
Regal Beloit Corporation	Industrial Equipment
Rockwell Automation Inc.	Industrial Equipment
Rockwell Automation Inc.	Industrial Equipment
Rolls Royce Holdings plc	Aerospace & Defense
Rudolph Technologies, Inc.	Industrial Equipment
Schneider Electric S.E.	Industrial Equipment
Sims Metal Management Limited	Eng. & Ind. Services
Solvay SA	Components & Materials
Stanley Electric Co. Ltd.	Components & Materials
TE Connectivity Ltd.	Components & Materials
Teradyne, Inc.	Industrial Equipment
Terex Corporation	Industrial Equipment
Tetra Tech, Inc.	Eng. & Ind. Services
Textron Inc.	Aerospace & Defense
Thales SA	Aerospace & Defense
The Boeing Company	Aerospace & Defense
Tokyo Electron Limited	Industrial Equipment
Transcat, Inc.	Eng. & Ind. Services
United Technologies Corporation	Aerospace & Defense
Veeco Instruments Inc.	Industrial Equipment
Veolia Environnement S.A.	Eng. & Ind. Services
Vishay Intertechnology Inc.	Components & Materials
W.W. Grainger, Inc.	Eng. & Ind. Services
WESCO International, Inc.	Eng. & Ind. Services
Xcerra Corporation	Industrial Equipment



**Mufson Howe Hunter & Company LLC** is an independent investment bank for middle-market companies. We focus on selling businesses, buy-outs, acquisitions, and raising capital. Unique to the middle market, our senior bankers have extensive corporate finance experience and deep knowledge of the capital markets.

## Mergers & Acquisitions

- Advise buyers and sellers (public and private companies)
- Sale of businesses, strategic acquisitions, management buy-outs, and industry build-ups

## Raise Capital

- Equity (control and non-control)
- Mezzanine financing
- Senior and junior debt
- Typically raise capital from banks, finance companies, private investment funds, and private equity groups

## Financial Advisory Services

- Analysis of business strategies and options
- Fairness opinions
- Valuations

### The Mufson Howe Hunter Manufacturing Update Indices

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