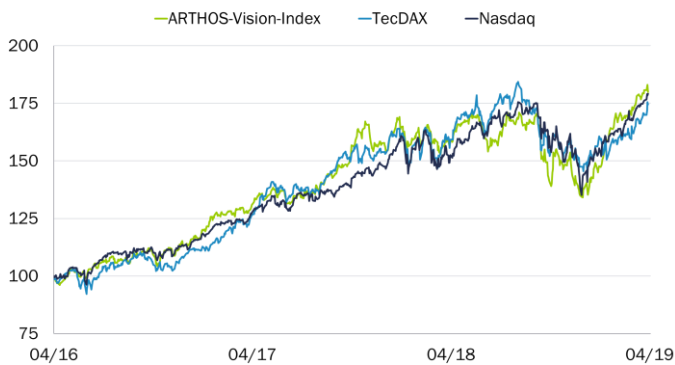


**Vision Technology Stock Market Performance**

Company Name	EV € mn	Sales € mn	Share price	Local curr.	Δ 52W High	2019E EV/EBITDA
<b>ARTHOS Vision Technology Peers</b>						
ams AG	3.697,8	1.426,3	35,0	EUR	(58,6%)	9,6x
Ametek Inc.	19.834,0	4.232,4	87,6	USD	(0,2%)	15,9x
Basler AG	538,3	150,0	160,4	EUR	(19,4%)	17,7x
Bruker Corp.	5.451,5	1.655,6	38,3	USD	(4,9%)	15,4x
Cognex Corp.	7.952,3	704,3	54,9	USD	(7,2%)	32,5x
Datalogic S.p.A.	1.202,0	631,0	21,5	EUR	(35,9%)	10,9x
FARO Techn.	747,1	352,5	56,0	USD	(20,2%)	15,7x
Kapsch Traffic Com	475,7	719,1	33,6	EUR	(20,3%)	7,1x
FLIR Systems Inc.	6.694,4	1.586,7	52,6	USD	(17,6%)	15,8x
Hamamatsu	5.076,9	1.160,3	4.505,0	JPY	(11,1%)	15,5x
Hexagon AB	19.885,9	3.760,7	525,4	SEK	(4,6%)	14,7x
Isra Vision AG	794,6	155,5	36,5	EUR	(40,4%)	14,6x
Jenoptik AG	2.030,8	834,6	35,5	EUR	(10,3%)	14,2x
Keyence Corp.	60.348,0	4.640,4	69.120,0	JPY	(6,4%)	21,6x
Nanometrics Inc.	550,6	283,5	30,7	USD	(36,3%)	15,0x
Novanta Inc.	2.811,6	536,6	86,1	USD	(4,1%)	23,6x
Olympus Corp.	14.269,1	6.332,5	1.244,0	JPY	(2,4%)	11,8x
Oxford Instr.	763,7	350,1	11,1	GBP	(1,6%)	11,3x
Perceptron Inc.	56,2	76,8	7,5	USD	(38,8%)	8,0x
Renishaw plc	3.703,5	699,9	45,3	GBP	(21,1%)	18,2x
Rudolph Techn.	527,1	239,1	24,6	USD	(28,9%)	12,1x
Teledyne Techn.	8.865,9	2.629,7	249,1	USD	(4,6%)	17,3x
TKH Group N.V.	2.322,9	1.630,8	47,9	EUR	(20,3%)	10,0x
Viscom AG	140,5	93,6	16,0	EUR	(41,8%)	10,2x
<b>Mean</b>					<b>(19,0%)</b>	<b>14,9x</b>
<b>Median</b>					<b>(18,5%)</b>	<b>14,8x</b>

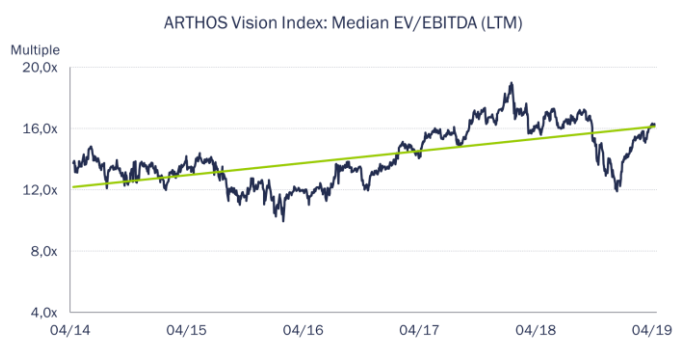
Peer Group includes companies with business focus on Vision Technology; Closing share price as of April 26, 2019; Sales as of published last twelve months.

**ARTHOS Vision Technology Index Performance**



ARTHOS Vision Technology Index includes the companies listed above

**Historic Vision Multiple Analysis**



Median development of historic EV/EBITDA Multiple of the ARTHOS Vision Technology Peer Group

**Personal Note**



When last autumn consumer and automotive markets were weakening stock prices of technology companies reacted strongly. Today, with the exception of semiconductor related businesses, valuations of most vision companies are back to the peaks from last summer. This is a strong signal that most experts continue to believe in the high growth rates of the vision industry.

Also, this market correction did not hinder large vision related M&A transactions getting closed during last months; important deals are highlighted in this newsletter. Interestingly we see acquirers continuing to invest heavily also outside their historical core activities to ensure leading technology positions and market access. Ametek e.g. acquired Forza, a custom sensor design and production semiconductor company and Flir took over Endeavor Robotics, a developer and producer of complete mobile robots. In addition, prices paid for vision businesses were sometimes exceptionally high, e.g. Scape Technologies went public with a valuation of 20x LTM revenue.

What do we learn from that? Yes, times are perfect for sellers. Selling a vision company is easier than a few years ago? That's also true however, you need to talk to the right companies and buyers are often not the ones which you would expect. And often complex questions need to be addressed: How do parties agree on a reasonable earn-out? How can integration capabilities be judged? How can the seller be protected as professional buyers sometime claim for damage compensation? In case you are considering selling your vision company we therefore recommend getting professional support on board.

**Current Relevant M&A and Market News**

- Nov 15, 2018:** Nanometrics Inc. acquired 4D Technology Corp. (process control metrology and inspection solutions) for \$40m..
  - Nov 27, 2018:** AMETEK acquired Spectro Scientific (supplier of instruments for machine condition monitoring for ~\$190m..
  - Dec 10, 2018:** Ambienta SGR S.p.A. acquired Image S S.P.A., a distributor of machine vision and other imaging products.
  - Dec 18, 2018:** Bruker Corp. acquires Alicona Imaging GmbH from Austria, a specialist for focus variation measurement.
  - Dec 19, 2018:** Antares Vision and ALP.I SPAC signed an agreement to merge with the goal to become listed at AIM and later also on the MTA.
  - Dec 20, 2018:** ibg Prüfcomputer GmbH acquired Sorting Solutions S.R.O. (specialist for ball bearings deflection testing).
  - Jan 14, 2019:** Hamamatsu Photonics acquired a minority stake in Menlo Systems GmbH (optical precision measurement).
  - Feb 1, 2019:** MKS Instruments Inc. completed the public takeover of Electro Scientific Industries Inc. for ~\$1.1 billion.
  - Feb 20, 2019:** KLA-Tencor Corporation completed the public takeover of Orbotech Ltd. for ~\$3.4 billion.
  - April 11+12, 2019:** TKH Group NV agreed to acquire IMAGINA ARTIFICIAL INTELLIGENCE SL a developer of camera-based parking guidance systems and also Commend AG, a developer and manufacturer of security and communication systems.
- Hexagon AB continued its acquisition path with four deals:  
**Nov - Apr, 2019:** Acquisition of Bricsys NV (provider of a DWG-alternative CAD platform), Etalon AG (system provider for the accurate geometric analysis of machine tools), j5 International Ltd. (designer of operations management application SW) and Thermopylae Sciences & Technology (SW developer for geospatial applications).

Notable Recent M&A Transactions



**November 1, 2019:** AMETEK, Inc. acquired Telular Corporation for ~\$525m and Forza Silicon Corp. for ~\$40m. Forza is a highly strategic technology acquisition for AMETEK with design capability to support customers advanced sensor development projects. Forza also provides AMETEK's Vision Research business with custom sensor design and production capability, allowing for accelerated development of next generation sensor technology for use across our market leading, high-speed cameras.



**November 21, 2018:** Scape Technologies A/S has completed an IPO in the amount of DKK 35m (~€5m). The offer was subscribed 2.9 times and the shares started trading on Nasdaq First North Denmark on November 26, 2018. Since then stock price almost doubled. Scape Technologies develops, sells, and delivers bin-picking solutions based on 3D computer vision systems. Actual valuation is 34x LTM revenue with a market capitalization of ~€35m.



**February 5, 2019:** Teledyne Technologies Inc. completed the acquisition of the Scientific Imaging businesses for ~\$225m including Princeton Instruments, Photometrics and Lumenera Corporation Princeton Instruments, Inc., and other brands from Roper Technologies. The businesses provide imaging solutions for life sciences, academic research and customized OEM industrial imaging solutions: In combination with Dalsa Teledyne became the leading supplier of high-end cameras world-wide.



**January 28, 2019:** FLIR acquired Aeryon Labs Inc. from Summit Partners LLP and others for \$200m. Aeryon manufactures small unmanned aerial systems.

**February 7, 2019:** FLIR Detection, Inc. entered into an agreement to acquire Endeavor Robotics from Arlington Capital Partners for ~\$390m. Endeavor Robotics develops, produces, and delivers mobile robots for defense and military, public safety, and energy and industrial markets worldwide.



**April 11, 2019:** Carl Zeiss AG agreed to acquire GOM - Gesellschaft für Optische Messtechnik mbH. GOM is a leading provider of hardware and software for automated 3D coordinate measuring technology. GOM will continue to operate as a separate legal company in Germany and abroad. The transaction is expected to complete during the first half of 2019.

Vision Technology Companies' Benchmarking (last twelve months)

	Gross Margin	EBITDA Margin	R&D Margin
	51.8%	19.6%	9.9%
ams AG	31.6%	20.2%	16.8%
Ametek	34.2%	26.8%	n.a.
Basler	48.7%	23.8%	7.7%
Bruker	47.6%	17.8%	9.1%
Cognex	74.4%	30.1%	14.4%
Datalogic	48.5%	1.5%	9.8%
FARO Techn.	56.6%	6.0%	9.8%
Kapsch TrafficCom	58.1%	7.4%	n.a.
FLIR Systems	51.6%	23.7%	10.1%
Hamamatsu	51.3%	26.6%	8.8%
Hexagon	62.2%	27.9%	10.8%
Isra Vision	56.6%	24.0%	13.1%
Jenoptik	35.1%	15.3%	5.7%
Keyence	82.3%	54.9%	n.a.
Nanometrics	56.8%	22.9%	14.8%
Novanta	42.6%	18.9%	8.3%
Olympus	64.9%	12.1%	n.a.
Oxford Instr.	51.9%	16.6%	7.8%
Perceptron	37.6%	8.5%	9.9%
Renishaw	52.5%	26.5%	n.a.
Rudolph Techn.	54.2%	21.4%	17.9%
Teledyne Techn.	38.6%	18.9%	n.a.
TKH Group	45.4%	11.9%	n.a.
Viscom	65.1%	11.5%	n.a.