

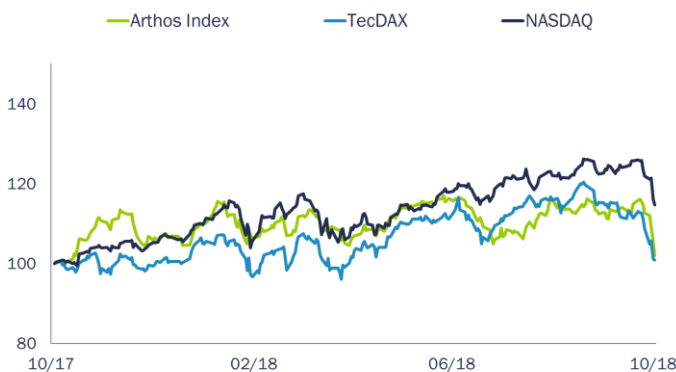
**Vision Technology Stock Market Performance**

Company Name	EV € mn	Sales € mn	Share price	Local curr.	Δ 52W High	2018E EV/EBITDA
<b>ARTHOS Vision Technology Peers</b>						
ams AG	4.691,3	1.316,3	49,1	EUR	(53,7%)	12,2x
Ametek	15.795,4	3.950,8	71,9	USD	(12,3%)	14,7x
Basler	414,1	155,1	136,6	EUR	(40,3%)	11,5x
Cognex	6.082,7	695,7	43,7	USD	(40,2%)	27,0x
Datalogic	1.484,5	613,7	26,7	EUR	(23,2%)	13,5x
Electro Sci. Ind.	353,9	347,8	15,4	USD	(44,4%)	3,4x
FARO Techn.	648,9	332,3	52,7	USD	(25,0%)	20,2x
Kapsch TrafficCom	460,4	687,5	35,3	USD	(39,1%)	7,0x
FLIR Systems	6.549,5	1.587,2	55,2	USD	(13,6%)	18,2x
Hamamatsu	4.494,4	1.099,5	4.160,0	JPY	(17,9%)	14,6x
Hexagon	18.265,6	3.577,6	473,0	SEK	(14,1%)	15,3x
Isra Vision	840,9	152,5	39,5	EUR	(35,6%)	17,0x
Jenoptik	1.405,1	784,2	25,8	EUR	(34,7%)	11,3x
Keyence	47.822,2	4.316,7	58.200,0	JPY	(19,6%)	18,8x
Nanometrics	514,7	262,1	30,8	USD	(36,2%)	7,7x
Novanta	2.010,5	506,2	61,8	USD	(21,6%)	19,1x
Orbotech	2.072,1	874,8	55,3	USD	(15,8%)	9,8x
Oxford Instr.	616,5	338,3	9,2	GBP	(17,8%)	9,6x
Perceptron	72,1	72,6	9,4	USD	(23,3%)	10,5x
Renishaw	3.204,1	691,6	40,8	GBP	(29,9%)	14,6x
Rudolph Techn.	393,7	237,9	20,0	USD	(42,1%)	7,1x
Teledyne Techn.	7.570,1	2.395,3	219,9	USD	(12,4%)	16,8x
TKH Group	2.140,3	1.566,7	45,0	EUR	(25,1%)	9,9x
Viscom	168,3	91,5	18,5	EUR	(53,4%)	10,2x

**Mean** (28,8%) **13,5x**  
**Median** (25,0%) **13,5x**

Peer Group includes companies with business focus on Vision Technology; Closing share price as of October 11, 2018; Sales as of published last twelve months.

**ARTHOS Vision Technology Index Performance**



ARTHOS Vision Technology Index includes the companies listed above

**Historic Multiple Analysis (last 5 years)**



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

**Personal Note**



Despite some gloomy predictions capital markets were with some corrections overall moving up during 2018 and just recently came back to the same level at which they started at the beginning of this year.

M&A transactions are often addressing markets with high growth rates. In the vision industry the most important ones during the

last years have been 3D and embedded vision. Two typical examples addressing growth expectations for embedded solutions are the acquisition of Silicon Software by Basler and the acquisition of SensL Technologies by ON Semiconductor. ON added vision sensor products to their portfolio to be able to offer “sensor fusion solutions” going forward. By combining different sensors on component level plus integrated computing ON is positioning itself not only for autonomous driving but also for industrial robotics, other mobile applications and machine vision.

By targeting the right growth segments, acquirers as well as sellers become successful. However, as end markets are moving faster and are also changing their direction quicker than historically it gets tricky to identify the right strategic direction and strategic fit. M&A transaction processes became more complex as participants are investing more time in capabilities than focusing on financial success only. This results in more complex transaction processes but it’s worth the effort. If you look for professional M&A support, consider hiring an M&A expert with financial as well as vision knowledge to handle this growing complexity.

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

**April 30, 2018:** GIMV NV (PE firm) signed an agreement to acquire 75% of Laser 2000 (Distributor of photonics products).

**May 3, 2018:** Nynomic AG acquired 75% stake in Spectral Engines Oy, a Finnish spectral sensor technology company.

**May 15, 2018:** Hexagon AB acquired NEXTSENSE GmbH, active in non-contact profile measurement and surface inspection.

**May 23, 2018:** PerkinElmer, Inc. acquired Shanghai Spectrum Instruments (China), a manufacturer of analytical instruments.

**May 24, 2018:** Coherent acquired O.R. Lasertechnologie which produces high precision tools for laser additive manufacturing.

**Jul 9, 2018:** Excelitas Technologies Corp. acquired Research Electro-Optics Inc., a high precision optical component company.

**Jul 10, 2018:** Stemmer Imaging AG acquired Elvitec S.A.S..

**Jul 23, 2018:** Jenoptik AG acquired Prodomax Automation Ltd., a company specialized in automated manufacturing solutions.

**Aug 1, 2018:** Atlas Copco acquired Quiss Qualitats-Inspektionssysteme und Service AG.

**Aug 28, 2018:** Flir Systems invested in Cvedia, a SW company that helps users develop machine learning applications.

**Sept 9, 2018:** The German machine vision industry saw a 17% rise 2017 vs. 2016, reaching €2.6 bn (VDMA Machine Vision).

**Sept 26, 2018:** Imaging Solutions Group (ISG) has been bought by Jadak, a business unit of Novanta.

**Sept 27, 2018:** Hexagon AB acquired AutonomouStuff, LLC., a supplier of integrated autonomous vehicle solutions.

**Oct 12, 2018:** Stemmer Imaging AG acquired a stake in Perception Park GmbH, a hyperspectral imaging SW company.

**Oct 16, 2018:** TKH Group NV acquired Lakesight Technologies from Ambienta (PE). Lakesight realizes ~ € 45 m sales p.a..

Notable Recent M&A Transactions



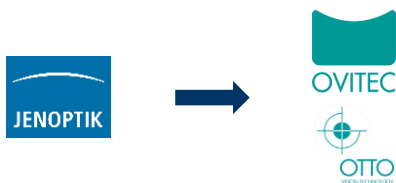
**Mai 9, 2018:** ON Semiconductor Corporation, a supplier of semiconductor-based solutions, acquired SensL Technologies Ltd. SensL, based in Ireland, is specializing in SiPM, SPAD and LiDAR sensing products for automotive, medical, industrial and consumer markets. This acquisition positions ON Semiconductor to extend its market leadership in automotive sensing applications for ADAS and autonomous driving with expanded capabilities in imaging, radar and LiDAR.



**July 19, 2018:** Basler AG took over 100% of the shares of Silicon Software GmbH. Silicon Software is a manufacturer of hardware for the image acquisition and processing of industrial cameras and software for the graphical programming of vision processors. With this transaction, Basler continues to expand its product portfolio for Computer Vision applications which allows pre-processing and analysis of image data "on board".



**July 31, 2018:** AMETEK, a global manufacturer of electronic instruments and electromechanical devices, completed the acquisition of Motec GmbH. Motec is a provider of integrated vision systems serving critical mobile machine applications in transportation, agriculture, logistics and construction. The vision systems will complement AMETEK's existing instrumentation businesses by expanding the portfolio of solutions to the customers.



**September 3, 2018:** Jenoptik has acquired 100 % of both sister companies OTTO Vision Technology and OVITEC. They specialize in optical inspection systems for quality assurance and process optimization, as well as in complex imaging systems for applications in the field of part dimensioning, surface inspection and position detection. With this acquisition Jenoptik is expanding its position as a systems provider of production metrology and industrial image processing applications.



**September 26, 2018:** The French startup Isorg closed a €24 million round of venture finance to be used for ramping production of commercial devices. Isorg's technology covers both fingerprint sensors on flexible substrates as well as large area image sensors. US-based New Science Ventures (NSV) the venture wing of French bank Bpifrance, Financière Fonds Privés (FFP), Sofimac Innovation, CEA Investissement and Dynalim. are the main investors.

Vision Technology Companies' Benchmarking (last twelve months)

	Gross Margin	EBITDA Margin	R&D Margin
	50,4%	20,9%	9,6%
ams AG	32,6%	19,8%	20,1%
Ametek	34,2%	26,2%	n.a.
Basler	49,9%	22,8%	7,6%
Cognex	76,8%	34,4%	13,7%
Datalogic	48,2%	16,2%	9,7%
Electro Sci. Ind.	47,7%	1,5%	8,8%
FARO Techn.	58,2%	8,2%	9,6%
Kapsch TrafficCom	58,5%	7,5%	n.a.
FLIR Systems	49,2%	22,2%	9,5%
Hamamatsu	51,3%	26,4%	8,3%
Hexagon	62,0%	30,4%	10,3%
Isra Vision	56,6%	21,1%	13,8%
Jenoptik	35,2%	15,8%	5,6%
Keyence	82,3%	56,6%	2,4%
Nanometrics	56,6%	24,4%	13,6%
Novanta	42,9%	19,2%	8,1%
Orbotech	47,4%	20,7%	13,2%
Oxford Instr.	50,8%	16,6%	7,9%
Perceptron	37,8%	9,2%	9,4%
Renishaw	53,4%	28,6%	n.a.
Rudolph Techn.	54,6%	23,4%	17,1%
Teledyne Techn.	38,6%	18,5%	n.a.
TKH Group	44,9%	11,3%	n.a.
Viscom	66,4%	14,9%	n.a.