

## Space design and safety regulations drive **flat glass market**

**SPOT ON** | GLASS PROCESSING & FINISHING | SEPTEMBER 2020

### **MARKET TRENDS (pg.2)**

Overview of the global flat glass market, and deeper insight into safety glass use in the construction and automotive industries. We look at what we can expect in a post-COVID world.

### **M&A ACTIVITY (pg.4)**

There has been high activity in the industry, with more than 15 transactions announced since the beginning of 2019 — especially with private equity (PE) firms.

### **LISTED PLAYERS AND VALUATIONS (pg.5)**

Valuations are tied to consumer confidence rather than financial performance.

### **SPOTLIGHT ON PYROGUARD (pg.7)**

We talk with Pyroguard, an industry-leading manufacturer of architectural fire safety glass, and PE fund ESO Capital, who recently invested in the company.

“While COVID-19 has led to an overall fall in demand and disruption of the supply chain for many flat glass processing companies, we see that valuations of leading listed players are stable and M&A activity remains high, especially for high-margin producers of safety glass.”

**VALĒRIJA LIEĢE**

GLASS PROCESSING & FINISHING  
SPECIALIST  
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## **MARKET TRENDS**

Current building design is undoubtedly set towards more complex, taller and individualistic buildings, and with increasing pressure on space utilization, glass has a major role to play in modern architectural design. As a result, glass is further infiltrating interior elements, such as railings and stairs, and playing a more important role as a structural element.

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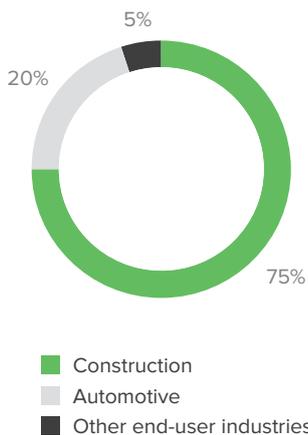


# Market trends

The global flat glass market is projected to be valued at over US\$160 billion by the end of 2025, registering a healthy compound annual growth rate (CAGR) of over 6% between 2019 and 2025.

An important and fast-growing segment of flat glass is safety glass, specifically designed to be less likely to break and less prone to inflicting injury if it does. It also includes glass that is manufactured for strength or fire resistance. While production methods vary between the specific safety requirements, place of use and durability, four general types can be distinguished: tempered glass, laminated glass, wired glass and engraved glass.

## Main markets by volume for the flat glass industry in Europe in 2019



Source: Glass for Europe

## SAFETY GLASS IN ARCHITECTURE

The construction industry is the largest end-user segment for flat glass. Current building design is undoubtedly set towards more complex, taller and individualistic buildings, and with increasing pressure on space utilization, glass has a major role to play in modern architectural design. In addition, recent developments have been focused on delivering environmentally sustainable buildings that work towards decreasing the global carbon footprint. As a result, glass is making its way further into interior elements, such as railings and stairs, and

plays a more important role as a structural element.

Significant growth is anticipated in the global flat glass market, especially in fire safety glass segment, driven by fire safety requirements, as governments increase the safety standards of residential and commercial structures. The trend is particularly visible in emerging economies with a large and growing urban population.

Understanding how the complete fire safety glass and framing system will perform in a fire emergency is integral to how space can be designed. Fire-rated glazing falls into two categories — fire-protective and fire-resistive glazing — and each has its own unique traits. Materials that are intended to stop the spread of fire and smoke are issued fire ratings, which reflect the amount of time they will maintain their integrity when exposed to heat and smoke. Fire-protective glazing defends against the spread of flames and smoke for a specific amount of time. This designation is common to traditional wired glass, tempered glass and fire-rated glass-ceramic. Since it does not block the transfer of radiant and conductive heat, it is subject to area and size limitations under most building codes. Fire-resistive materials are subject to a more stringent performance method. These materials must also resist the transfer of heat, keeping the non-exposed side cooler and not subject to the intense heat of a fire. For glass to earn a fire-resistive rating designation, it is put through the same tests as solid walls. In the unfortunate event of a fire, temperatures can reach extremely high levels rapidly, so high-quality tempered glass should be capable of withstanding temperatures of more than 250°C.

Today, there are several design-forward ways to create glossy expanses of glass while satisfying security criteria, from transparent fire-rated glass wall panels to fire-rated glass curtain walls. One attractive solution is butt-glazed fire-rated glass wall panels. They are the next step in a long evolution of products

that more closely match the continuous glass wall aesthetic most popular in non-rated glazing applications. In these systems, fire-rated glass panels are butt-glazed together in a heat-resistive perimeter frame. The result is large interior spans of glass, free of vertical mullions, for a partition that appears nearly seamless.

## SAFETY GLASS IN THE AUTOMOTIVE INDUSTRY

Laminated safety glass was first used in automobiles in the 1920s for windshields, while tempered glass was introduced for side and rear windows a decade later as a cheaper alternative. Nowadays, windshields continue to grow in complexity and sophistication, with solutions that extend into the roof above the driver or wrap around the side of the car. In addition, modern windshields can filter 95–99% of ultraviolet (UV) rays — specialized film or coatings to absorb heat provide a significant reduction in infrared (IR) rays and the consequential internal heat gain.

High-tech solutions are clearly the wave of the future — film with ceramic or crystalline particles can block the IR portion of the solar spectrum and smart glass can control the amount of heat and light transmitted through the windshield. Car interiors are also evolving as many concept cars utilize windshields as a space to provide data to the driver. While the cost of such applications remains high, prices will no doubt drop as further technical improvements are made. There are even predictions that smart glass windshields that clean themselves with nano-dust particles may be more widely available within the next five years, which could mean eliminating windshield wipers altogether.

The automotive industry is also among the leading consumers of fire-rated glass. With a growing focus on improving vehicle and passenger safety in modern vehicles, many automakers are looking to install high-quality fire-rated glass.

### COVID-19 IMPACT

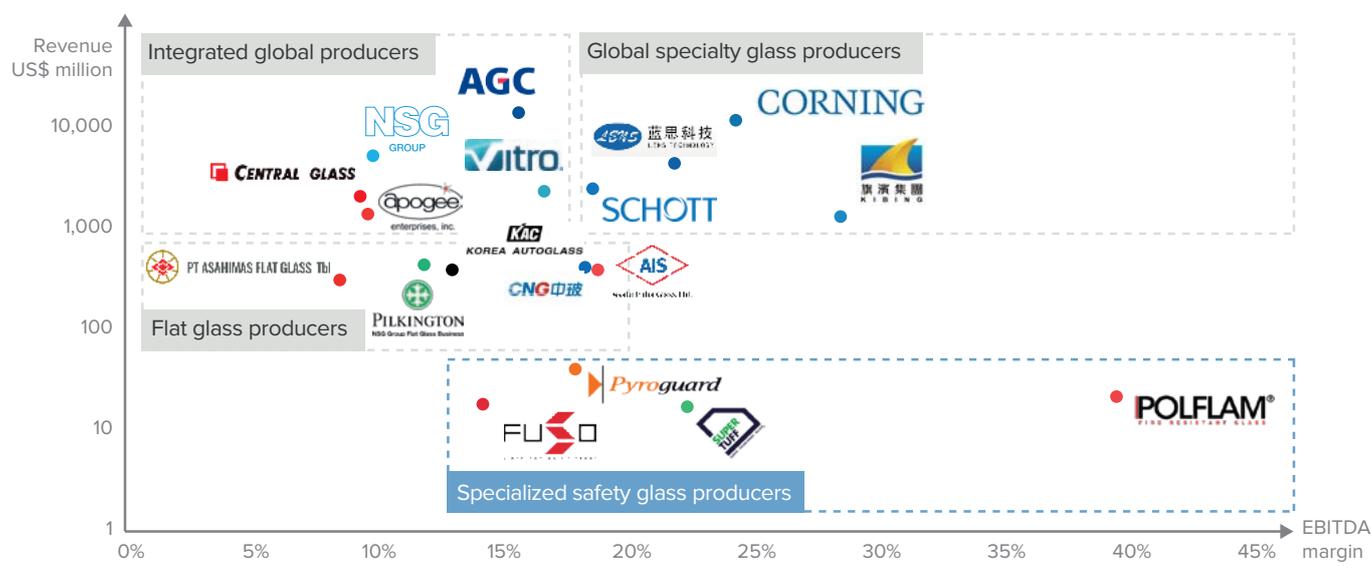
As in most industries, safety glass is experiencing turbulence due to the impact of COVID-19. A major consequence of the pandemic has been the disruption of the supply chain, causing a lack of availability of raw materials and resulting in a massive demand-supply gap. Glass for Europe, the trade association for Europe’s flat glass sector, predicts that “the impact of the COVID-19 virus outbreak on Europe’s flat glass sector is likely to be colossal.” With major European car manufacturers temporarily shutting their plants, the automotive glass market was close to zero for several months. Demand in the original equipment manufacturer (OEM) motor vehicle market is expected to remain weak throughout 2020 and

into 2021. While the financially stronger manufacturers expect things to more or less return to normal well before the end of 2020, the negative demand shock caused by the crisis will likely linger.

In the building sector, while one can see the continuation of started and approved projects for 2020 and 2021, the industry is facing a potential decrease in new development. It is still too early to predict long-term changes in the commercial construction segment, but it is likely that spending on new construction will level off due to months of lost sales and a possible shift towards work-from-home environments across companies of all sizes.

Nevertheless, it is anticipated that after the stabilization of the global economy and resuming of infrastructure development projects, the market will continue the strong growth that has been seen in prior years. To facilitate a fast recovery, Glass for Europe welcomes the financial effort proposed by the European Commission in its suggested recovery plan. In addition to the injection of liquidity to safeguard the millions of small and medium-sized enterprises (SMEs) heavily affected in the flat glass industry, demand-side measures for building renovation and window retrofitting are indispensable to the success of such plans.

### Profitability of selected players in the flat glass market



Source: Orbis

“We are experiencing high PE investor activity in the safety glass producer space, as this segment is growing and strongly driven by innovation. Here, individual players are often focused on a specific product segment, providing clear growth prospects and a clear road map to be acquired in the future by integrated global producers or specialty glass producers.”

**VALĒRIJA LIEĢE**

OAKLINS’ GLASS PROCESSING & FINISHING SPECIALIST

# M&A activity

## A selection of recent private transactions in the sector

Date	Target	Rationale	Bidder	Country	Valuation		
					EV (US\$m)	EV/ Revenues	EV/ EBITDA
Mar-20	 GLASSOLUTIONS (seven sites in Germany)	Bidder acquired seven sites of Glassolutions Saint-Gobain Limited. The transaction is in line with Saint-Gobain's continued portfolio optimization strategy			N/A	N/A	N/A
Mar-20	 INTER FLOAT	The Blue Minds Company (20% stake) and HS Timber Group (80%) agreed to acquire Interfloat Corporation, a manufacturer of solar glass for photovoltaic systems and greenhouses			N/A	N/A	N/A
Mar-20	 Scheuten see it. feel it	PE fund Value Enhancement Partners has agreed to sell its stake in Scheuten Glass Holding B.V., a manufacturer of glass and high-grade solar cells			N/A	N/A	N/A
Jan-20	 LUKORA	Venture-capital-backed Cevino Glass has acquired the glass processing company Lukora			N/A	N/A	N/A
Dec-19	 CEVINO GLASS (minority stake)	PE funds Altur Investissement and Nord Capital Partenaires' sale of the minority stake in glass processing company Cevino Glass. Siparex, Re-sources, and Cevino Glass' chairman reinvested in the company			N/A	N/A	N/A
Nov-19	 VERRE & METAL	PE fund Bastille Capital has sold Verre et Métal, a manufacturer of complex metal and glass structures, to investment firm RAG-Stiftung			N/A	N/A	N/A
Nov-19	 GLASSOLUTIONS	A Germany-based investment company has acquired Glassolutions, the Netherlands-based company engaged in production of insulating glass, safety glazing, interior glazing and glass specials, from Saint-Gobain			N/A	N/A	N/A
Nov-19	 klaasimeister	PE fund Livonia Partners has acquired 100% of Estonian glass processing company Klaasimeister from its founders. Livonia will support in growing the company by at least 50% and help it increase its sales in the Nordic glass market			N/A	N/A	N/A
Sep-19	 HANGLAS	PE fund Glenwood has agreed to acquire Hankuk Glass Industries, a glass manufacturer and processor for the architectural and automotive markets, from Saint-Gobain			264	0.57x	5.55x
Jun-19	 HASOPOR	PE fund Partnera acquired glass manufacturer Hasopor			N/A	N/A	N/A
Feb-19	 POLFLAM®	PE firm Baltisse acquired a company that constructs and designs fire-resistant glass panes from the founders and Austria-based PE owner Syntaxis Capital			125	5.58x	14.01x

Source: Mergermarket

# Selected listed players

## Selected flat and specialty glass industry players

Company	Country	EV (US\$m)	EV (US\$m)	Revenues (US\$m)	EBITDA (US\$m)	EBITDA margin	EV/ Revenues	EV/ EBITDA	
 SAINT-GOBAIN		22,215	33,583	47,827	5,603	11.72%	0.75x	8.75x	
		6,456	12,327	13,946	2,195	15.74%	0.92x	5.98x	
		348	4,514	5,136	508	9.89%	0.88x	8.65x	
		3,516	3,985	1,332	380	28.55%	3.10x	10.78x	
		1,928	3,838	3,091	681	22.04%	1.45x	5.74x	
		2,721	2,954	687	180	26.22%	3.95x	13.40x	
		828	1,140	2,047	192	9.40%	0.57x	6.44x	
		733	1,059	742	143	19.29%	1.49x	9.51x	
		500	1,013	2,265	379	16.75%	0.61x	4.54x	
		586	837	1,387	135	9.70%	0.63x	6.48x	
		84	549	384	72	18.86%	1.61x	7.55x	
		248	162	394	52	13.09%	0.41x	2.98x	
							<b>Average</b>	<b>1.42x</b>	<b>7.46x</b>
							<b>Median</b>	<b>0.92x</b>	<b>6.48x</b>

Source: Infinitentials and Orbis

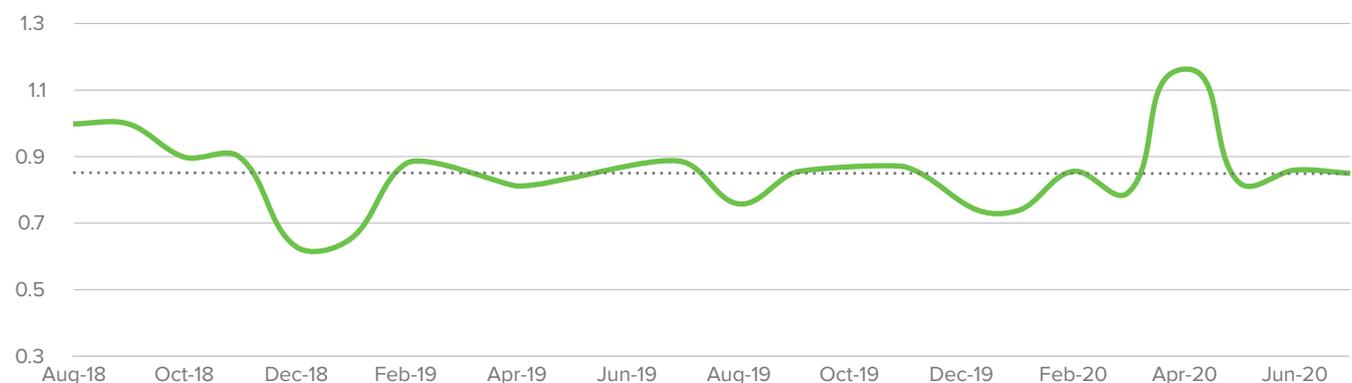
# Valuation trends

The following is a selection of publicly listed companies within the flat glass processing space. Valuation within the industry remains in the historical range, despite the impact of COVID-19, with even a slight uptick in price/earnings and EV/EBITDA ratios as companies managed to cut costs and maintain a stable future outlook in spite of the pandemic. The EV/EBITDA ratio shows a marginal long-term increase, rising above 6.0x as the peer group continues to consolidate its market position or divests unprofitable business units to focus more on value-added products.

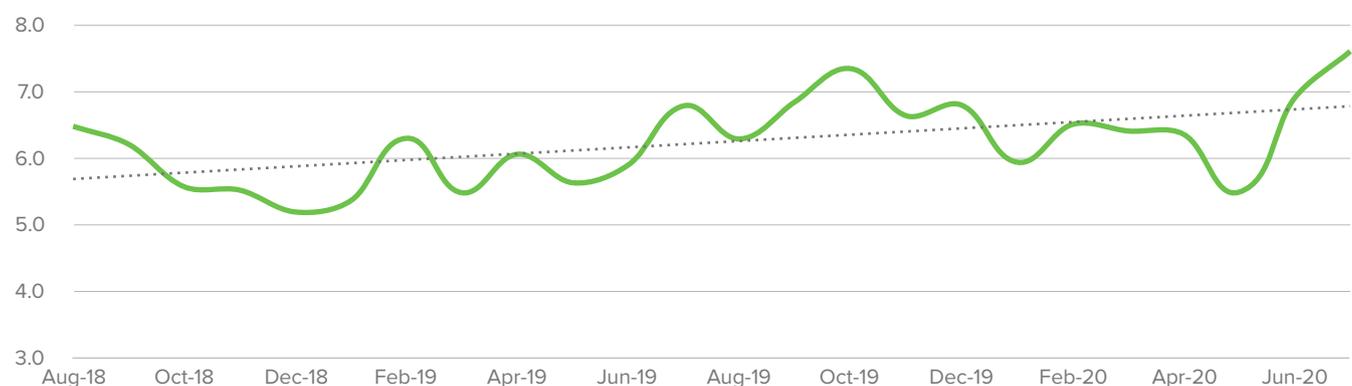
**Price/Earnings LTM (last 12 months)**



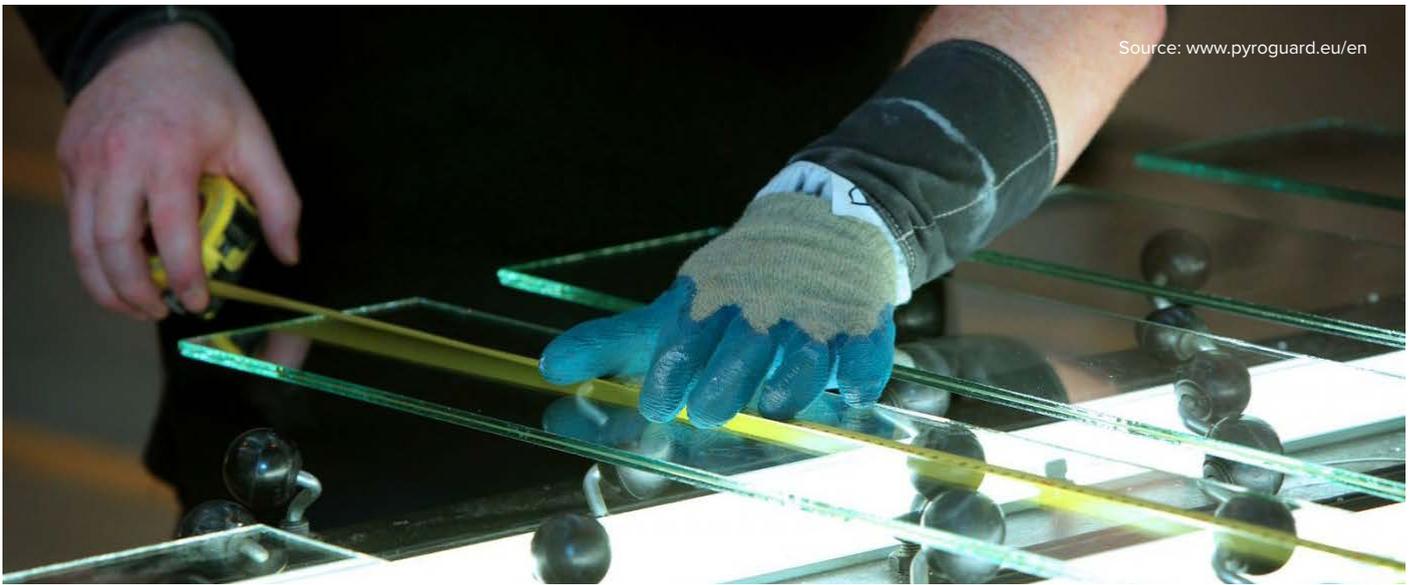
**EV/Sales LTM (last 12 months)**



**EV/EBITDA LTM (last 12 months)**



Source: Infiniti  
Valuation data is as of 31 July 2020



# Spotlight: Pyroguard

Pyroguard, a manufacturer of architectural fire safety glass, secured capital investment from ESO Capital Partners UK LLP, facilitating a management buy-out. Pyroguard and ESO Capital are both well known to Oaklins Smith & Williamson, who arranged the interview below to share an insight into the specialist glass sector.

## OVERVIEW



**eso capital**

David Steel  
Director of ESO

ESO Capital is an investment firm specialized in providing flexible capital solutions to European SMEs.



**Pyroguard**

Neil Tilsley  
CEO of Pyroguard

Pyroguard manufactures and supplies high-performance fire safety glass to architects, specifiers, contractors and construction professionals, enabling them to meet all the fire safety glazing requirements via a single source. The business has expanded from its initial target markets of the UK, Ireland and the Netherlands to supply customers in over 30 countries, including France, Germany, Scandinavia and Iberia.

## Q&A

**What were the key market opportunities ESO Capital saw upon deciding to invest in Pyroguard?**

David Steel, director of ESO Capital, said: "Pyroguard was already a very successful business, with an experienced management team and a strong presence in a highly technical sector with significant barriers to entry. Given our extensive experience in supporting high-growth companies, we saw a considerable opportunity for ESO Capital to support the management team of Pyroguard as it looked to build its market share in this very interesting sector. Our investment in Pyroguard, which sits high up in the capital structure, perfectly demonstrates our strong combined credit and equity capabilities and support for ambitious growth companies."

**Pyroguard operates in a competitive market. What do you see as their key competitive differentiators?**

Pyroguard is proud to be an independent fire-safety-only-focused glass manufacturer, enabling us to provide our customers with a high level of technical support and unbiased specification guidance, without any pressure to cross-sell other architectural glass products.

We differentiate ourselves through our first-rate customer service and responsiveness, which has enabled us to make strong market share gains against more established, large corporate competitors.

Finally, the Pyroguard products, we believe, are superior in quality to many competitors, especially in breadth of application and inherent UV stability. You would not want to install a cheaper product, for example, only to find it turns yellow after several years.

Pyroguard is also not too concerned about the threat of new entrants, since the barriers to entry by way of technical manufacturing know-how, and the extensive regulatory certification requirements even more so, mean that new entrants have a vast uphill battle to get a foot in the market.

**How do you as a PE investor see the specialized glass production market's M&A activity? Would you say the activity is high? Is there currently a strong interest from financial buyers like yourself?**

Given that the barriers to entry in the fire safety glass market are as high as I have ever seen in any market, this has resulted in very few players being able to operate within the European market. There are only five manufacturers (of scale) across Europe, three of which are divisions of the larger float glass manufacturers. Therefore, M&A activity directly within the fire safety glass space will be limited, but given it is such a desirable market, deals will happen as demand for fire safety glass continues to increase. For instance, we supported the Pyroguard management team in making an acquisition last year of a UK-based distributor of fire safety glass, and a Polish-based manufacturer was sold to a family office fund earlier last year as well.

In the wider specialized glass processing market, M&A opportunities will continue to happen in areas such as bulletproof, soundproof, solar, laminate, marine and intelligent glass, as demand for these architectural glass products continues to increase.

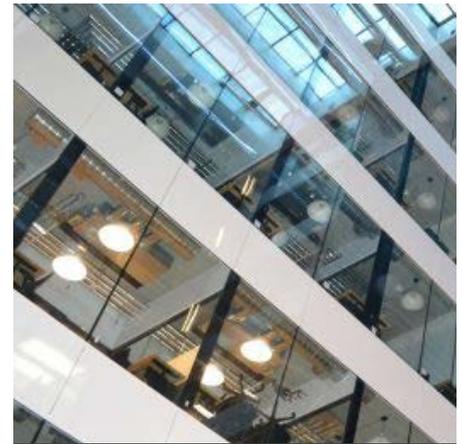
**Post COVID-19, what are the opportunities for a business such as Pyroguard, and do you see acquisitions as part of the strategy?**

Demand for fire safety glass has been growing for the last 20+ years and is continuing to grow, driven both by tightening fire safety regulations and the continued increased use of glass as a material of architectural choice within buildings. In addition to commercial real estate, new investment in hospitals, schools and travel hubs will only help to feed the demand for fire safety glass.

We are focused on the significant organic growth opportunity for Pyroguard and do not foresee near-term acquisitions, particularly having recently made an acquisition. However, we would not rule out further acquisitions should the right opportunity arise.

**What advantages has Pyroguard received by bringing a financial investor like ESO Capital on board?**

Neil Tilsley, CEO of Pyroguard, said: "I am delighted that a forward-thinking and proactive investor such as ESO has seen the potential of investing in the future success of Pyroguard. Bringing in a new external institutional investor like ESO, which has supported rapid growth across a range of businesses before, has brought not only a fresh perspective, but also helped us to accelerate our ambitious growth plans, and supporting our acquisition of the Fire Glass UK customer solutions business is a tangible example of this already. Pyroguard has an exciting future ahead as a result of this new partnership."



## TRANSACTION IN DETAIL

### Announced

September 2018

### Target

Pyroguard

### Bidder

ESO Capital

### Seller

NVM Private Equity and Dunedin

### Target's financials

Revenue (2019): US\$54 million

EBITDA (2019): US\$9.5 million

### Press release

Having achieved significant organic growth in recent years, Pyroguard will now accelerate its expansion plans to further strengthen its position across the UK, Europe and selected wider global markets, supported by ESO's investment.

The new investment will enable the management buyout of Pyroguard's former backers, Dunedin and NVM. Led by CEO Neil Tilsley, the existing management team will now become majority equity shareholders, driving forward the company's expansion strategy. Nick Brayshaw will continue in his role as non-executive chairman, while David Steel, director of ESO, joins the board.

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If mergers, acquisitions, or divestitures of businesses or business units are part of your strategy, we would welcome the opportunity to exchange ideas with you.

### ✉ VALĒRIJA LIEĢE

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Valērija leads Oaklins' glass processing & finishing team and is a partner at Oaklins Baltics in Riga. As part of her sector focus, Valērija continuously follows developments, attends the major events and maintains regular contact with the key players in the industry. Recently, she advised NCH Capital on the sale of GroGlass, one of the world's leading developers and manufacturers of anti-reflective coatings on glass and acrylic.



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