



The Medical Ventilators Market In Times of COVID-19

An IP perspective from LexisNexis® PatentSight® and LexisNexis PatentAdvisor®

COVID-19 infections have been known to cause severe respiratory problems in some of the infected patients, who have to then depend on mechanical external support to help them breathe. These medical ventilators have become the most essential lifesaving equipment for patients with COVID-19 related respiratory problems. The severity and global spread of the virus have already created a situation of health emergency where most countries are facing huge demand of medical ventilators and a tremendously low availability of the same. Thus, at this crucial juncture it is important to identify the key players in the field of medical ventilators who can effectively speed up the supply chain of this current front-line essential item. The IP-based technique to identify these players is to recognize the most relevant patent holders in the field who have introduced significant inventive qualities in the field to the extent of protecting the same in the form of patents.

A recent post on this topic: The Medical Ventilator Market and Patent Protection (<https://www.lexisnexisip.com/knowledge-center/the-medical-ventilator-market-and-patent-protection/>) from LexisNexis® IP on the basis of insights provided by LexisNexis PatentAdvisor® reveals two companies that own patents of significance in this market: Getinge and Hamilton Medical.

Approaching the topic: Search definition and strategy

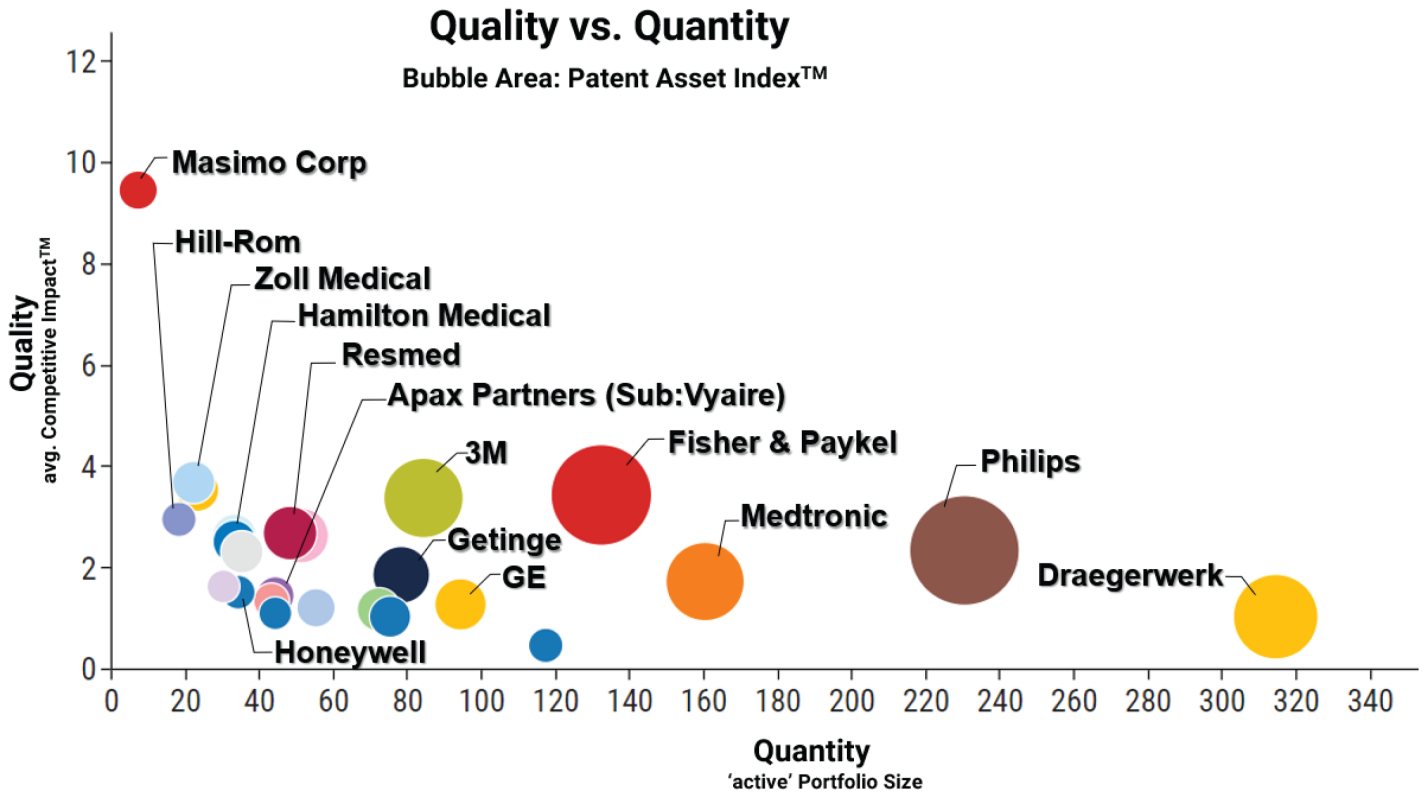
A patent-search was done in LexisNexis® PatentSight®, with the aim of identifying the companies which already have the underlying groundwork in this field, done and protected by patents. The PatentSight tool has access to more than 92 million documents from 95 authorities allowing the search to be extended to include English-language versions (original texts, machine translations, OCRed documents) of non-English original patent documents. The unique scientifically validated KPIs of PatentSight are used to retrieve data on the most critical patent owning entities in the industry.

The search syntax developed for this included a combination of keywords and IPC classifications. Explicit keywords were selected to include inventions in invasive, non-invasive, continuous positive airway pressure technology-based ventilation methods among other critical innovations in ventilators and also inventions related to the different parts of the ventilators. Keeping in account that the purpose of the search was to identify those companies which possess the capacity to make active, significant and immediate contribution to combat the current crisis, the scope of the search was kept narrow and focused, limited to Title, Abstract or Claims to retrieve the patents that explicitly and definitively disclose the invention in the field of medical ventilators. Unlike the conservative patent searching methods, where a broader scope of search is used to cover all the related patent applications. The generally used wild card operators and the Boolean operators used in patent searching are all available in PatentSight, along with increased flexibility, as all the filters generally used for analytics purposes are also applicable in patent searching.

Analyzing the key-players in this technology

The companies retrieved as owners of the patent portfolios, from the patent search, were ranked as per the Patent Asset Index™ methodology, a PatentSight patent strength indicator at the portfolio level. The **Quality vs. Quantity** chart herein represents the relative position of the top 25 companies (as per the Patent Asset Index™) against each other in terms of Quality, as indicated by the average Competitive Impact™ of each company's portfolio in this field and Quantity, as indicated by 'active' portfolio size of each company in this field. The Competitive Impact measure is the quality indicator of PatentSight at a patent family level.

Comparing the key players in the field of Medical Ventilators



The Quality vs. Quantity chart for companies owning patents satisfying the search criteria. Analysis based on 7,190 patent families active as of 6/4/2020. Owners (bubbles) sorted by Patent Asset Index™ as of 6/4/2020.

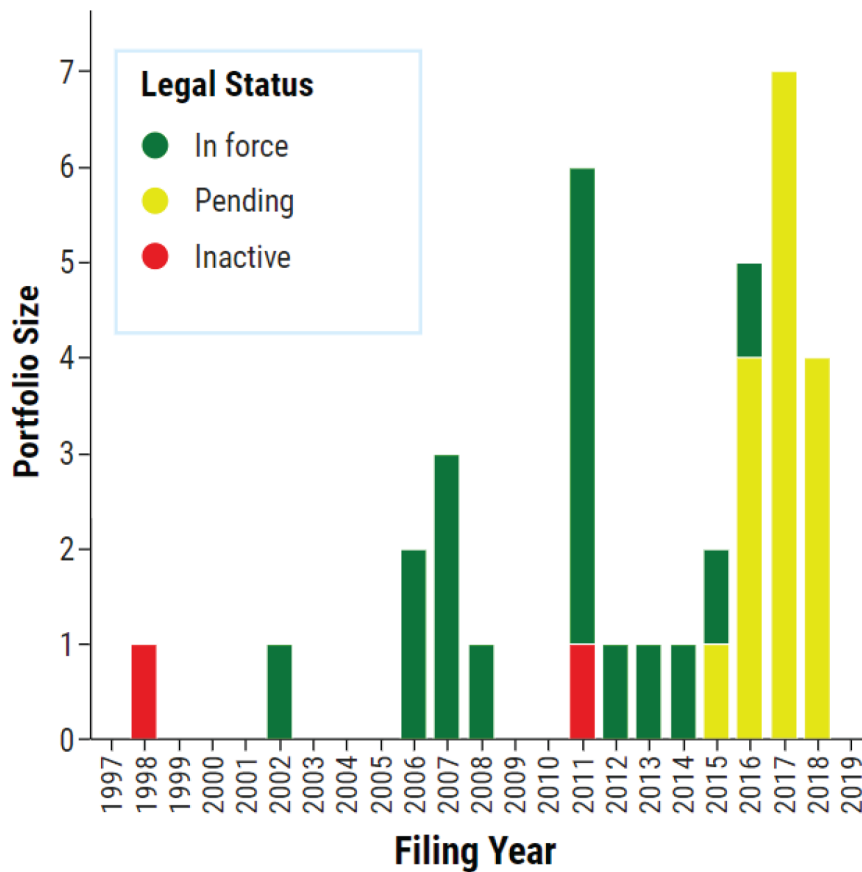
Getinge emerges as one of the top 25 companies in our analysis; on PatentSight too, as it did on PatentAdvisor™. The patent US10296181 mentioned in the PatentAdvisor report is retrieved in the PatentSight search as well. As fittingly pointed out in the PatentAdvisor report, this particular patent was assigned to a subsidiary of **Getinge: Maquet Critical Care**, which had to fight a long battle to secure the grant.

'Clean' ownership data is one of the pillars of foundation for our methodology. Our dedicated data research team is tasked with constantly following and updating patent reassignments arising from M&A activities, etc., to make sure all the subsidiaries and applicants that apply for patents in any part of the world that fall under a particular owner, are then effectively grouped under the owning company and that this information is transparently provided in the PatentSight software.

This particular patent in question, which was applied for by Maquet Critical Care is shown to be owned by Getinge in PatentSight, since Maquet Critical Care is a subsidiary within the corporate tree structure at Getinge.

Hamilton Medical along with its patent US9616187, which was mentioned in a PatentAdvisor post has also been retrieved in the PatentSight top 25 list. The trend, as reported by PatentAdvisor that Hamilton has many pending ventilator patent applications in the pipeline, is evident in this PatentSight legal status analysis, where the 'legal status' of the retrieved Hamilton patents reveal a substantial number of recently filed patent families in the 'pending' stage of their lifecycle. Once again, PatentSight accurate legal status information capturing, combined with manual data researcher checks, ensures that our users have all the updated information in order to make decisions.

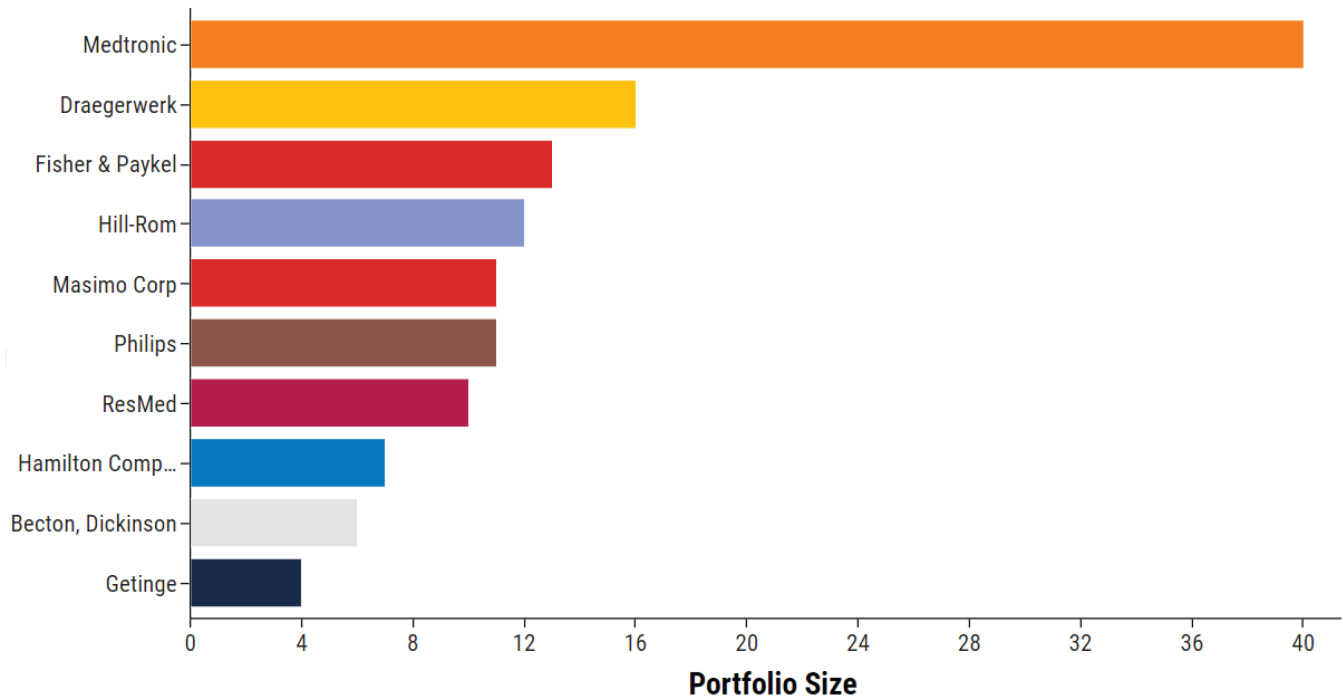
Filing year Statistics of Hamilton patents in the field of Medical Ventilators



The filing year statistics of Hamilton patents retrieved in the patent search along with the legal status information as on 6/4/2020.

However, on further analysis it was discovered that the retrieved Hamilton patents were not only relevant to Hamilton itself, but also to other companies that are active in the field; as indicated by the citation information in the following chart. The retrieved Hamilton patent families in this field have not only been cited as relevant prior art for subsequent Hamilton patent applications but also for multiple applications from companies like Medtronic, Draegerwerk, Resmed, Philips etc. The top 10 citing companies as per portfolio size are represented in the chart.

Top 10 companies citing Hamilton patents in the field of Medical Ventilators



The Top 10 companies (ranked as per portfolio size) citing the retrieved Hamilton patents as of 6/4/2020.

Conclusion: Advantages of using patent analytics to derive actionable insights

The Quality vs. Quantity chart revealed some of the established strong players in the ventilator industry like **Philips, Medtronic and Fisher & Paykel**. These companies own maximum patent families in the field, as defined by the search syntax. **Philips** has already been in the news for investing huge amounts of money to increase its production of ventilators to meet the demands. It already has contracts worth \$647 million with the U.S. government to deliver ventilators throughout the rest of the year. It has also signed contracts recently with the EU to supply medical ventilators.

The average Competitive Impact, the unique KPI of PatentSight brings forth the smaller companies as compared to the giants, which own smaller portfolios in the ventilator patents but their quality is comparable if not more than the established players. Getinge and Hamilton Medical are among those small key players in the industry.

Masimo Corporation, most noted for its remote patient monitoring system, has fewer patent families retrieved in the current patent search. However, the quality of the portfolio as per the PatentSight methodology is remarkably high. Philips has a new licensing agreement with Masimo in 2020 to use Masimo's technology in its patient monitors to assess ventilation status. Masimo corporation recently got FDA approvals for its oximeters that are expected to assist health officials monitor COVID-19 infected patients having breathing difficulties. This recent FDA status has resulted in Masimo Corporation stocks soaring high.

The chart represents more such companies that possess fewer but high-quality patents in the ventilator field. These companies are relevant in the current scenario, where the demand for medical ventilators is on a tremendous high. Among the Top 25 featured companies' list obtained from the current patent search and patent portfolio ranking in PatentSight as seen in the Quality vs. Quantity chart, the companies **GE, Hill-Rom, Medtronic, ResMed, Vyaire, Hamilton and Zoll** were awarded contracts worth a total of \$1.43 billion by the Department of Health and Human Services of the U.S. government for ventilators under the Defense Production Act. **Hamilton Medical** got the biggest contract worth \$552 million while **Medtronic** got the smallest contract worth \$9.1 million.

The award-winning PatentSight tool offers not only robust analytical opportunities but also an integrated patent search option, using which, key IP (patent) players in a field can be identified, taking into account not only the sheer mass of patents owned by an entity but also the quality of the patent portfolio.

For more on this or for a personalized demonstration of our analytics tool and high-quality patent data, please write to us at: info@patentsight.com

LexisNexis® PatentSight®

PatentSight launched its first Business Intelligence Software in 2012. In 2018, PatentSight became part of LexisNexis® IP. Its platform provides unique, reliable and relevant insights into the patent landscape for decision makers and patent experts in the fields of:

- Competitive intelligence and benchmarking
- R&D strategy
- Disruptive technology scouting
- M&A and due diligence
- Licensing and monetization
- Portfolio optimization

Patent Asset Index™

PatentSight is known for its development of the Patent Asset Index, a proven approach to assess patent quality and benchmark patent portfolios. The Patent Asset Index is recognized by technology leaders to provide an accurate view of the strength, quality and value of patent portfolios to reveal the impact and efficiency of an enterprise's investment in innovation.

Analyses delivered by PatentSight are regularly reported to top executives of leading companies. Benchmarks are often featured in the shareholder annual reports of some of the world's largest corporations. Excellent data quality is our highest priority and a foundation of any analysis.

**Enabling the advancement of
humanity through innovation**

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