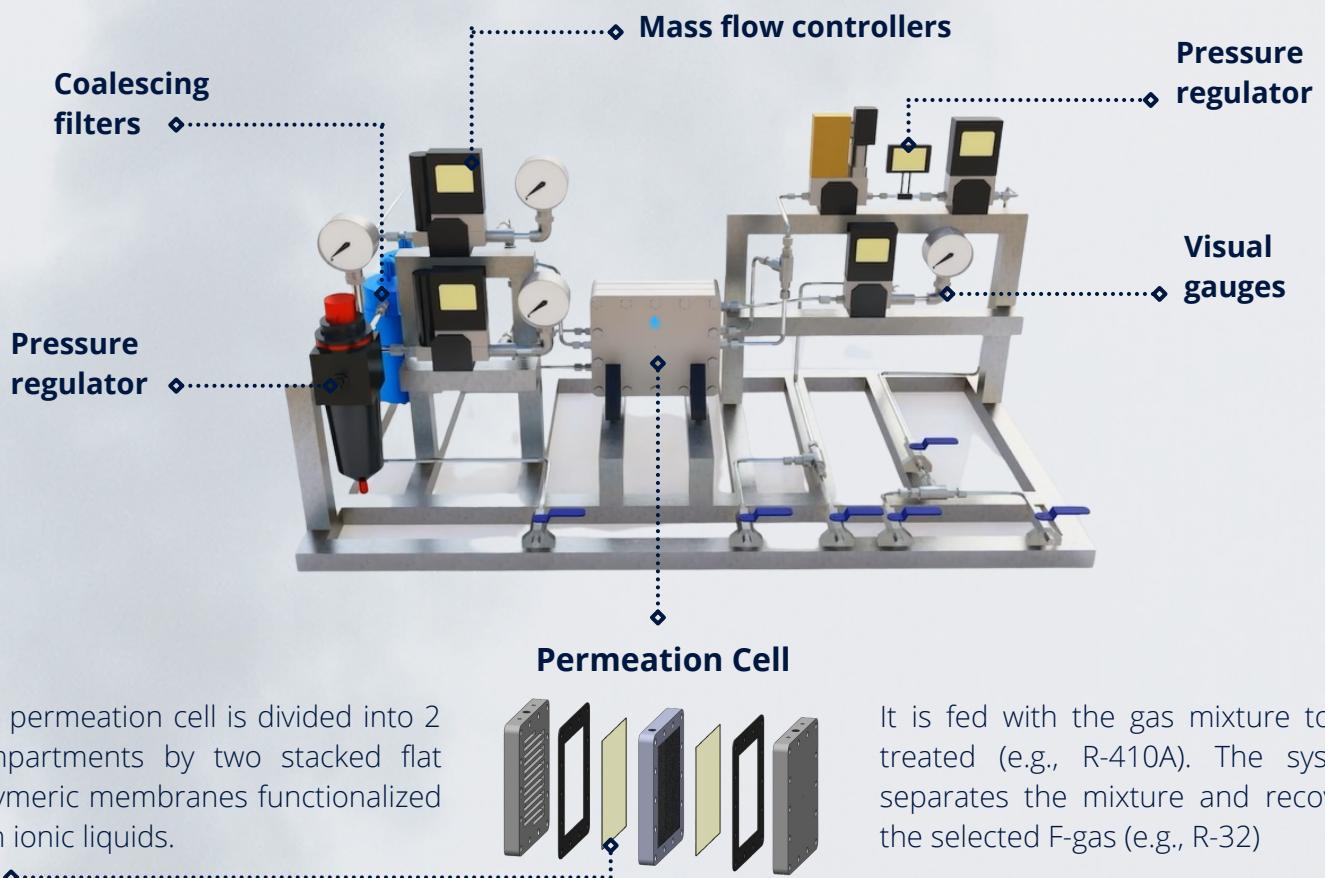


Membrane Prototype

The KET4F-Gas membrane prototype enables efficient recovery of pure F-gases through a membrane gas separation process. This novel technology, developed by the University of Cantabria, takes advantage of differences in the size of gas molecules and gas-membrane interactions, using **stacked flat polymeric membranes functionalized with ionic liquids** to allow the preferential permeation of refrigerant mixtures and F-gas selective recovery.



Several components make this prototype easy to install and manage. The gas enters and passes through two coalescing filters. The correct management of pressure is allowed by two pressure regulators, one (left) for the inlet and one (top-right) for the pressure downstream of the line, and four visual gauges informing about this key variable. Moreover, two flow mass controllers monitor the permeate and retentate recovery.



The KET4F-Gas membrane prototype is highly efficient for the separation of R-410A, with high performance in the selective recovery of high purity R-32. With simple adjustments, it could be applied to other F-gases. It has low energy and maintenance requirements, and it is easy to apply in a waste management facility due to the small amount of space required, its modularity and scalability.