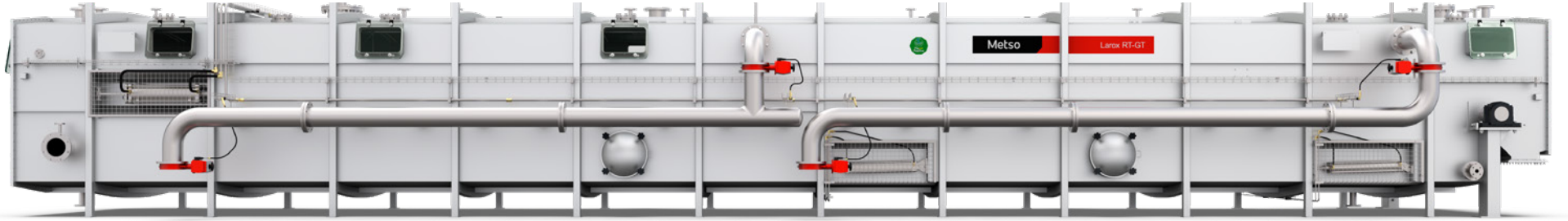
Metso

Larox® RT-GT Gas Tight Vacuum Filtration

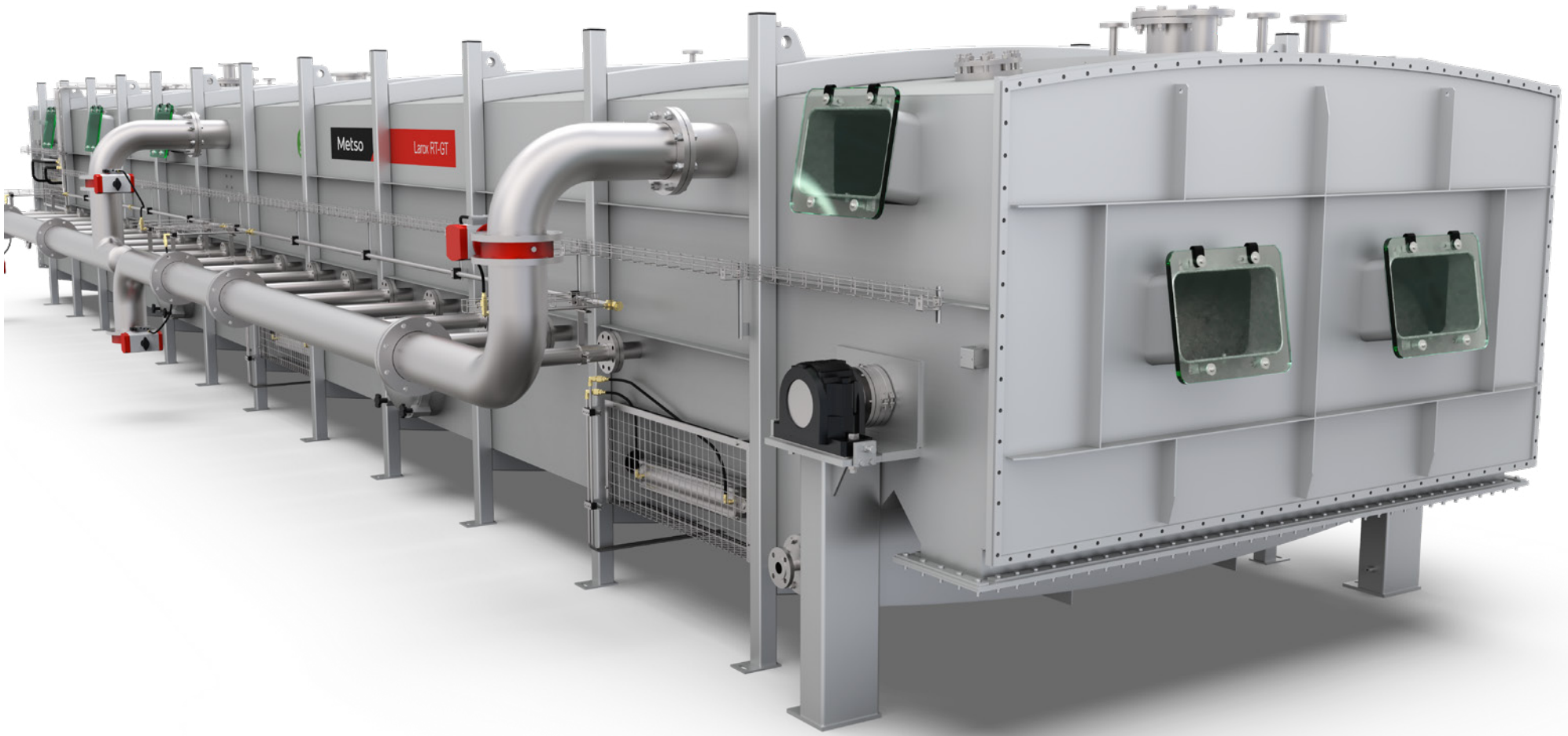


Metso's Larox® RT-GT (Reciprocating Tray – Gas Tight) belt filters represent the leading method of continuous solid-liquid separation for solvent wetted materials in a fully inert atmosphere. The completely enclosed and sealed design can process almost any solvent-based product, while operating under a continuously re-circulated blanket of nitrogen or other inert gas.

Applications reach from food, pharmaceutical and biotech applications, up to specialty chemicals, catalysts and basically any process requiring solids separation and washing under solvent conditions. Larox® RT-GT filters have proven themselves in more than 140 installations utilizing over 20 different solvents.

Benefits

- Fully enclosed for solvent processing
- Multi step processing in a single equipment
- Reaches fully automatic operation, not just automation of function, eliminating the need for constant supervision
- Ensures a long cloth life with continuous cloth washing and patented cloth tracking system
- Requires very little maintenance with low operating costs
- Enables a long equipment lifetime thanks to the robust construction and wide selection of materials


Metso
Larox RT-GT

Take advantage of extremely high availability with low service and operational costs

Larox® RT-GT filters offer a very high availability (97% or better) combined with low maintenance and operating costs while the installed cost is lower than many alternatives.

These filters offer all the advantages of the standard Larox® RT filters, including co-current or counter-current washing, reflux washing, vibration, different forms of mechanical compression and thermal drying. They are highly configurable and – just like standard Larox® RT filters – can be used in almost any combination for multi-step processing.

Trays, grids and all other wetted parts are available in a wide range of materials to suit various process conditions.

Solvent processing
The housing is normally operated with a few millimeters of water gauge over-pressure inside. The nitrogen solvent mixture from the housing is sucked through the cake and passed through the receiver where the filtrate is separated from the gas flow. The gas is then returned back into the housing. A small amount of replacement nitrogen is required to compensate for the nitrogen that exits with the filter cake.

Hinged windows on the sides and lights on the roof provide visibility to the process in the filter.

Food & pharma
The housing is design is self-draining, dead spots are eliminated to ensure sanitary and allow easy cleaning. Internal surfaces can be easily polished to a specified level and clean-in-place (CIP) can be added as an option.

Optionally Larox® RT-GT filters can comply with FDA standards.

Drying
The Larox® RT-GT filter can be utilized as dryer integrated with the dewatering and washing process steps. Filter cakes are relative thin and as the liquid phase is solvent, drying is typically achieved relative quickly with final moisture contents down to 0,1% reached.

Equally steaming or final cooling of the filter cake can be accomplished using the drying procedure by substituting the hot gas by steam or cold gas.

Foodstuffs
- Editable oils (Palm, Shea, etc.)
- Sterols
- Pectin
- Fatty acid separations

Pharmaceutical
- API's
- Vitamins

Chemicals
- Catalysts
- Carboxy methyl cellulose
- Pigments and dyestuffs
- Herbicides

Bio-processing
- Bio-lignin
- Biomass

Operating principle

At the heart of the filter is a very simple concept; a continuously moving filter cloth that does not require a rubber support belt. Instead, an open grid located in a profiled tray runs the length of the filter and supports the cloth.

A vacuum to separate the solids and liquids is applied to the underside of the cloth. When the vacuum is applied, the forward movement of the cloth pulls the tray with it at the same speed. As the tray advances to a specific point, the vacuum is briefly removed and the tray is returned to its original position. The vacuum is then re-applied and the tray moves again with the cloth

Control system

The filter functions continuously and is fully automatic with an electro-pneumatic control panel mounted on the filter. The vacuum and air intake valves, as well as the tray retraction, are pneumatically operated. The mechanical operation of the filter is controlled by a small PLC system. The pneumatic system, including cylinders and sensors is located outside the solvent area of the filter.

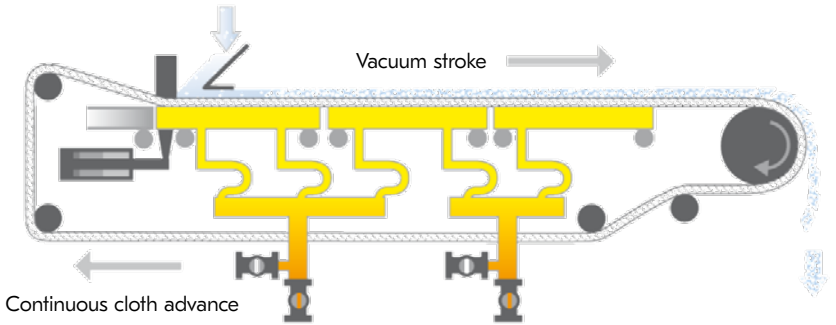
Cloth washing

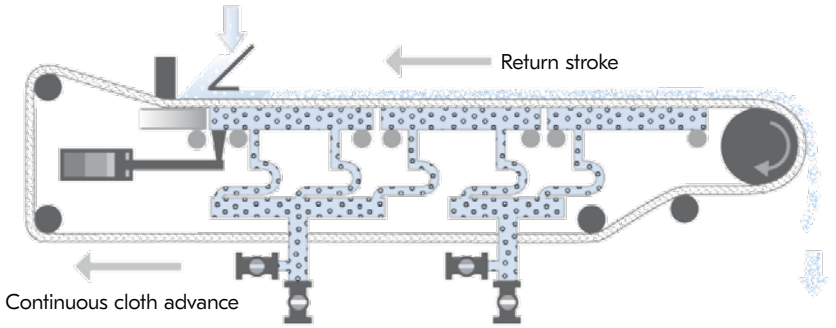
To ensure a constant and optimum filtration, the filter cloth is washed continuously. Flat jet sprays angled to achieve maximum impact for cleaning the cloth ensure that a "clean" cloth is always presented to the incoming slurry.

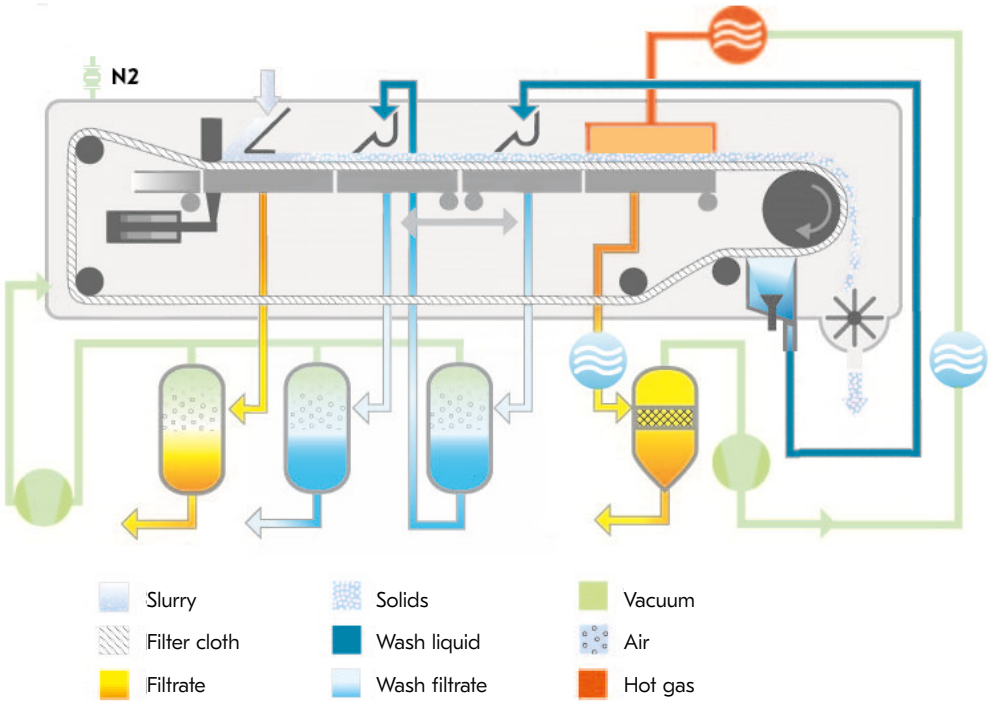
Slurry feed

The slurry is continuously fed to the filter by means of a splash plate with feeding points to guarantee a smooth cake of constant thickness. Several alternative systems are available should the slurry require a special feeding system.

The ability to carry out multiple wash steps, with each wash filtrate collected into its own receiver enables the Larox® RT-GT filter to produce a very high purity cake (up to 99.99% or better) with low wash water consumption.







Technical specifications

LAROX RT-GT 1.15		4.2	5.6	7.0	8.4	9.8	11.2
Filtration area	m^2	4.8	6.4	8.1	9.7	11.3	12.9
Overall width	mm	3 491					
Overall length	mm	8 300	9 700	11 100	12 500	13 900	15 300
Overall height	mm	2 700					
Empty weight	kg	6 900	7 600	8 200	8 900	9 600	10 300
Installed power	kW	0.75					

LAROX RT-GT 1.6		4.2	5.6	7.0	8.4	9.8	11.2
Filtration area	m^2	6.7	9.0	11.2	13.4	15.7	17.9
Overall width	mm	3 948					
Overall length	mm	8 300	9 700	11 100	12 500	13 900	15 300
Overall height	mm	2 700					
Empty weight	kg	8 400	9 100	9 800	10 600	11 300	12 100
Installed power	kW	0.75		1.1			

LAROX RT-GT 2.1		7.0	8.4	9.8	11.2	12.6	14.0
Filtration area	m^2	14.7	17.6	20.6	23.5	26.5	29.4
Overall width	mm	4 585					
Overall length	mm	11 100	12 500	13 900	15 300	16 700	18 100
Overall height	mm	2 700					
Empty weight	kg	11 700	13 300	14 100	14 900	15 700	16 500
Installed power	kW	0.75	1.1				2.2

LAROX RT-GT 3.0		9.8	11.2	12.6	14.0	15.4	16.8	18.2	19.6	21.0
Filtration area	m^2	29.4	33.6	37.8	42.0	46.2	50.4	54.6	58.8	63.0
Overall width	mm	5 490								
Overall length	mm	13 900	15 300	16 700	18 100	19 500	20 900	22 300	23 700	25 100
Overall height	mm	2 700								
Empty weight	kg	17 000	18 000	19 000	20 000	21 000	22 000	23 000	24 000	2500
Installed power	kW	2.2					3.0			

Get the most out of your filters

Metso Services

At Metso we strive to deliver the best possible quality, availability, performance, and financial solutions for our beneficiation and dewatering customers. We are dedicated to the long-term journey throughout the equipment life cycle, Wcreating win-win relationships for all stakeholders.

By combining the quality products and expertise, we possess the unique ability to partner with our end-users, provide services, reliability, innovation and results safely with sustainability at the core of all we do.

Spare and wear parts

Rely on OEM experts because not all parts are created equal.
Spare and wear parts built to perform.

Maintenance, shutdowns and repairs

Trust those who know the equipment best to ensure that your production goals are met.

Modernizations, upgrades and retrofits

Whether you aim to restore equipment to its original condition or upgrade it for increase performance, explore your options

Process optimization and connected services

By understanding your business needs, we improve performance using technology and expertise

Lifecycle services

Tailored service packages delivering performance outcomes.
Your goals are our goals!

Metso is a frontrunner in sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. By improving our customers' energy and water efficiency, increasing their productivity, and reducing environmental risks with our product and process expertise, we are the partner for positive change.

Metso

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