



Increase your profit, not your effluent

The Alfa Laval D3 PRO all-in-one separation process for crude palm oil



It's time for more oil and less effluent



High-end results

Alfa Laval has been involved in the palm oil industry for decades. During this time, we have met with countless plant managers, operators and consultants. We have seen new trends and challenges emerge with every decade and we have met these challenges with new equipment, upgrades and innovative process models.

Today, plant managers are calling for a more sustainable crude palm oil process that can also recover more oil, minimize costs and optimize yield.

Alfa Laval's D3 PRO process is our answer. It is widely used and recognized in the industry as the only system that can process undiluted crude palm oil with consistent performance.

The main workhorse of this process is our 3-phase decanter, capable of high capacity separation with no need for

dilution water. This means considerably less effluent for smaller, more manageable ponds. And with its 3-phase operation, it produces a light phase that is "ready-to-go" with no need for further purification, plus a heavy phase that can be further separated to recover oil, and a cake phase that can be used for additional sources of income.

The end result is higher profit through an environmentally friendly system. Or in simpler terms, more oil, less effluent.

Just subtract water

The D3 PRO improves your process and saves you money right from the start. That is because our system requires no dilution water. With its patented feed zone, our 3-phase decanter can separate undiluted crude oil, even at high capacity. This represents significant savings in time, energy consumption, water usage and labour.

More importantly, it means considerably less effluent in the discharge phase, so your process will be environmentally friendly.

Three phases are better than two

After de-sanding, the crude oil is fed to our 3-phase decanter. Here you will gain numerous advantages over current 2-phase models in the industry.

To begin with, the decanter can be run at a higher capacity without sacrificing the oil quality. Secondly, the light phase has only 0.5% moisture and 0.02% impurities, so it can be sent directly to the dryer with no need for purification. Not only does this save on equipment and maintenance, but it ensures consistent quality. Thirdly, the cake and heavy phase are separated and can be treated differently. If your plant is using the discharge for composting, the cake and heavy phase can be combined together.

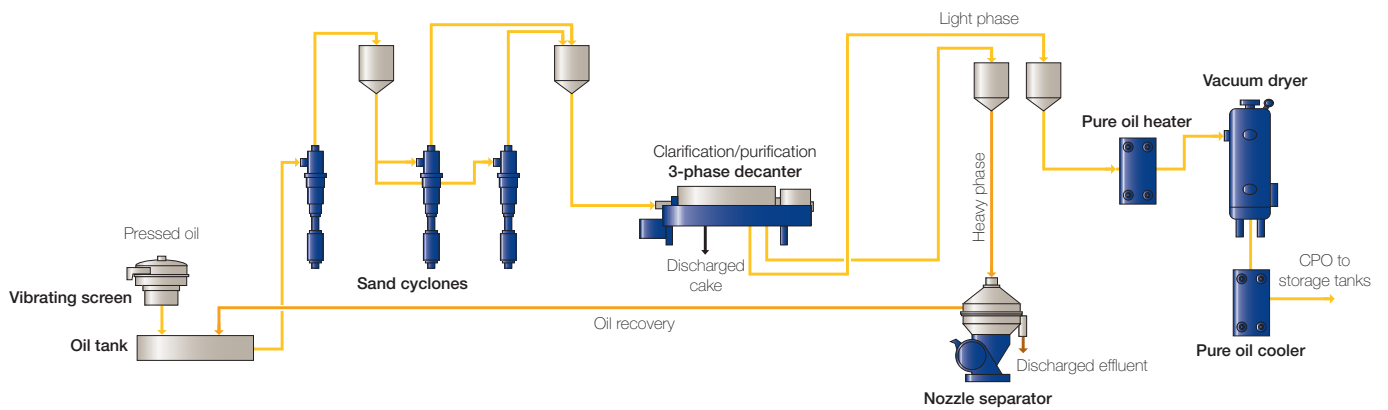




Alfa Laval's D3 PRO combined clarification, purification and oil recovery process has been adopted by numerous crude palm oil mills across the world.



◀ **D3 PRO in action**
 Since 2009 a D3 PRO process incorporating 3-phase decanters has been clarifying and purifying crude palm oil at a Malaysian oil mill with a total capacity of 80 tons FFB/h.



D3 PRO process with 3-phase clarification/purification and oil recovery

Alternatively, if the cake is dried as fertilizer, the amount of heat required is less than with a 2-phase operation, and a smaller dryer can be used.

Finally, unlike 2-phase processes, the heavy phase can be separated to recover lost oil. This is the key to optimizing your process and achieving higher yields.

The D3 PRO process is available with your choice of different capacity from 30 to 90 tons fresh fruit bunches (FFB)/hour.

Heavy phase oil, use it or lose it
 It is estimated that the average plant loses 0.40% of oil to FFB in the



separation process. Small amounts are present in the heavy phase and not easily recovered. With the D3 PRO, however, the heavy phase is sent to our high speed, disk stack centrifuge where oil is recovered and re-routed in the system.

This step in the process can amount to significant increases in yield and profit. For instance, if a plant processes 250,000 tons/year and recovers an additional 0.1% to FFB, the amount of recovered oil will be 250 mt. If one metric tonne of oil is valued at USD 920, this represents an additional revenue of USD 230,000 per year.



Low maintenance, less labour

The D3 PRO can be designed to be a self-automated system capable of operating 24 hours a day, with minimal maintenance or supervisory requirements. The de-sanders remove large amounts of sand and other abrasive material that can erode equipment. The decanter for the D3 PRO process requires little monitoring or de-clogging, even during high capacity processing.

Alfa Laval machinery is known for being durable and reliable for years on end. This minimizes your labour and maintenance costs, while ensuring continual uptime.



Additional peace of mind

The D3 PRO is backed by the name Alfa Laval, a name synonymous with innovative processes, high performance equipment and the most knowledgeable engineers, technicians and sales representatives in the palm oil industry.

You can count on easy installation, responsive parts and service support, and a team that will work with you to provide a system and delivery time perfectly suited to your needs.

Whether you have a new plant in development or need to upgrade your existing process, contact your local Alfa Laval sales representative today. And start producing more oil with less effluent.



The D3 PRO allows you to

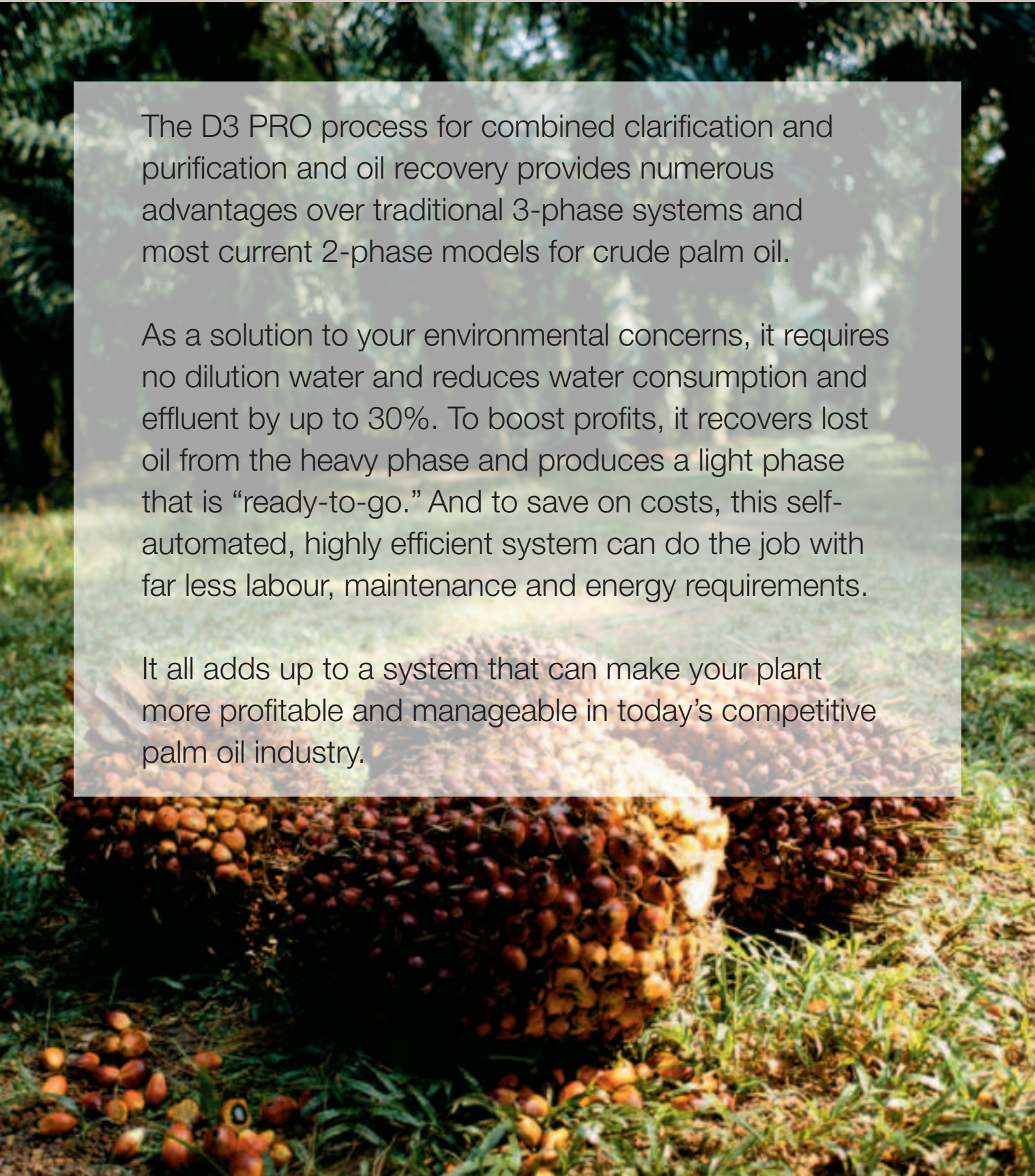
- Recover lost oil for higher yields and profit
- Separate without dilution water
- Reduce effluent by up to 30%
- Create a light phase with no need for additional purification
- Operate at high capacity
- Create cake for other income sources such as fertilizer
- Save space and money by eliminating a continuous vertical settling tank from your process.
- Reduce water, energy and labour costs
- Minimize maintenance and man-hours
- Separate crude palm oil 24 h/d
- Consistent separation and oil quality
- No unnecessarily long holding time and exposure to oxidation.



The D3 PRO process for combined clarification and purification and oil recovery provides numerous advantages over traditional 3-phase systems and most current 2-phase models for crude palm oil.

As a solution to your environmental concerns, it requires no dilution water and reduces water consumption and effluent by up to 30%. To boost profits, it recovers lost oil from the heavy phase and produces a light phase that is “ready-to-go.” And to save on costs, this self-automated, highly efficient system can do the job with far less labour, maintenance and energy requirements.

It all adds up to a system that can make your plant more profitable and manageable in today’s competitive palm oil industry.



Alfa Laval in brief

Alfa Laval is a leading global provider of specialized products and engineered solutions.

Our equipment, systems and services are dedicated to helping customers optimize the performance of their processes. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuffs, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.

How to contact Alfa Laval

Up-to-date contact details for all countries are available on our website at www.alfalaval.com

