

Particle analyzer

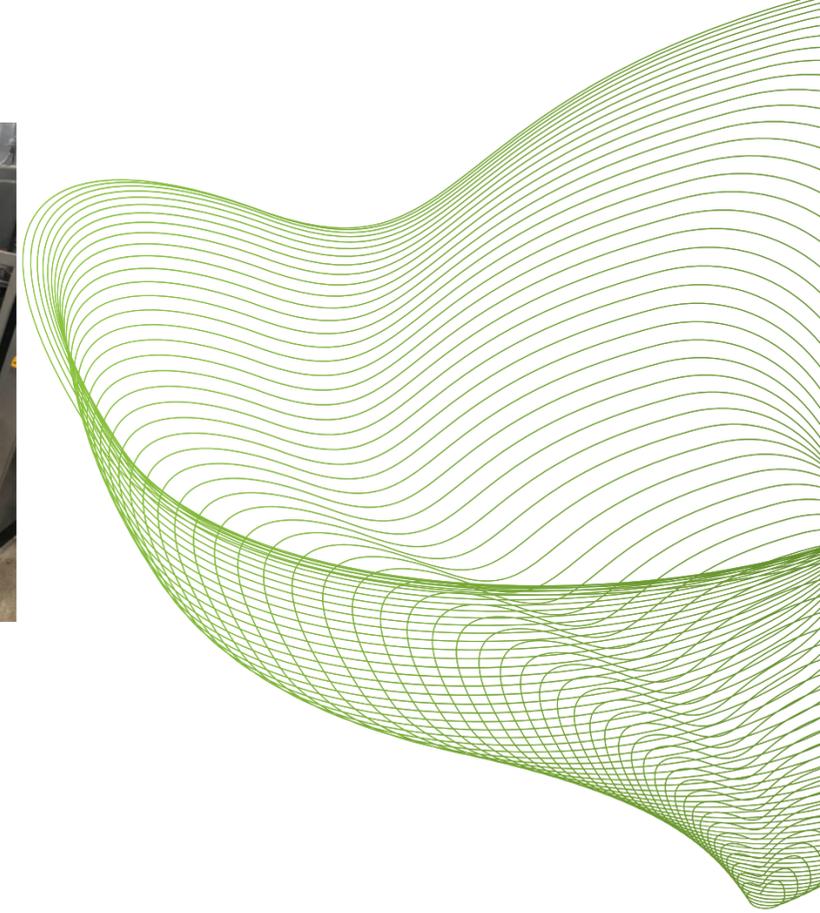


DESIGN TREE
Mechanical Engineering



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Introduction



Company Overview

Founded in 2019, Design Tree Ltd is a mechanical engineering and manufacturing company that specializes in creating custom solutions for clients.

Company have a strong track record of successfully completing projects in a variety of industries, and have particular expertise in computer vision and the development of innovative products.

Our team of experienced engineers and technicians are dedicated to delivering top-quality products and services to our clients.

Looking to the future, we are always seeking out new opportunities for innovation and are excited to see what the next chapter holds for our company. We are confident that our expertise and commitment to excellence will continue to drive our success for years to come.



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What is a Particle Analyzer?

A particle analyzer is a device or system used to measure the size, shape, and concentration of particles of bulk materials from sand, earth and construction materials to foodstuffs and recycling, from chemicals and plastics to varnishes, paints and special coatings, our analysis systems provide better quality assurance.



Complying with standards

As measuring equipment, particle analyzers must meet the stringent quality standards established by national and international regulations. Particle analyzer utilizes dynamic image analysis (DIA) in compliance with ISO 13322-2. It employs a high-resolution line scan camera to identify all particles in motion against the backdrop of a LED light source.

Detailed output information

The software can measure various characteristics of the particles, such as size, shape, and concentration, providing accurate and precise data. The particle analyzer can also be used to analyze particles that are difficult to measure with other techniques, such as particles that are transparent, irregularly shaped, or too small to be seen with the naked eye.

Efficiency and Speed

The technology allows for automated analysis, which can save time and improve efficiency by reducing the need for manual labor. The data obtained from the particle analyzer can also be easily stored and analyzed digitally, providing customers with easy access to the information they need to improve their processes and production.



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Industries

A computer vision-based particle analyzer can be used in a wide range of industries, including medicine, fertilizers, granules and pellets, sand and gravel, test laboratories, minerals and ores, and food stuffs recycling to control the quality



Medicine



Fertilisers



Ganules



Test Laboratory



Sand, gravel, crushed stones



Minerals and ores



Foodstuffs



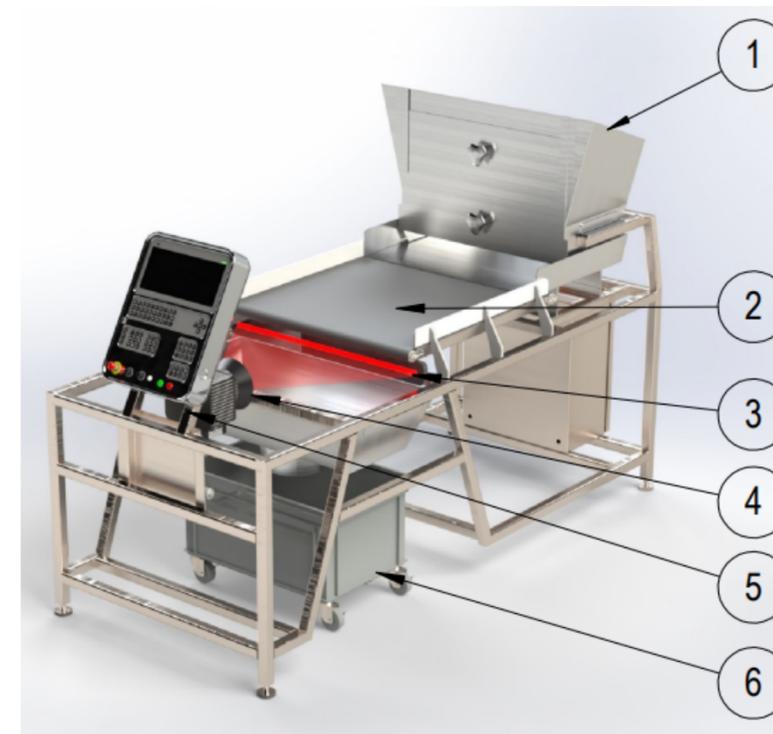
Recycling



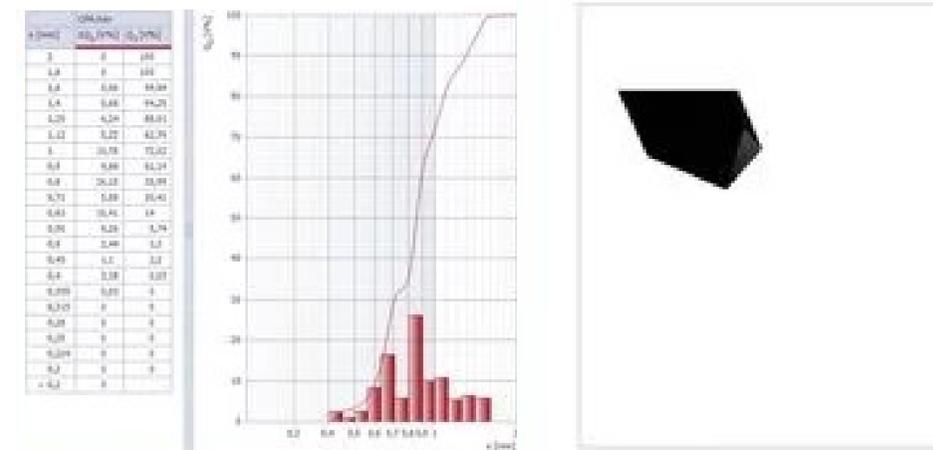
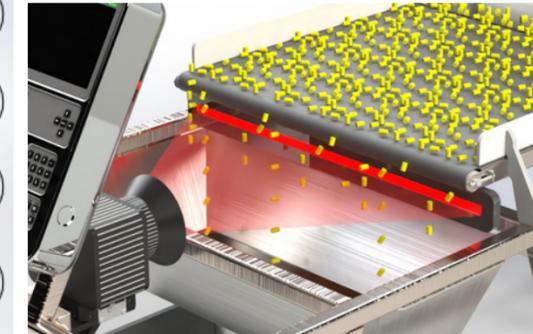


How does it works

- The particle analyzer uses dynamic image analysis to evaluate the sample material. The process begins by loading the material into a funnel. The height of the funnel is then adjusted to allow the material to slowly trickle onto a feeder. The feeder vibrates, pushing the material to the edge.
- As the particles fall, a line scan camera captures images of the shadows created by the particles in the presence of a LED light source. It is crucial that the light and camera are properly aligned to avoid errors. Once the analysis is completed, the sample can be collected in the pan beneath the camera.
- The final step is to process and analyze the data digitally using the Analyzer software. This software provides a wide range of customizable information and can display the results in various formats, like a standard chart.



1. Funnel
2. Feeder
3. LED-Light background
4. Line scan camera
5. Control panel
6. Accumulation box



Id	Chart	Equivalent diameter [mm]	Maximum Feret [mm]	Minimum Feret [mm]	Length [mm]	Minimum Feret [mm]	Marin diameter [mm]	Feret diameter [mm]	Maximum out [mm]	Aspect ratio	Circularity	W
1		6.0608	10.076	4.6027	10.074	4.9221	7.462	6.4513	7.462	2.0468	0.73568	
2		8.5346	11.666	7.6448	11.665	7.7558	9.646	8.6948	10.01	1.4983	0.82106	
3		8.2725	9.6418	7.7152	9.368	7.4625	8.281	8.4343	8.463	1.2553	0.89349	
4		8.5142	10.114	8.1948	9.6148	8.1862	9.646	8.3475	10.101	1.1745	0.8759	
5		6.5798	7.7461	6.7258	7.7424	6.8281	6.552	7.6553	6.643	1.1339	0.83631	
6		6.5033	8.4673	6.1276	7.6517	5.7213	7.28	7.0521	7.644	1.3374	0.84874	
7		8.5371	11.481	6.6675	11.473	6.6872	10.192	7.3965	10.283	1.7157	0.8742	
9		6.9778	8.5317	6.6833	7.979	6.2491	6.461	7.4827	6.552	1.2768	0.88612	
10		8.7206	11.063	7.5104	11.039	7.5865	10.374	7.8281	10.92	1.4551	0.87079	
12		8.0464	9.6288	8.5998	8.745	7.6129	7.371	8.6079	7.644	1.1487	0.88183	
13		9.1687	12.088	7.3309	11.757	7.1682	11.011	8.5211	11.193	1.6402	0.85662	
14		8.5656	12.464	6.2869	12.425	6.2238	6.097	11.855	6.188	1.9963	0.8192	



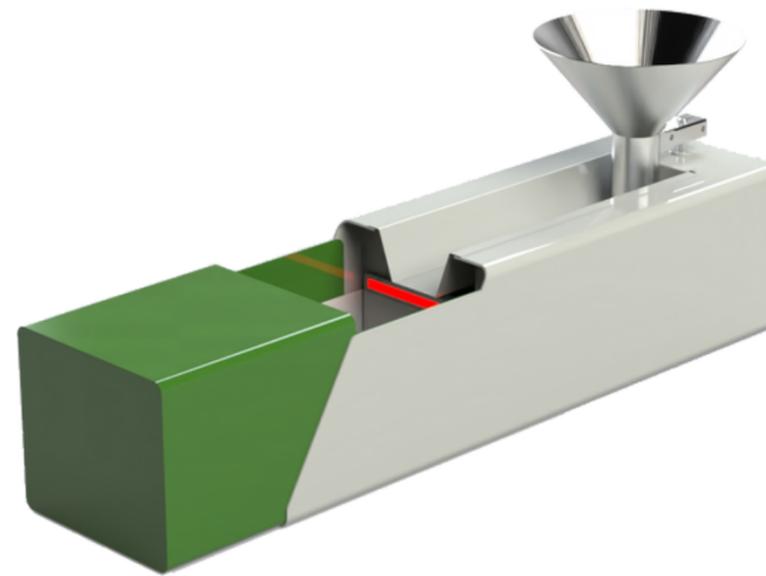
Machines

Design Tree offers two types of particle analyzing equipment, one intended for laboratory use and the other for industrial use. Both machines are designed to accurately measure the size, shape, and concentration of particles in a sample.

Design Tree provides a custom solution service for clients who require specialized equipment to meet their specific needs. This includes a continuous measuring solution that can be integrated into a manufacturing line for real-time analysis of particles during production, allowing for real-time adjustments to the process, improving efficiency and ensuring the quality of the final product.

Whether you are a researcher, manufacturer or in the process control industry, Design Tree's particle analyzing solutions can help you to improve the efficiency and quality of your work.

Laboratory LPA-01



- For smaller samples 20 microns to 20mm
- For laboratory or inspections use
- Foot print 850x200

Industrial IPA-02



- Large quantities 40 microns to 25mm
- Can be installed on a production line for a continuous process automation
- Foot print 1120x500mm



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