



Q-Chain[®] PolyShear

Shear Stress Simulator



What is Q-Chain® PolyShear® made for?

In paint circulation lines, the liquid paint system is pumped through different diameters, pressure reducers and other elements. This causes shear and this shear can lead to a degradation of the paint material. Especially changes in viscosity and color can arise from shear stress in these paint lines. This can lead to complaints and in worst case to a complete refill of a paint line.

The Q-Chain® PolyShear® method is designed as a small unit, which can simulate this shear stress in a reasonable testing time.

Conventional laboratory setups consist of paint lines, which shall correlate to a paint line in an industrial environment. The Q-Chain® PolyShear® method uses a defined shear element only and this makes the setup smaller and very repeatable.

How does Q-Chain® PolyShear® work?

The basic module of the Q-Chain® PolyShear® consists of a small and mobile cabinet. For running the equipment, only a pressure line is necessary (6 bar). The paint material is filled into a small pot (1 litre) and pumped through a shear element.

The number of cycles can be correlated to paint lines and this correlation has been proven by several studies.

After or during the test, the viscosity and the color (e.g. with Q-Chain® LCM) can be measured. This allows to understand the degradation of the material in correlation to the shear stress.

The system has been developed and patented by Fraunhofer IFAM in Bremen, Germany. ORONTEC is manufacturer and distributor for the equipment.

The basic module can be extended with additional sensors e.g. for cycle counting with stop function or temperature.



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Major Features:

- Laboratory scale, mobile and low demand for space
- Only 1 litre of paint is needed for the test
- High reproducibility and repeatability
- Very good correlation to industrial paint lines (e.g. Automotive OEM paint shops)
- Short cycle time
- Modular setup, Basic module can be extended with further measurement sensors
- Suitable for a combination with **Q-Chain**® LCM (www.q-chain.com), measurement of color in liquid condition

Technical Data:

Material:	Stainless steel housing and connectors. Glass window for test observation and control
Dimensions:	650 x 630 x 400 mm
Weight:	Approx. 57 kg
Connections:	Pressurised air, max. 7 bar
Pump:	Approx. 3,1 to 1 double membrane pump, max. 30 l/min
Shear Element:	Standardized with flexible throughput
Noise level:	Ca. 60 dB (A)

