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## Static mixers for extrusion **CSE-X(G) Melt Mixer**

Extrudates of high quality imply melts of a very homogeneous temperature profile. A product of high quality is also characterised by a homogeneous distribution of additives such as flame proofing agents, UV stabilizers and colorants. This goal can be met best by applying CSE-X mixers with the well-known high mixing performance. As a result, significant economies are possible for example due to the lower amounts of colorants or other additives.

### Problems caused by inhomogeneities

In order to meet the increasing quality requirements of plastics, the homogeneity of the melts must be strictly controlled already in the production process. Problems such as dimension deviation, distortion, inhomogeneous colour or structure of the surface often have their origin in an inhomogeneous polymer melt leaving the extruder. Therefore, appropriate measures must be taken to eliminate these inhomogeneities.



Fig. 1 CSE-X Melt mixers (welded)

### Distribution of colorants

Screw pumps rapidly reach their limits by mixing colorants into polymer melts. Schlieren and stains are typical after effects, which often only can be eliminated by increasing amounts colorants. This, however, is changing the physical properties and often increasing the production costs significantly. The CSE-X mixer is capable to cope with this problem. The unrivalled mixing performance oftentimes allows a reduced dosage of colorants of more than 20% at the same quality.



Fig. 2 Brazed, gap-free CSE-X/8 75 element Static mixer are used in many engineering processes where heat and mass transfer operations are involved.

### Inhomogeneous temperature profile

Extruding machines first have to pump and to melt the solid resins. Homogenizing of the polymer melt and building-up the pressure are the steps followed. These numerous and multifunctional demands often stay in contrast to the required high mixing performance. In addition, the wide range of flow rates makes the mixing process even more difficult. The inhomogeneous temperature profile, as a function of the screw-type and the extrusion performance, leads to significant fluctuations in quality, which often only can be eliminated by using CSE-X mixing elements.

### The solution

Fluitec melt mixers type CSE-X are situated between the extruder (screw pump) and the die. Fluitec mixers can be delivered as complete units including housing, heating band, temperature sensors and fittings defined by the customer. CSE-X mixers are dedicated for almost all thermoplastics. For plastics, which are sensitive to thermal decomposition, however brazed elements should be preferred.

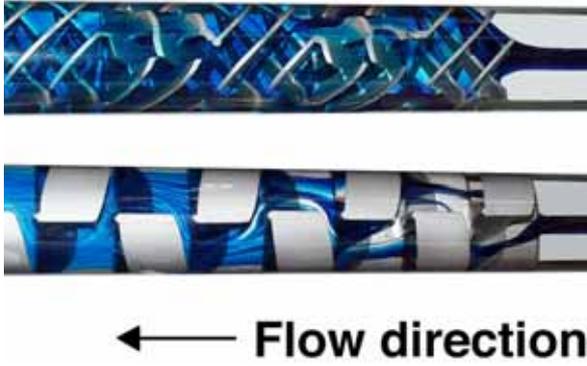


Fig. 3 Mixing performance of CSE-X and CSE

The short face-to-face length of the Fluitec melt mixers are characteristic, thus allowing the uncomplicated retrofitting of existing plants. Especially old extruders can be easily graded-up. The CSE-X melt mixer ensures an improved and more regular flow in the die. Narrower tolerances and a wider range of applications are of additional advantage. Maintenance and operating costs are almost zero, due to the lack of moving parts.



Fig. 4 mikromakro® meltblender 185

### Advantages using CSE-X mixers

- homogenised temperature profile
- narrow tolerances of the extrudate

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- reduced defective goods, saving of raw material
- improved surfaces
- controlled dyeing
- constant production
- improved productivity of up to 20%



Fig. 5 CSE Mixer for PVC-melt

### Application

- for plates
- for profiles
- for tubes
- for flat and blown films
- for foamed products
- to compound



Fig. 6 CSE-X 90 melt blender with housing



Fig. 7 Melt mixer DN 250 for PS-foams