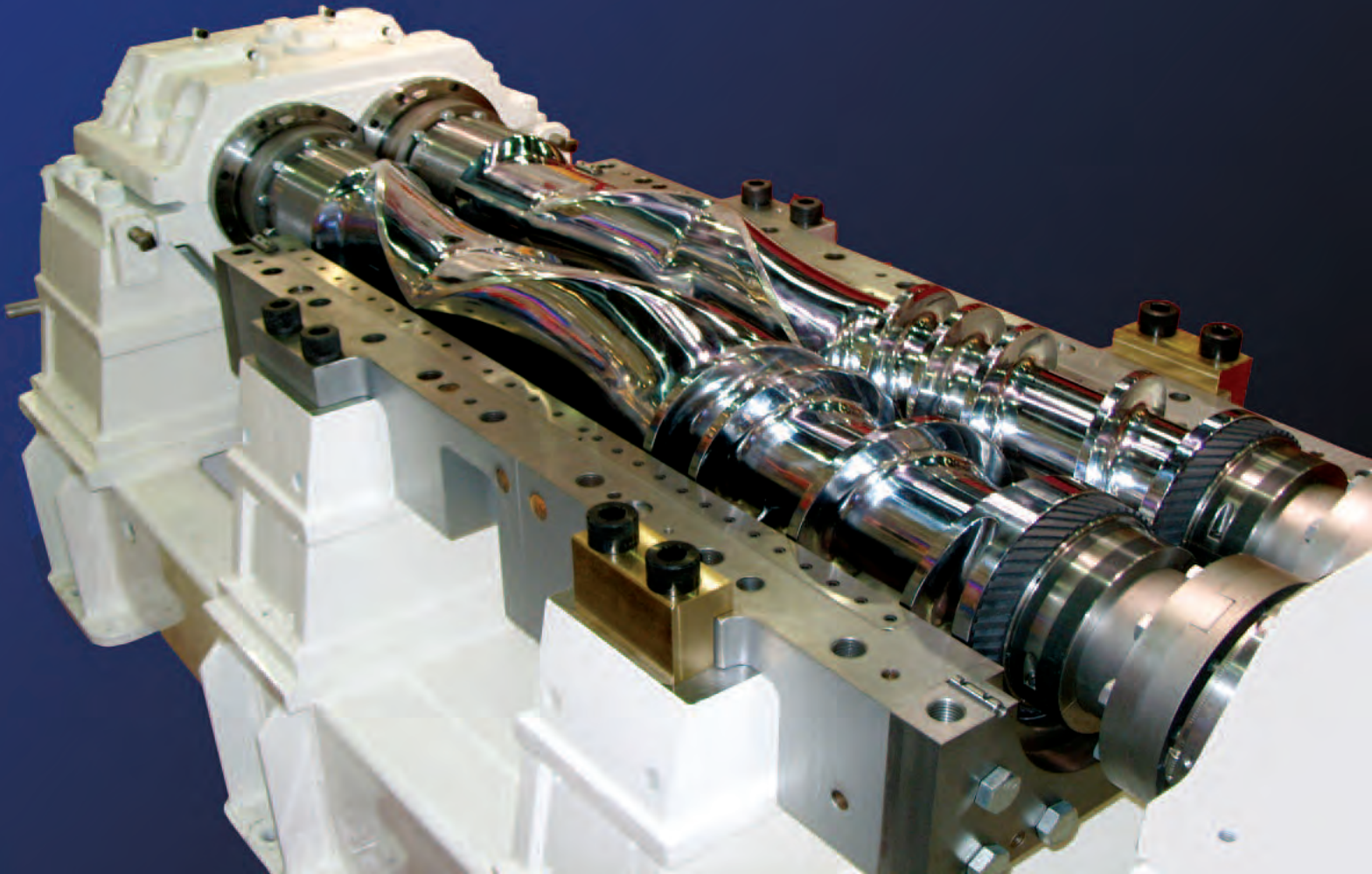


Continuous Mixers

FCM™, Farrel Continuous Mixer

LCM, Long Continuous Mixer



FCM™, Farrel Continuous Mixer

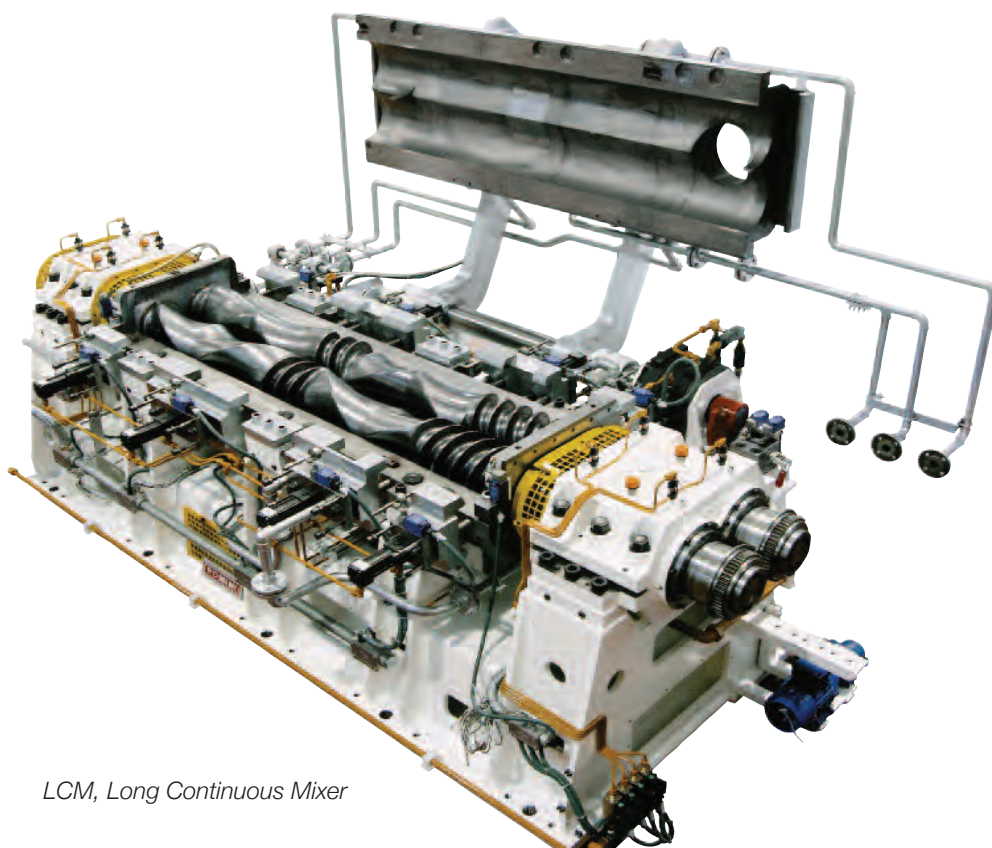


MIXING GROUP

Beginning in 2010, HF Mixing Group was formed by the integration of the leading global suppliers to the processing industry - Harburg-Freudenberger, Farrel Corporation and Pomini Rubber & Plastics Srl. The three entities, now operating as one, possess over 400 years of collective experience.

HF Mixing Group offers two outstanding options for Continuous Mixing applications - the FCM™, Farrel Continuous Mixer and the LCM, Long Continuous Mixer. They are based on proven intensive mixing concepts for processing efficiency, extreme versatility, dependability and profitability.

Both the FCM™ and LCM lines of processors are independent mixers for a vast range of uses, in particular, polyolefin, polystyrene and PVC based compounds. For post-reactor applications, the FCM™ and LCM can be combined with an FMP, Farrel Melt Pump and Underwater Pelletizer.



LCM, Long Continuous Mixer

FCM™, Farrel Continuous Mixer

The FCM™ is available in a range of sizes and capacities to meet an array of processor's production needs from pilot/laboratory to large scale production. All models share the same basic mechanical features, operating principles and method to control the mixing intensity.

All ingredients can be fed into the mixer separately or as a pre-blend and liquids can be injected directly into the mixing chamber. Intensive material shear is applied to melt the polymer and to mix all of the ingredients by kneading between the rotors and chamber wall as well as by the rolling action within the material itself.

Features include:

- Counter-rotating, non-intermeshing rotors at synchronous speed, give a large free volume for material circulation enabling a superior distributive dispersion by back mixing
- Unique rotor geometry enables superior dispersive mixing

- Mixing intensity can be selected as functions of rotor speed, working volume, thermal conditions and residence time
- Large rotor tip-to-wall clearance to minimize the effect of wear
- Large feed opening that allow for high filler loadings
- PLC-based controls with touch screen, expandable to include a supervisory system
- Modular components result in easy maintenance and higher productivity
- Energy efficient with low operating costs

The mixer body has a single feed hopper opening, one heated discharge orifice with adjustable gate and an atmospheric degassing/venting port. For high wear applications, the mixing chamber can be supplied with removable hard metal liners.

LCM, Long Continuous Mixer

The LCM design includes a two-stage mixing chamber in combination with 10 L/D long rotors.

Primary mixing stage features include:

- Dry blending of the polymer with all other ingredients
- Preheating of dry blend
- Breakdown of larger agglomerates by friction between polymer particles, "the ball mill effect"

Secondary mixing stage features include:

- Intensive shear between the rotor tips and chamber wall melts the polymer and provides dispersive mixing to incorporate the other ingredients
- Back mixing via longitudinal cut-back pushes the material back and forth along rotors axes for distributive mixing
- Uniformity is achieved in the final kneading step by the rolling action between the two rotors. After this step, the material leaves the mixing chamber

The LCM has a mixer body with a single feed hopper opening, one heated discharge orifice with adjustable gate and an atmospheric degassing/venting port. For high wear applications, both mixing chamber sections can be supplied with optional removable hard metal liners.

Continuous Mixer Capacities*

FCM™ Machine Size	4UM	5UM	6UM	7UM	9CM/UM	12UM	13UM	16UM	18UM
Nominal Production Rates (kg/h) 500	400 to 600	800 to 1,200	1,500 to 2,400	2,000 to 3,500	3,000 to 6,000	5,000 to 10,000	8,000 to 13,000	15,000 to 25,000	20,000 to 40,000
LCM Machine Size	LCM100	LCM130	LCM150	LCM190	LCM230	LCM300			
Nominal Production Rates (kg/h) 500	300 to 600	600 to 1,200	900 to 1,800	1,800 to 3,700	5,000 to 10,000	10,000 to 15,000			

* All production rates should be factory verified



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