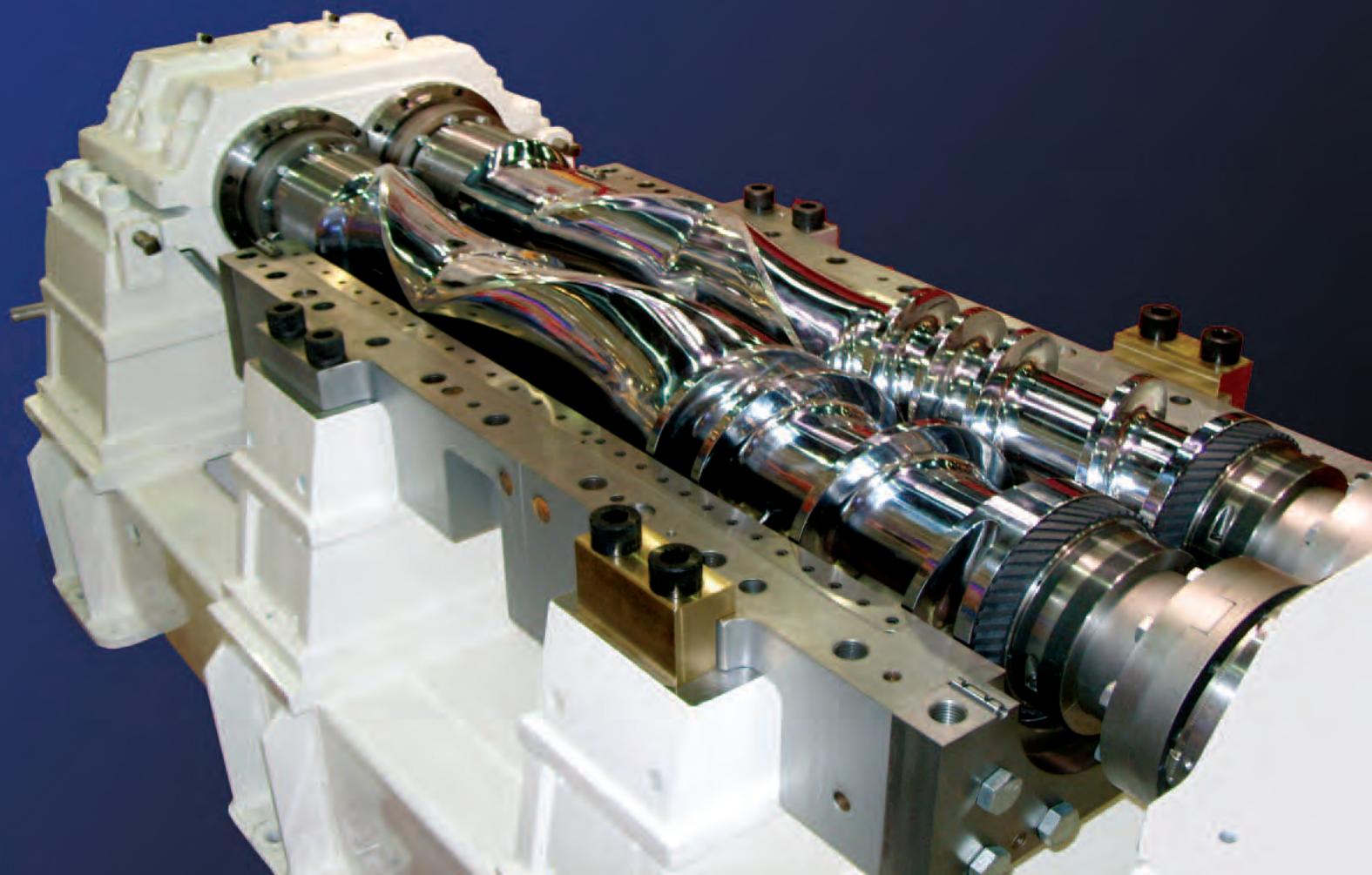


# Continuous Mixers

FCM™, Farrel Continuous Mixer  
LCM, Long Continuous Mixer



FCM™, Farrel Continuous Mixer

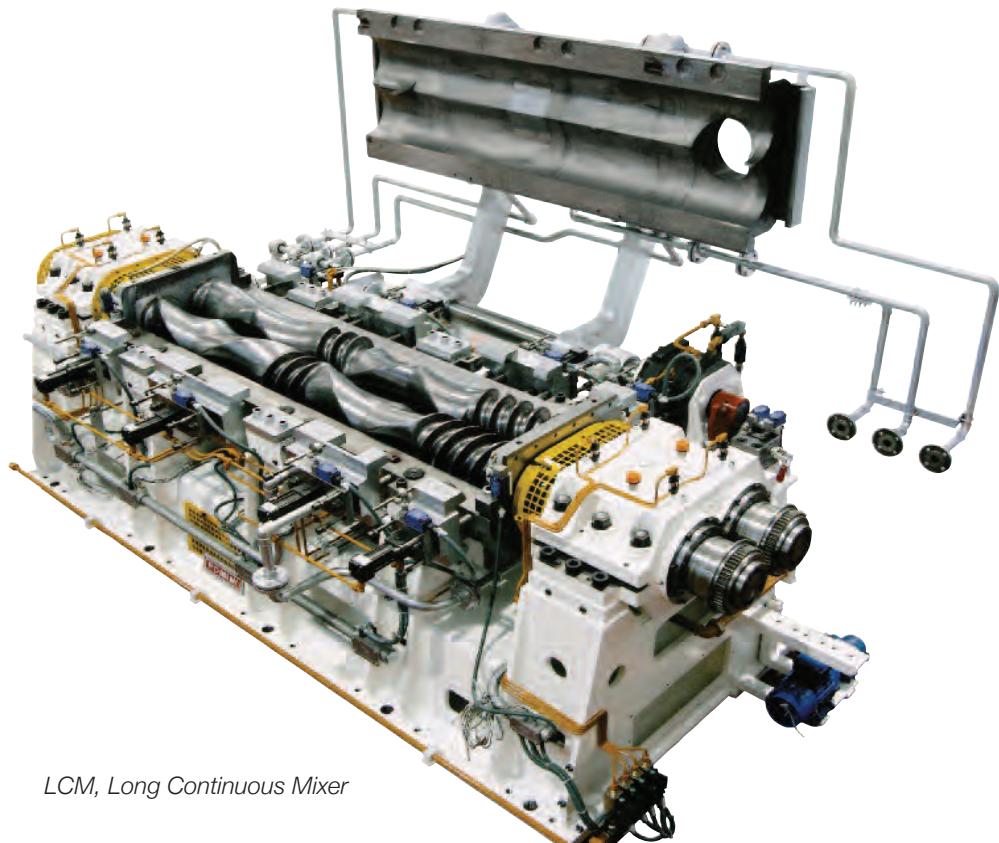


MIXING GROUP

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 Pomici 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
<b>Nominal Production Rates (kg/h) 500</b>	400	800	1,500	2,000	3,000	5,000	8,000	15,000	20,000
	to								
	600	1,200	2,400	3,500	6,000	10,000	13,000	25,000	40,000
LCM Machine Size	LCM100	LCM130	LCM150	LCM190	LCM230	LCM300			
<b>Nominal Production Rates (kg/h) 500</b>	300	600	900	1,800	5,000	10,000			
	to	to	to	to	to	to			
	600	1,200	1,800	3,700	10,000	15,000			

\* All production rates should be factory verified



## MIXING GROUP

### **Harburg-Freudenberger Maschinenbau GmbH**

Asdorfer Straße 60 · 57258 Freudenberg · Germany  
Postfach 11 80 · 57251 Freudenberg · Germany  
Phone: +49 2734 491-0  
Fax: +49 2734 491-150

### **Farrel Corporation**

25 Main Street · Ansonia · CT 06401 · USA  
Phone: +1 203 736-5500  
Fax: +1 203 736-5580

### **Farrel Ltd.**

Queensway Castleton PO Box 27, Rochdale  
Lancs OL11 2PF · UK  
Phone: +44 1706 647 434  
Fax: +44 1706 638 982

### **POMINI Rubber & Plastics srl**

Via Leonardo da Vinci 20  
21053 Castellanza (VA) · Italy  
Phone: +39 0331 743-111  
Fax: +39 0331 743-204

## Asia

### **China**

Harburg-Freudenberger Machinery  
(China) Co., Ltd.  
266101 Qingdao, China  
Phone: +86 532 88 70 62 36/62 38

Farrel Asia Limited  
Jurong 628341, Singapore  
Phone: +65 6862 2877

King Enterprises  
Peking 100004, China  
Phone: +86 10 6561 4080

**Iran**  
Pariz Kala  
Teheran 15338, Iran  
Phone: +98 21 88753080

## Australia

McCabe Engineering Pty. Ltd.  
New South Wales, Australia  
Phone: +61 2 49644166

## Europe

### **Germany**

Harburg-Freudenberger Maschinenbau GmbH  
57258 Freudenberg  
Phone: +49 2734 491-0

### **Great Britain**

Farrel Limited  
Rochdale – UK,  
Phone: +44 1706 647 434

### **Italy**

POMINI Rubber & Plastics srl  
21053 Castellanza (VA) Italy  
Phone: +39 0331 743111

### **France**

Harburg-Freudenberger (France) S.a.r.l.  
78800 Houilles, France  
Phone: +33 130 86 69 90

### **Spain**

Farrel Spain, S.L.  
08940 Cornellà, Barcelona  
Phone: +34 934 753232

### **Croatia**

Harburg-Freudenberger Belišće d.o.o.  
31551 Belišće, Croatia  
Phone: +385 31 516 800

### **Czech Republic**

Farrel Sales Office  
Libeňnice, Czech Republic 250 65  
Phone: +420 283 980 601

## North America

### **Farrel World Headquarters**

Ansonia, CT 06401 USA  
Phone: +1 203 736 5500

HF Rubber Machinery, Inc.  
Topeka, Kansas 66608 USA  
Phone: +1 785 235 2336

Midwest Sales Office  
Akron, OH 44333 USA  
Phone: +1 330 867 5777

Northeast Sales Office  
Ansonia, CT 06401 USA  
Phone: +1 203 736 5562

Southeast Sales Office  
Charlotte, NC 28201 USA  
Phone: +1 203 736 5500

Southwest Sales Office  
Deer Park, TX 77536 USA  
Phone: +1 281 930 1500