

# MGF GRAVIMETRIC FEEDER

Eliminate waste  
of **colorants** and  
**additives**.



PRODUCT GUIDE



“  
Choosing the right equipment  
could lead to significantly more  
savings and more production  
flexibility well into the future.  
”



# Selection Criteria

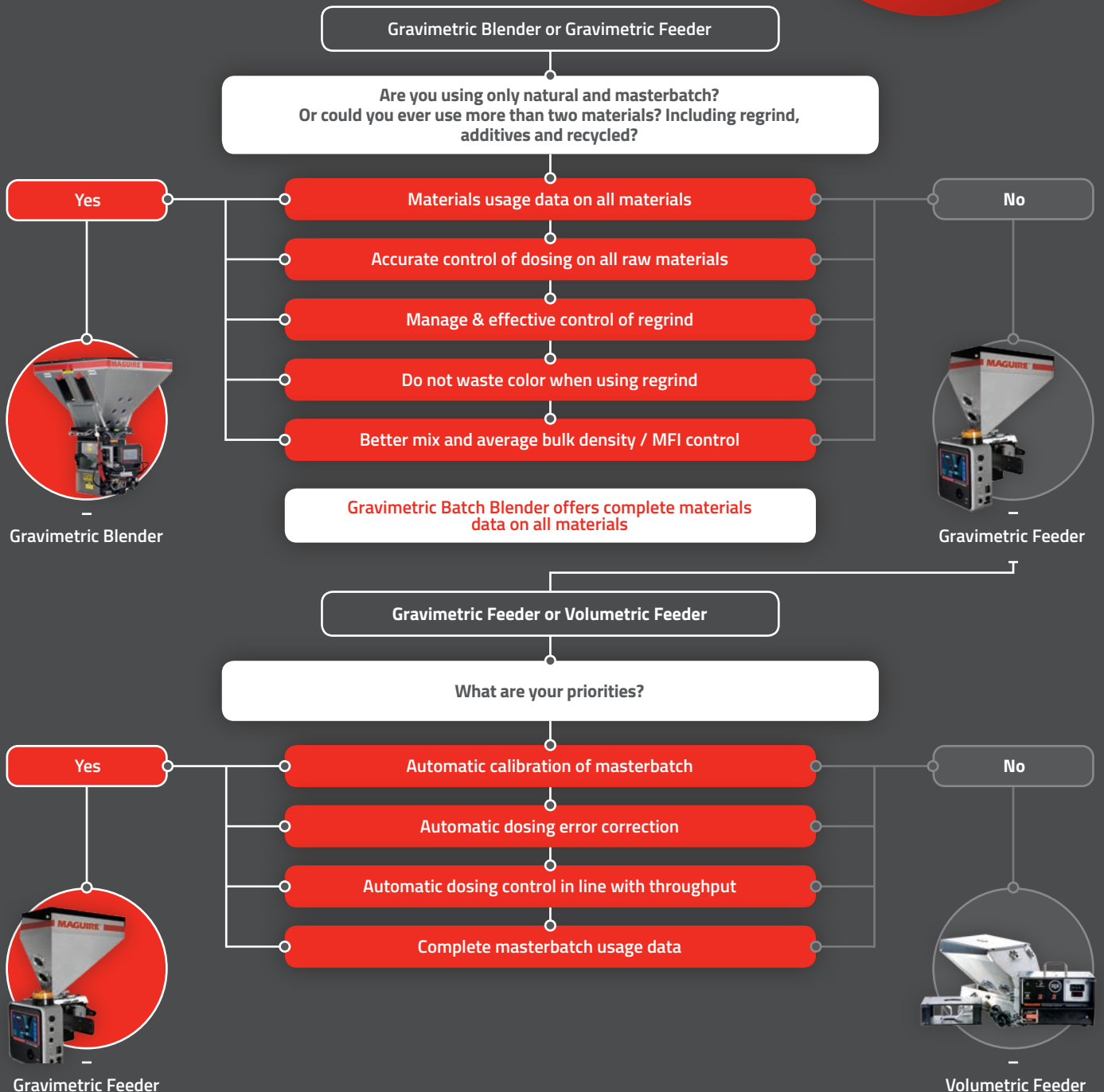
Selecting the right materials dosing and mixing control is critical in production efficiency and raw materials cost control.

Maguire Gravimetric Feeders eliminate manual handling and mixing and reduce operating costs and materials wastage drastically.

Choosing between a Volumetric Feeder or a Gravimetric Feeder, based on materials dosing requirements, overall process requirements and budget.

**Raw materials are up to 70% of a processor's annual operation cost.**

**Return On Investment**  
Savings in raw materials costs ensure a higher ROI on a long-term basis



## MGF Overview

# Ready, Set, Go...

1

### Simple Setup Procedure

Enter the percentage setting and then either the molding shot weight or extrusion throughput and then the MGF Feeder automatically doses.

2

### Fast Material Change Over and Clean Out

The hopper is easily removed without need for tools by releasing 2 latches – this allows unused material to be removed and rapid cleaning prior to a next job start-up.



3

### High Heat Applications

The MGF Feeder has a high temperature option for working in high heat applications like PET, designed to isolate heat transfer to masterbatch or additives.



Maguire has long term experience in gravimetric dosing – the MGF provides a robust hardware integrated with industry leading software control to provide consistent accuracy that simple and easy to use, backed with a 5 Year Warranty.

4

### New MGF Touchscreen Control Option Available

User-friendly controller features a 7" full color and fast response touchscreen.

5

### Modular Design

Design allows key components to lock together.

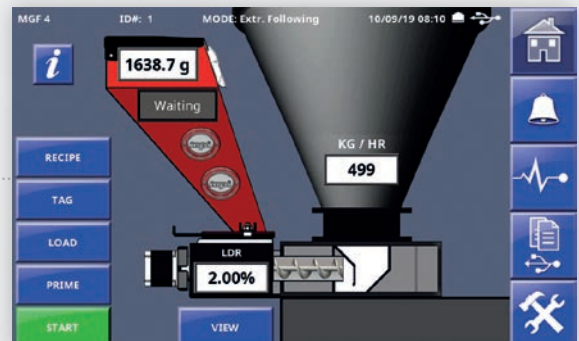
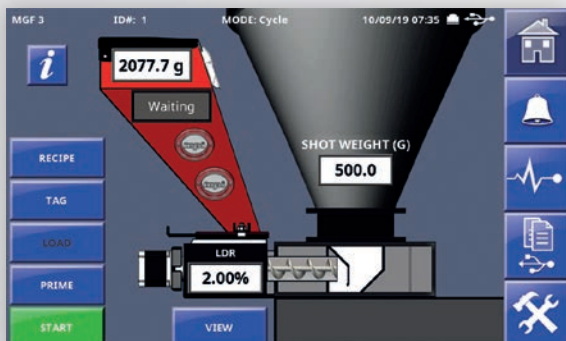
Easy disassembled for cleaning and reassembled for next job. No tools required.



**Ready** - Load with masterbatch

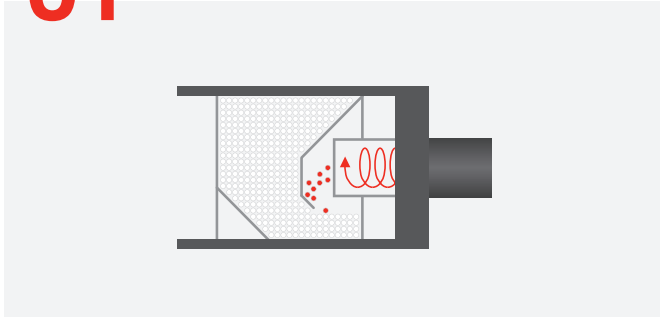
**Set** - Let-down ratio: in shot weight or lb/hr

**Go** - System automatically re-calibrates as it doses



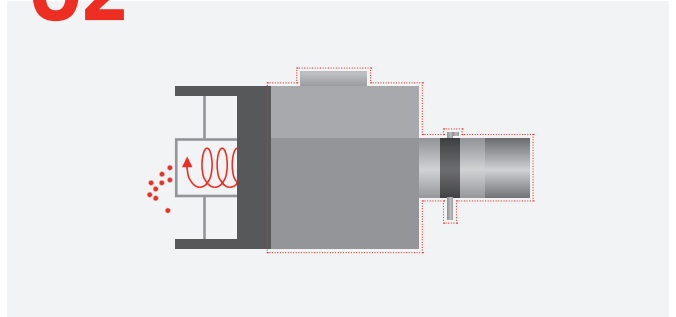
# What makes the MGF Gravimetric Feeder unique?

## 01 | Prime



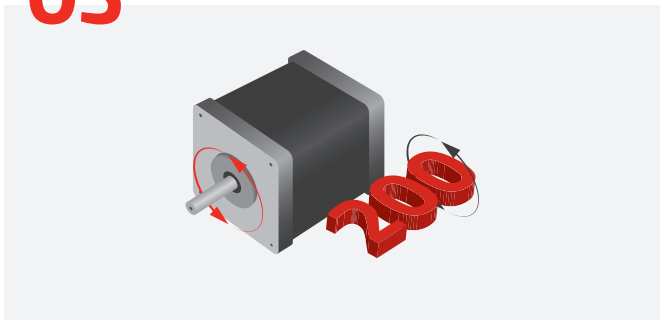
PRIME, a patented solution by Maguire, allows for instant calibration by filling the screw and barrel with material ready to start production. While the screws and barrel are being primed, grams per revolution of the material is calculated prior to start of production.

## 02 | Accuracy ± 0.2%



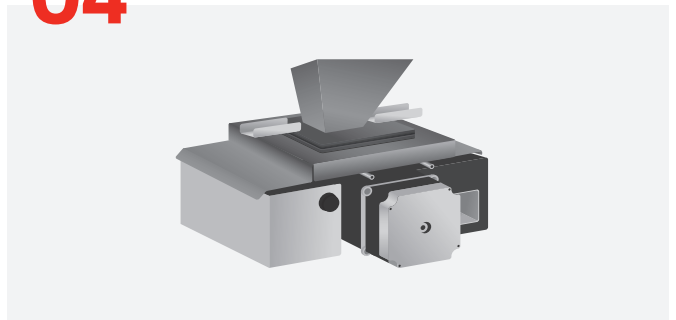
Automatic re-calibration during production guarantees that feed rate is held to within ± 0.2% of desired let-down ratio.

## 03 | Stepper Software Control



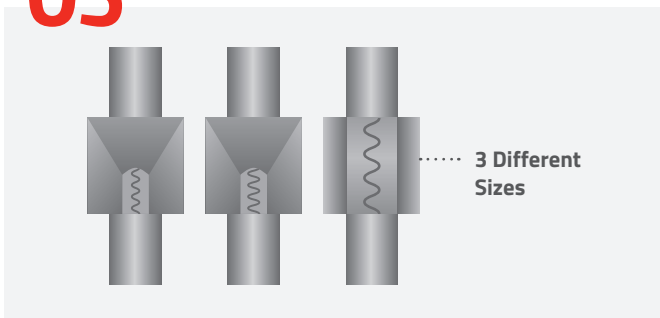
The MGF Feeder is fitted with a stepper motor that advances at 200 increments per revolution. Combined with the software this allows accuracy of ± 0.2%.

## 04 | Twin Load Cell



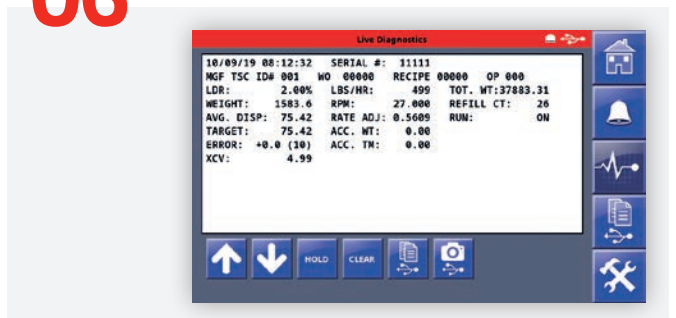
The MGF Feeder material hopper is mounted on 2 load cells which measure the weight of the hopper and material, constantly updating the loss in weight as material is dosed. This allows use of load cells with fine resolution which assists in accuracy and control, versus weighing the complete feeder assembly.

## 05 | Interchangeable Dosing Screws



The MGF Feeder has a choice of dosing screws that combined with the software control provide industry leading accuracy compared to any other type of dosing device available in the market.






## 06 | Data



Consistent color dispense during entire process for increased color accuracy backed up with data.

# Gravimetric Feeding Solutions for all Molding Applications

High precision Gravimetric Feeders. Suited to all types of molding process.

-  Automatic calibration
-  Vibration management built into software
-  PRIME, a patented solution by Maguire
-  Options
  - Venturi loading
  - Dosing sensor control
  - High heat option
  - Touchscreen option
  - MPM pre mixer
-  Easy access



## 100% Injection Coloring\* (MGF-X-STI)

When accuracy for the entire shot is essential for critical additives, colors and tinting.

### New control mode for injection molding

- 2 signals: Screw back / recovery Signal (SR) AND Injection Signal (I)

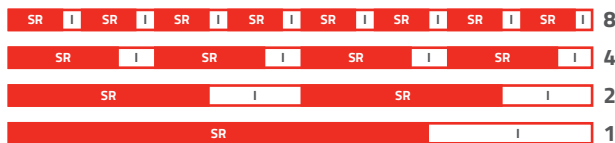
### 100% dispersion achieved through control algorithm

- 75% dose on recovery, 25% dose on injection

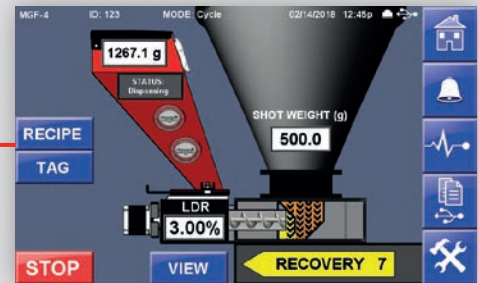
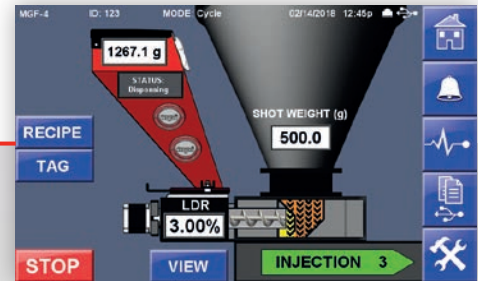
### Consistent coloring

- All material in barrel is now colored
- Eliminates the gaps as shown below

### Shots In Barrel



\*Patent Pending



## Machine Integration: MGF Configuration – ST vs. STV

### MGF ST

(Typically newer injection molding machines and extrusion lines)

- The standard MGF ST stepper configuration can be used for either injection or extrusion applications
- The injection mode utilizes a dry contact signal as a means of detecting the plastification time
- The extrusion mode input will accept a 0-10 VDC proportional signal from the extruder drive

VS.

### MGF STV

(Typically older injection molding machines)

- The V suffix represents voltage and is a different circuit board which does not have extrusion following capability
- This model is injection only
- The input circuitry is voltage sensing (24-120 Volt Injection)

# Gravimetric Feeding Solutions for all Extrusion Applications

There are a variety of options with our MGF Feeders to suit your processing needs.



Automatic calibration



Extrusion following 0-10 V



PRIME, a patented solution by Maguire



Options

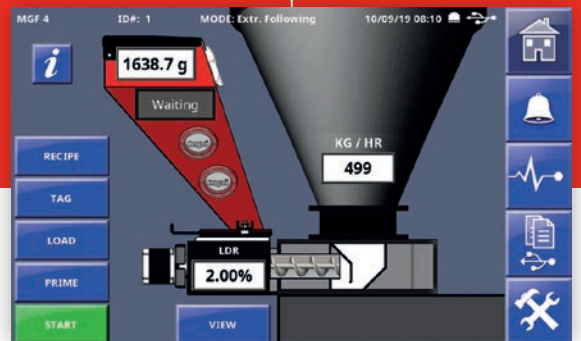
- Venturi loading
- Dosing sensor control
- High heat option
- Touchscreen option
- MPM pre mixer



Easy access



Vibration management built into software



## Plus Complete Extrusion Control Options



### 1 Integrated Dosing & Extrusion Control

- Precise dosing masterbatch
- Loss in weight updates every second process consumption

### 2 Solutions for many Extrusion Processes

- LIW + MGF solutions can bring major benefits to Blown Film and Cast Film Processes
- Sheet Extrusion
- Pipe, Profile & Tube Extrusion
- Cable & Wire Extrusion

### 3 Extrusion Control – Saving up to 10% of Materials Cost

- Switching from manual regulation to automatic extrusion control allows significant savings
- Savings by reduced start-up material waste & changeover scrap
- Immediate control by responding to actual material consumption versus target required
- Rapid return on investment

### 4 Maguire+Syncro Control Flexibility

- Detailed control of materials settings, layer ratio control & extrusion control
- Control allows effective control for mono and co-ex processes, managed from 1 HMI
- Modular upgrades available for air rings, IBC, gauging and wide range of control options for optimizing different extrusion processes

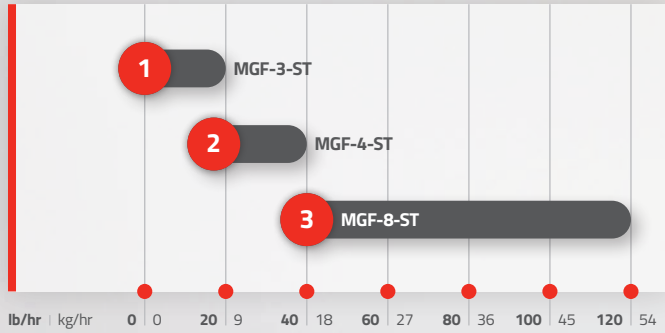
	MAN	MAN	MAN	MAN	MAN
Extruder Status					
Layer SP	17.0	18.0	36.0	18.0	18.0
Layer PV	0.0	0.0	0.0	0.0	0.0
Output SP	44.1	37.8	66.1	37.8	45.3
Actual Output	0.0	0.0	0.0	0.0	0.0
Extruder speed	0.0	0.0	0.0	0.0	0.0
Extruder Ratio	1.000	1.000	1.000	1.000	1.000



# MGF Specifications

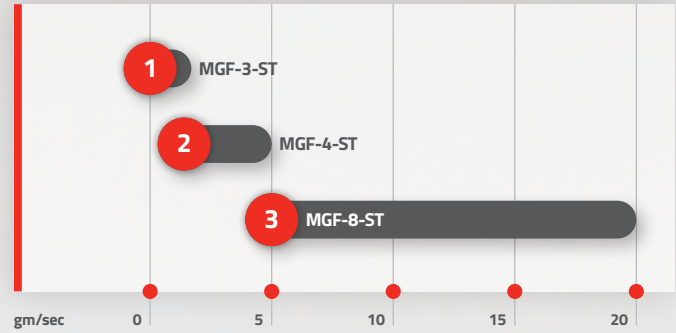
## Throughput Capacity

### Extrusion Applications



Extruder throughput per hour x LDR = additive addition rate

### Molding Applications



Shot size x LDR / screw recovery = grams/second

EXTRUSION	MGF-3-ST		MGF-4-ST		MGF-8-ST	
Auger Diameter	3/8"	9.5 mm	1/2"	12.7 mm	1"	25.4 mm
Minimum Rate lb/hr*   kg/hr*	0.4	0.18	0.6	0.3	4	1.8
Maximum Rate lb/hr*   kg/hr*	8	3.6	40	18	120	55

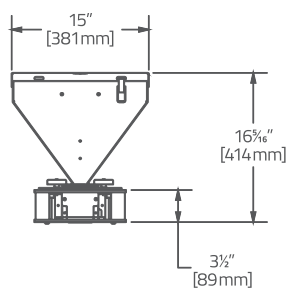
MOLDING	MGF-3-ST		MGF-4-ST		MGF-8-ST	
Auger Diameter	3/8"	9.5 mm	1/2"	12.7 mm	1"	25.4 mm
Rate Gram / Sec	0.02 - 1		1 - 5		5 - 20	
Minimum Dispense Gram	0.25		0.5		5	

\*Based on material density of 55 lb/ft<sup>3</sup> (881 kg/m<sup>3</sup>)

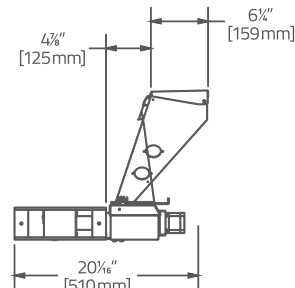
## Control Modes

MODEL	PROCESS	OPERATION MODE	INTERFACE
MGF-X-ST	Molding	Cycle	Dry contact to monitor screw recovery time automatically
MGF-X-STV	Molding	Cycle	24 V to 120 V signal interface to monitor screw recovery time automatically
MGF-X-STI	Molding	Cycle	100% Color inject feature, monitor screw back & inject signals
MGF-X-ST	Extrusion	Continuous	Feeder automatically doses according to extrusion throughput reference entered in control
MGF-X-ST	Extrusion	Extrusion Following	Feeder follows 0-10 V interface signal of extruder to ensure correct setting as throughputs increase / decrease
MGF-X-ST	Extrusion	LIW	Follows complete process data from LIW Live

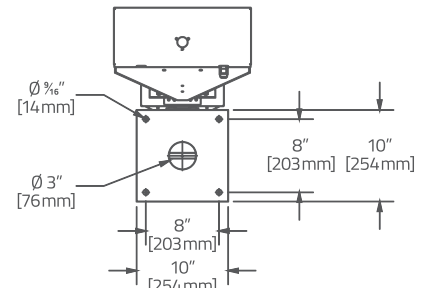
## MGF-ST Dimensions



FRONT VIEW



SIDE VIEW



TOP VIEW



# MGF Options



MGF MACHINE MOUNTING FRAMES				
MODEL	THROAT MOUNTING ADAPTOR	FRAME	FEED HOLE	MATERIAL BAFFLE WITH SIGHT WINDOW
865-40	For smaller injection molding machines and extruders	-	-	-
SGF-3	For large extruders and injection molding machines	Black square 10" x 10"	3"	Included with MGF - only additional frames
SGF-4	Throat adapter	Black square 10" x 10"	4"	In lieu of SCF standard
SGF-5	Throat adapter	Black square 10" x 10"	5"	In lieu of SCF standard
OPF-P40 <sup>2</sup>	Pedestal throat mount adapter	Black square 8" x 8"	3"	In lieu of SCF frame

MGF-ST REMOTE CONTROLLER & LOADER KIT EXTENSION KITS	
MODEL	CABLE DROP
AEK-GSC-05	5 ft (1.5 m)
AEK-GSC-10	10 ft (3 m)
AEK-GSC-20	20 ft (6 m)
AEK-GSV-05	5 ft (1.5 m)
AEK-GSV-10	10 ft (3 m)
AEK-GSV-20	20 ft (6 m)

MGF SINGLE MATERIAL GRAVIMETRIC FEEDER - MGF SCREW CONVERSION KITS		
MODEL	CONVERT TO	STEPPER MOTOR
kitF-001	3/8" Auger	Without
kitF-001M	3/8" Auger	With
kitF-002	1/2" Auger	Without
kitF-002M	1/2" Auger	With
kitF-005	1" Auger	Without
kitF-005M	1" Auger	With

HIGH HEAT OPTION	
OPF-MGT Feeder Option	High temperature auger tube assembly (aluminum with cooling fins)
MGF High Temperature	Includes high temperature SGF frame (acrylic windows replaced with stainless steel)

MGF REMOTE ALARM	
OPF-GRA	Factory Fitted USA
kitF-003	Field Retrofit

**MGF-VENTURI LOADER SYSTEM - COMPACT VENTURI LOADING USING COMPRESSED AIR FOR LOCAL CONVEYING OF ADDITIVE / MASTERBATCH GRANULES FOR UP TO 12 FT / 3.6 M CONVEYING.**

AGL-ST	Stepper Motor
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**Cost effective loading solutions**, ensures dosing accuracy of  $\pm 0.2\%$  of set point. Loader is automatically activated by the MGF controller

**MPM PRE MIXER OPTION**

MPM2-15

Automatically and continuously mixes masterbatch or additives dosed by the MGF as they enter the process machine. Easy view of mixing, easy cleaning, minimize color usage

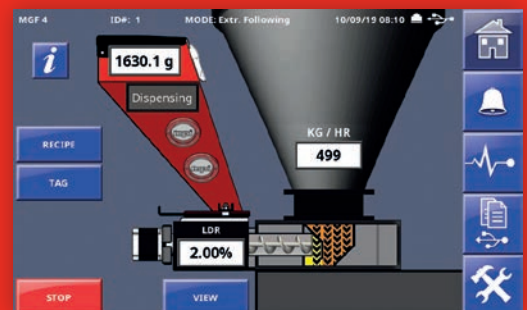
# MGF Touchscreen Controller



## Benefits of Upgrading...



...from Microprocessor to Touchscreen Controller  
 All features & functions of the Microprocessor controller + **intuitive, user-friendly 7" touchscreen.**

- Easy settings via digital thumbwheels
- Backlit LCD display
- Multilingual display
- Can be mounted remotely with optional extension cables
- Password protection
- Alarm light to indicate low-load (2-3 lb) in hopper
- USB port - software updates, files and usage reporting
- Data collection via G2 network software, or MLAN protocol via Ethernet



# Where To Find Us

Our aim is to support our customers locally, with our extensive global network of agents and distributors.

-  Maguire Headquarters
-  Agents & Distributors



## Contact Our Teams

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**Innovations For Raw  
Material Handling For  
Over 40 Years -  
Blending, Drying,  
Feeding & Conveying.**

“

**ON TWIN LOAD CELLS, OUR  
MGF OFFERS SOLUTIONS  
FOR EVERY APPLICATION.  
ON BALANCE WE'RE BETTER.**

**STEVE MAGUIRE, FOUNDER AND PRESIDENT  
MAGUIRE PRODUCTS INC.**

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*Intelligent Simplicity*