

## Tri-Clover Single Stage Tri-Blender

Mfg: Tri-Clover

Model: F3218

Stock No. LOL1.4a

Serial No.

Tri-Clover Single Stage Tri-Blender. Model: F3218. Dry ingredient capacity: Up to 100 lbs/min. (1) 7-1/2 in. dia impeller. Reliance Motor: 10 hp, 3500 rpm, 230/460 V, 25/12.5 amps, 60 Hz, 3 phase. Final speed: 2370 rpm. Powder inlet: 3 in. Liquid inlet: 1-1/2 in.; outlet: 2 in. Stainless steel hopper: 25 in. dia x 34 in. H. Connection ends, diffuser and suction tube, inlet adapter, casing, screen, washer, and backplate are made of 316 stainless steel. All tubes are fastened with quick couple Tri-Clamps for easy care and fast access. Overall dimensions: 34 in. L x 22 in. W x 60 in. H.







# Streamline Blending Applications

Tri-Blender® Brand Blenders

PD 66500 US1 2001-10

## Application

Our Tri-Blender is specially designed to thoroughly and efficiently blend dry ingredients and liquids, while minimizing the air introduced into the process. That means the lumping, foaming and flooding associated with conventional mixing equipment is almost totally eliminated. The Tri-Blender has been designed for easy adaptation to a variety of blending applications within the food, beverage, dairy, chemical and biopharmaceutical industries. The Tri-Blender is simple, fast and extremely compact. It is capable of absorbing dry powders into liquids at the rate of 25 to 350 lbs. (11 to 159 kg) per minute (as determined by product characteristics and Tri-Blender model size).

The Portable F2116EZ System Tri-Blender is equipped with a wheeled platform for easy portability from application to application. However, the wheeled platform can be ordered as an option on all other Tri-Blender models. Portable units come complete with supply pump, motor starters, dolly and tube assembly.

All Tri-Blender product contacting components are FDA compliant.

## Standard Design

The Tri-Blender consists of a hopper, a pump with a blending chamber and screen, a diffuser tube and a butterfly valve.

The Tri-Blender design utilizes a butterfly valve to control the rate of dry material flow through the hopper. Manual valves are furnished as standard equipment. An optional electrical butterfly valve control prevents the valve from opening before the blender motor is operating. This control also prevents the blender motor from stopping before the valve is closed. Pneumatic valves are also available.

With auxiliary controls, the Tri-Blender can easily be integrated into an automated system. It can also be adapted for CIP installations.

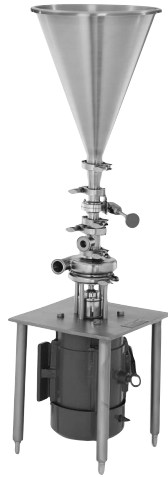


Tri-Blender® brand blenders

## Seals

The Tri-Blender is equipped with a type D sanitary external balanced seal. Optional sanitary seals available include: type DG (clamped-in seal/seat design) and type E (water-cooled balanced double seal).

**Models F1114L / F2114 / F2116MD**



**Pump Requirements**

<b>Systems handling viscosity up to 500cps</b>		
	Model F1114L and F2114	Model F2116MD
Supply Pump	C114MD56T-S centrifugal pump	C114MD56T-S centrifugal pump
Impeller	3 1/4" (82.6mm) diameter	3 3/4" (82.6mm) diameter
Seal	Type D- external balanced	Type D- external balanced
Casing	1 1/2" (38.1mm) inlet, 1 1/2" (38.1mm) outlet Tri-Clamp	1 1/2" (38.1mm) inlet, 1 1/2" (38.1mm) outlet Tri-Clamp
Motor	3/4 HP - 1750 RPM	3/4 HP - 1750 RPM
Discharge Pump	A discharge pump may be required on some applications, consult Alfa Laval for recommendations.	A discharge pump may be required on some applications, consult Alfa Laval for recommendations.

<b>Systems handling viscosity over 500cps</b>		
	Model F1114L and F2114	Model F2116MD
Supply Pump		SRU4WLS20MDU0C(X)-AO positive pump
Base		Standard
Drive	Consult Alfa Laval	Gearhead Motor 3 HP, 3PH, 60Hz, 230/460V, 277 RPM
Discharge Pump		SRU4WLS25MDU0C(X)-AO positive pump
Base		Standard
Drive		Gearhead Motor 3 HP, 3PH, 60Hz, 230/460V, 251 RPM

**Materials**

- Product wetted steel parts: ..... Acid-resistant steel AISI 316L
- Base: ..... Stainless steel
- Hopper: ..... 304 stainless steel
- Other steel parts: ..... 32 Ra
- Product wetted seals: ..... C vs. SS (type D&E)  
C vs. SC, C vs. TC (type DG)

**Motor**

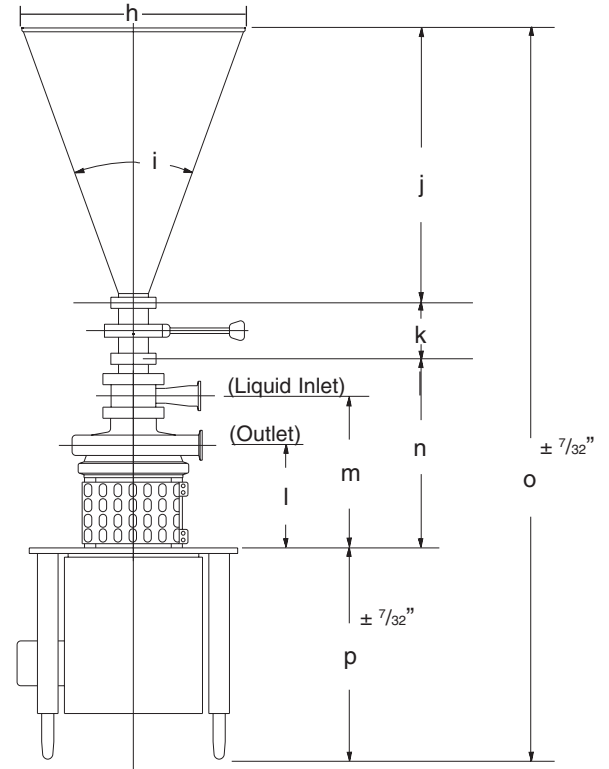
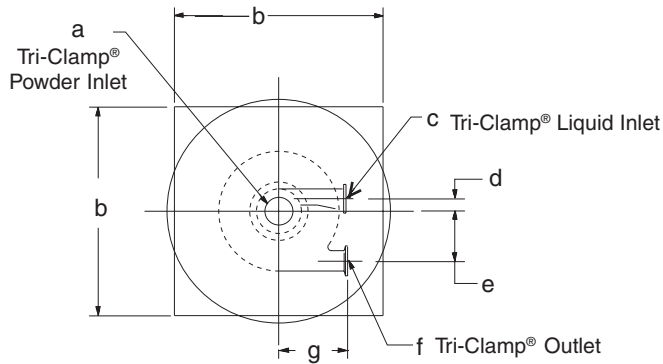
3 HP - 3500 RPM (2.2kW) TEFC 3 phase 230/460 volt. Dual frequency and voltage rated at 60 Hz, 230/460 volts, 3500 RPM or 50 Hz, at 220/380 volts, 2900 RPM. Optional explosion-proof motor available.

**Technical data**

- Dry ingredient capacity
- Model F1114L ..... Up to 25 lbs. (11.3 kg) per minute\*
- Model F2114 ..... Up to 45 lbs. (20.4 kg) per minute\*
- Model F2116MD ..... Up to 50 lbs. (23 kg) per minute\*

\* Absorption dependant on characteristics of product

**Models F1114L / F2114 / F2116MD**  
**Dimensions**



**Model F1114L**

	with 40° hopper		with 60° hopper	
	in	mm	in	mm
a	1½	38	1½	38
b	14	356	14	356
c	1	25	1	25
d	5/16	8	5/16	8
e	25/8	67	25/8	67
f	1½	38	1½	38
g	35/8	92	35/8	92
h	15	381	22 <sup>11/16</sup>	576
i	40°		60°	
j	21 <sup>13/16</sup>	554	21 <sup>13/16</sup>	554
k	37/8	98	37/8	98
l	6¼	159	6¼	159
m	9 <sup>3/32</sup>	231	9 <sup>3/32</sup>	231
n	11 <sup>13/32</sup>	290	11 <sup>13/32</sup>	290
o	54	1372	54	1372
p	16 <sup>13/16</sup>	427	16 <sup>13/16</sup>	427
Installation Size 18" x 18" (460mm x 460mm)				

**Model F2114**

	with 40° hopper		with 60° hopper	
	in	mm	in	mm
a	2	51	2	51
b	14	356	14	356
c	1	25	1	25
d	5/16	8	5/16	8
e	25/8	67	25/8	67
f	1½	38	1½	38
g	35/8	92	35/8	92
h	15	381	22 <sup>11/16</sup>	576
i	40°		60°	
j	18 <sup>13/16</sup>	478	18 <sup>13/16</sup>	478
k	37/8	98	37/8	98
l	6¼	159	6¼	159
m	9 <sup>3/32</sup>	231	9 <sup>3/32</sup>	231
n	14 <sup>13/32</sup>	366	14 <sup>13/32</sup>	366
o	54	1372	54	1372
p	16 <sup>13/16</sup>	427	16 <sup>13/16</sup>	427
Installation Size 18" x 18" (460mm x 460mm)				

**Model F2116MD**

	with 40° hopper		with 60° hopper	
	in	mm	in	mm
a	2	51	2	51
b	14	356	14	356
c	1½	38	1½	38
d	¾	19	¾	19
e	3 <sup>11/16</sup>	94	3 <sup>11/16</sup>	94
f	1½	38	1½	38
g	4½	114	4½	114
h	15	381	22 <sup>11/16</sup>	576
i	40°		60°	
j	18 <sup>13/16</sup>	478	18 <sup>13/16</sup>	478
k	37/8	98	37/8	98
l	6 <sup>21/32</sup>	169	6 <sup>21/32</sup>	169
m	10 <sup>1/8</sup>	257	10 <sup>1/8</sup>	257
n	10 <sup>1/8</sup>	257	10 <sup>1/8</sup>	257
o	52 <sup>11/16</sup>	1338	52 <sup>11/16</sup>	1338
p	16 <sup>13/16</sup>	427	16 <sup>13/16</sup>	427
Installation Size 18" x 18" (460mm x 460mm)				

## Model F2116 EZ-System



### Pump Requirements

Supply Pump: ..... Required - model depends on application. Please contact Alfa Laval.

Discharge Pump: ..... Depends on application. Please contact Alfa Laval.

### Materials

Product wetted steel parts: ..... Acid-resistant steel AISI 316L.

Base: ..... Stainless steel

Hopper: ..... 304 stainless steel

Other steel parts: ..... 32 Ra

Product wetted seals: ..... C vs. SS (type D&E)

C vs. SC, C vs. TC (type DG)

### Motor

3 HP - 3500 RPM (2.2kW) TEFC 3 phase 230/460 volt. Dual frequency and voltage rated at 60 Hz, 230/460 volts, 3500 RPM or 50 Hz, at 220/380 volts, 2900 RPM. Optional explosion-proof motor available.

### Technical data

Dry ingredient capacity

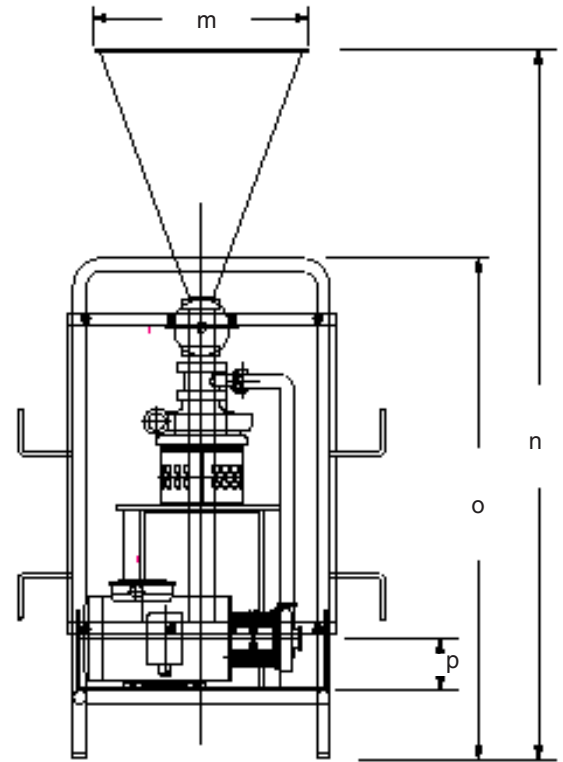
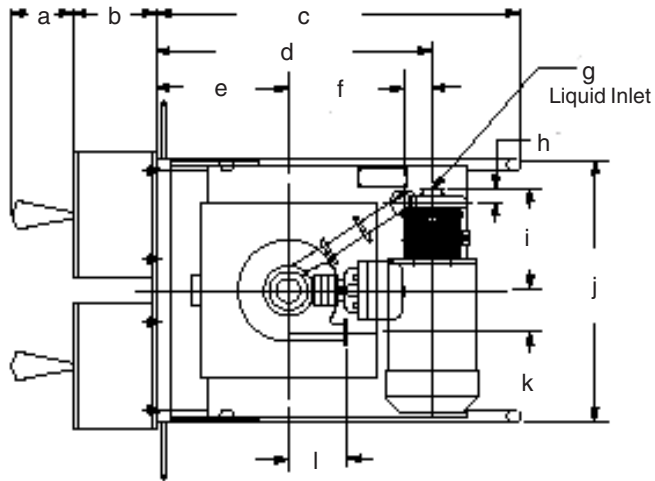
Model F3218MD ..... Up to 100 lbs. (45 kg) per minute\*

Model F4329MD ..... Up to 350 lbs. (159 kg) per minute\*

\* Absorption dependant on characteristics of product

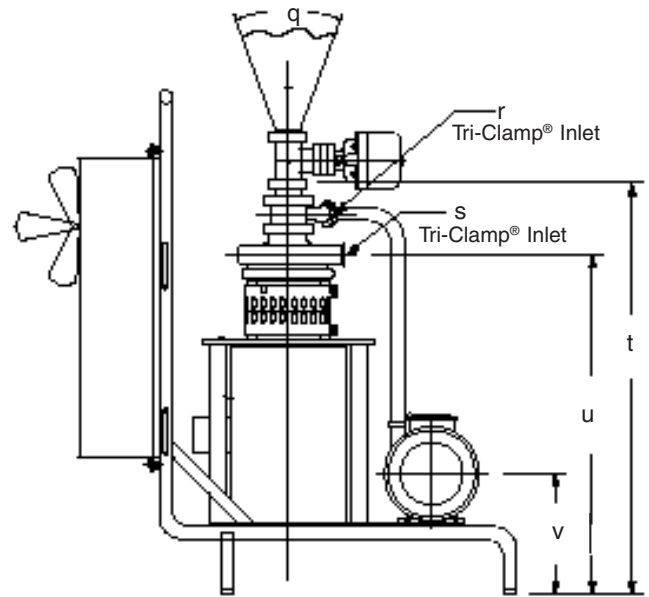


**Model F2116 EZ-System**  
**Dimensions**



**Model F3218MD**

	with 40° hopper		with 60° hopper	
	in	mm	in	mm
a	5 <sup>9</sup> / <sub>16</sub>	141	5 <sup>9</sup> / <sub>16</sub>	141
b	8 <sup>11</sup> / <sub>16</sub>	221	8 <sup>11</sup> / <sub>16</sub>	221
c	29	737	29	737
d	22	559	22	559
e	10 <sup>1</sup> / <sub>2</sub>	267	10 <sup>1</sup> / <sub>2</sub>	267
f	2 <sup>5</sup> / <sub>8</sub>	67	2 <sup>5</sup> / <sub>8</sub>	67
g	1 <sup>1</sup> / <sub>2</sub>	38	1 <sup>1</sup> / <sub>2</sub>	38
h	1 <sup>19</sup> / <sub>32</sub>	38	1 <sup>19</sup> / <sub>32</sub>	38
i	8 <sup>13</sup> / <sub>16</sub>	224	8 <sup>13</sup> / <sub>16</sub>	224
j	21 <sup>1</sup> / <sub>16</sub>	535	21 <sup>1</sup> / <sub>16</sub>	535
k	3 <sup>11</sup> / <sub>16</sub>	94	3 <sup>11</sup> / <sub>16</sub>	94
l	4 <sup>1</sup> / <sub>2</sub>	114	4 <sup>1</sup> / <sub>2</sub>	114
m	15	381	22 <sup>1</sup> / <sub>16</sub>	567
n	56 <sup>23</sup> / <sub>32</sub>	1441	56 <sup>23</sup> / <sub>32</sub>	1441
o	41	1041	41	1041
p	3 <sup>1</sup> / <sub>2</sub>	89	3 <sup>1</sup> / <sub>2</sub>	89
q	40°		60°	
r	1 <sup>1</sup> / <sub>2</sub>	38	1 <sup>1</sup> / <sub>2</sub>	38
s	1 <sup>1</sup> / <sub>2</sub>	38	1 <sup>1</sup> / <sub>2</sub>	38
t	34 <sup>1</sup> / <sub>8</sub>	867	34 <sup>1</sup> / <sub>8</sub>	867
u	27 <sup>1</sup> / <sub>2</sub>	699	27 <sup>1</sup> / <sub>2</sub>	699
v	9 <sup>5</sup> / <sub>16</sub>	237	9 <sup>5</sup> / <sub>16</sub>	237
Installation Size		18" x 18" (460mm x 460mm)		



**Model F3218MD**



**Model F4329MD**



**Pump Requirements**

<i>Systems handling viscosity up to 500cps</i>		
	Model F3218MD	Model F4329MD
Supply Pump	C218MD18T-S centrifugal pump	C328MD18T-S centrifugal pump
Impeller	6" (152.4mm) diameter	5¾" (146.0mm) diameter
Seal	Type D - external balanced	Type D- external balanced
Casing	3" (76.2mm) inlet, 1½" (38.1mm) outlet Tri-Clamp	3" (76.2mm) inlet, 2" (50.8mm) outlet Tri-Clamp
Motor	3 HP - 1750 RPM, 3-60-230/460V, TEFC - easy clean	5 HP - 1750 RPM, 3-60-230/460V, TEFC - easy clean
Discharge Pump	A discharge pump may be required on some applications, consult Alfa Laval for recommendations.	A discharge pump may be required on some applications, consult Alfa Laval for recommendations.

<i>Systems handling viscosity over 500cps</i>		
	Model F3218MD	Model F4329MD
Supply Pump	SRU4WLS25MDU0C(X)-AO positive pump	SRU5NLS30MDU0C(X)-AO positive pump
Base	Standard	Standard
Drive	Gearhead Motor 3 HP 3PH 60Hz 236/460V, 263 RPM	Gearhead Motor 3 HP 3PH 60Hz 236/460V, 227 RPM
Discharge Pump	SRU4WLS25MDU0C(X)-AO positive pump	SRU5NLS30MDU0C(X)-AO positive pump
Base	Standard	Standard
Drive	Gearhead Motor 3 HP 3PH 60Hz 236/460V, 297 RPM	Gearhead Motor 3 HP, 3PH, 60Hz, 236/460V, 251 RPM

**Materials**

- Product wetted steel parts: ..... Acid-resistant steel AISI 316L.
- Base: ..... Stainless steel
- Hopper (model F3218MD only): ..... 304 stainless steel
- Other steel parts: ..... 32 Ra
- Product wetted seals: ..... C vs. SS (type D&E)  
C vs. SC, C vs. TC (type DG)

**Motor**

**F3218:** 20 HP - 1750 RPM (15kW) TEFC 3 phase 230/460 volt. Dual frequency and voltage rated at 60 Hz, 230/460 volts, 3500 RPM to 50 Hz at 220/380 volts, 2900 RPM. Optional explosion-proof motor available.

**F3429:** 30 HP - 1750 RPM (22kW) TEFC 3 phase 230/460 volt. Dual frequency and voltage rated at 60 Hz, 230/460 volts, 3500 RPM to 50 Hz at 220/380 volts, 2900 RPM. Optional explosion-proof motor available.

**Technical data**

Dry ingredient capacity

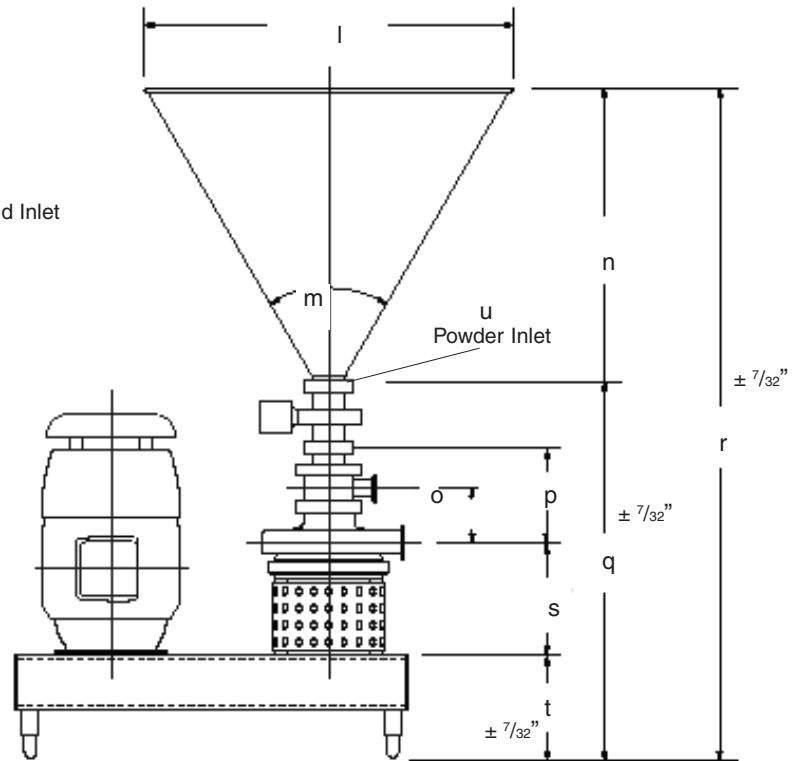
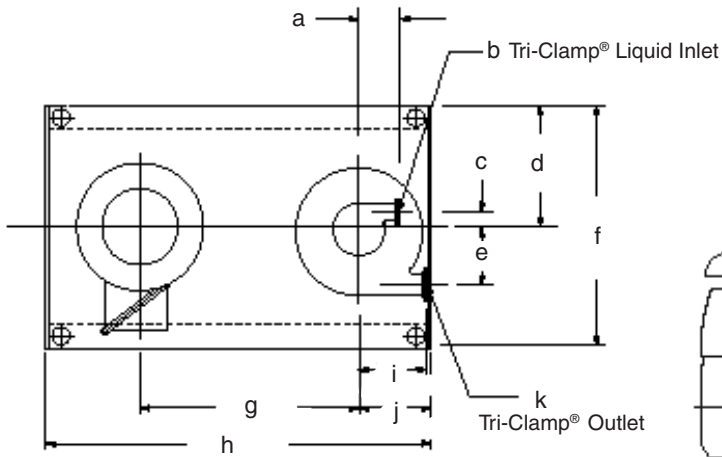
Model F3218MD ..... Up to 100 lbs. (45 kg) per minute\*

Model F4329MD ..... Up to 350 lbs. (159 kg) per minute\*

\* Absorption dependent on characteristics of product



**Model F3218MD / F4329MD**  
**Dimensions**



**Model F3218MD**

	with 40° hopper		with 60° hopper	
	in	mm	in	mm
a	3 1/2	89	3 1/2	89
b	1 1/2	38	1 1/2	38
c	1 1/4	32	1 1/4	32
d	10	254	10	254
e	4 3/4	121	4 3/4	121
f	20	508	20	508
g	18 13/64	462	18 13/64	462
h	32	813	32	813
i	5 1/2	140	5 1/2	140
j	6	152	6	152
k	2	51	2	51
l	25	635	30	762
m	40°		60°	
n	31 1/8	791	24 1/4	616
o	4 21/32	118	4 21/32	118
p	8 1/4	210	8 1/4	210
q	30 5/16	770	30 5/16	770
r	61 11/16	1567	54 9/16	1386
s	9 13/16	249	9 13/16	249
t	8 7/16	214	8 7/16	214
u	3	76	3	76
Installation Size	20" x 30" (510mm x 760mm)			

**Model F4329MD**

	in	mm
a	3 3/4	95
b	2	51
c	2 11/16	68
d	10	254
e	6	152
f	20	508
g	18 13/64	462
h	32	813
i	7 9/32	185
j	6	152
k	3	76
l	NA	
m	NA	
n	NA	
o	4 7/8	124
p	8 15/32	215
q	31 9/16	802
r	NA	
s	9 29/32	252
t	8 7/16	214
u	4	102
Installation Size	20" x 30" (510mm x 760mm)	

Hopper Part Number	Volume	
F2116-55-40-01-40 Deg. Hopper	0.7 Cubic Feet	0.02 Cubic Meters
F2116-55-60-01-60 Deg. Hopper	1.5 Cubic Feet	0.04 Cubic Meters
D3218-55-40-01-40 Deg. Hopper	3.2 Cubic Feet	0.09 Cubic Meters
D3218-55-60-01-60 Deg. Hopper	3.5 Cubic Feet	0.10 Cubic Meters

## Options

### **Equipment**

- Seals (D, DG, E)
- Hopper angle (40° or 60°)
- 316L SS finish for hopper
- Valve actuation (manual or pneumatic)

### **Material grades**

- Seals
  - C vs. SS (D & E)
  - C vs. SC C vs. TC (DG)
- Elastomers
  - EPDM
  - Silicone
  - SFY
  - BUNA

## Ordering

Please state the following when ordering:

- Seal type and material grade
- Elastomer type if not BUNA
- Valve actuation
- Hopper angle



# Tri-Blender<sup>®</sup>

## Product Data / Specifications

### Construction Materials & Order Information

#### Standard Design

The Tri-Blender Series consists of a standard NEMA C-flange motor, 316L grade stainless steel blending chamber, a balanced mechanical seal, a powder inlet assembly, liquid inlet assembly, 304 stainless steel hopper, and a 304 stainless steel base.

#### Seal Types

##### Single Stage Models

###### Type D (standard)

Description: sanitary external balanced seal

Seal Face Material: ■ Stainless steel vs. Carbon (rotating)

###### Type DG (option)

Description: clamped-in seal/seat design

Seal Face Material: ■ SiC clamped-in seat vs. Carbon (rotating)

■ Tungsten carbide vs. Carbon (rotating)

■ Ceramic vs. Carbon (rotating)

###### Type E (option)

Description: water-cooled balanced double seal

Seal Face Material: ■ Stainless steel vs. Carbon (rotating)

##### Dual Stage Models

###### Type DG (standard)

Description: clamped-in seal/seat design

Seal Face Material: ■ Stainless steel clamped-in seat vs. Carbon (rotating)

■ SiC vs. Carbon (rotating)

■ Tungsten carbide clamped-in seat vs. Carbon (rotating)

# Tri-Blender®

## Materials of Construction

### Model F2116MD

<b>Dry Ingredient Capacity:</b>	Up to 50 lbs. (23 kg) per minute*
<b>Installation Size:</b>	18 x 18 in. (46 x 46 cm) floor space requirement
<b>Height:</b>	40° hopper, 52 <sup>7</sup> / <sub>8</sub> in. (134 cm) 60° hopper, 52 <sup>15</sup> / <sub>16</sub> in. (134 cm)
<b>Controls:</b>	Manually actuated butterfly valve. Optional electrically actuated valve with control panel or pneumatic valve available.
<b>Construction:</b>	All wetted parts are 316 stainless steel with quick-couple Tri-Clamp® connections.
<b>Base:</b>	Stainless steel
<b>Motor:</b>	3 HP - 3500 RPM (2.2 kW) TEFC 3 phase 230/460 volt. Dual frequency and voltage rated 60 Hz at 230/460 volts, to 50 Hz at 380 volts. Optional explosion-proof motor available.
<b>Hopper:</b>	304 stainless steel – 40° or 60° angle available
<b>Powder Inlet:</b>	2 in. (50.8mm) connection
<b>Liquid Inlet:</b>	1½ in. (38.1mm) connection
<b>Liquid Outlet:</b>	1½ in. (38.1mm) connection
<b>Pump Requirements:</b>	
<i>Systems handling viscosity up to 500cps</i>	
Supply Pump:	C114MD56T-S Tri-Flo® Centrifugal Pump
Impeller:	3¼" (82.6mm) Dia.
Casing:	1½" (38.1mm) inlet, 1½" (38.1mm) outlet
Motor:	¾ HP - 1750 RPM
Discharge Pump:	A discharge pump may be required on some applications, consult Tri-Clover for recommendations
<i>Systems handling viscosity over 500cps</i>	
Supply Pump:	TSR4NLS20MDU0C(X)-AO Positive Pump
Base:	Standard
Drive:	Gearhead Motor 3 HP 3PH 60Hz 230/460V, Model SK22-182TC, 317 RPM
Discharge Pump:	TSR4NLS20MDU0C(X)-AO Positive Pump
Base:	Standard
Drive:	Gearhead Motor 3 HP 3PH 60Hz 230/460V, Model SK22-182TC, 332 RPM

\*Absorption dependent on characteristics of product.

# Tri-Blender®

Model F3218MD

<b>Dry Ingredient Capacity:</b>	Up to 100 lbs. (45 kg) per minute*
<b>Installation Size:</b>	20 x 30 in. (51 x 76 cm) floor space requirement
<b>Height:</b>	40° hopper, 61 <sup>11</sup> / <sub>16</sub> in. (157 cm) 60° hopper, 54 <sup>3</sup> / <sub>4</sub> in. (139 cm)
<b>Controls:</b>	Manually actuated butterfly valve. Optional electrically actuated valve with control panel or pneumatic valve available.
<b>Construction:</b>	All wetted parts are 316 stainless steel with quick-couple Tri-Clamp® connections.
<b>Base:</b>	Stainless steel
<b>Motor:</b>	15 HP - 1750 RPM (11 kW) TEFC 3 phase 230/460 volt. Dual frequency and voltage rated 60 Hz at 230/460 volts, to 50 Hz at 380 volts. Optional explosion-proof motor available.
<b>Hopper:</b>	304 stainless steel, 60° angle Optional 40° hopper available for bridging type ingredients.
<b>Powder Inlet:</b>	3 in. (76.2mm) connection
<b>Liquid Inlet:</b>	1½ in. (38.1mm) connection
<b>Liquid Outlet:</b>	2 in. (50.8mm) connection
<b>Pump Requirements:</b>	
<i>Systems handling viscosity up to 500cps</i>	
Supply Pump:	C218MD18T-S Tri-Flo® Centrifugal Pump
Impeller:	6" (152.4mm) Dia.
Seal:	Type D - External Balanced
Casing:	3" (76.2mm) inlet, 1½" (38.1mm) outlet- Tri-Clamp
Motor:	3 HP - 1750 RPM, 3-60-230/460 Volt TEFC - Easy Clean
Discharge Pump:	A discharge pump may be required on some applications, consult Tri-Clover for recommendations
<i>Systems handling viscosity over 500cps</i>	
Supply Pump:	TSR4WLS25MDU0C(X)-AO Positive Pump
Base:	Standard
Drive:	Gearhead Motor 3 HP 3PH 60Hz 236/460V, Model SK12-182TC, 263 RPM
Discharge Pump:	TSR4WLS25MDU0C(X)-AO Positive Pump
Base:	Standard
Drive:	Gearhead Motor 3 HP 3PH 60Hz 236/460V, Model SK12-182TC, 297 RPM



\*Absorption dependent on characteristics of product.

# Tri-Blender®

**Model F4329MD**

**Dry Ingredient Capacity:**

Up to 350 lbs. (159 kg)  
per minute\*

**Installation Size:**

20 x 30 in. (51 x 76 cm)  
floor space requirement

**Height:**

40° hopper, 61¾ in. (157 cm)  
60° hopper, 55<sup>5</sup>/<sub>16</sub> in. (140 cm)



**Controls:**

Manually actuated butterfly valve.  
Optional electrically actuated valve with  
control panel or pneumatic valve available.

**Construction:**

All wetted parts are 316 stainless steel with quick-couple  
Tri-Clamp® connections.

**Base:**

Stainless steel

**Motor:**

20 HP - 1750 RPM (15 kW) TEFC 3 phase 230/460 volt.  
Dual frequency and voltage rated 60 Hz at 230/460 volts,  
to 50 Hz at 380 volts.  
Optional explosion-proof motor available.

**Hopper:**

304 stainless steel – 40° or 60° angle available. NOTE: the  
F4329MD Tri-Blender is commonly used with a suspended  
bulk storage hopper. Other options are available.

**Powder Inlet:**

4 in. (101.6mm) connection

**Liquid Inlet:**

2 in. (50.8mm) connection

**Liquid Outlet:**

3 in. (76.2mm) connection

**Pump Requirements:**

*Systems handling viscosity up to 500cps*

Supply Pump:

C328MD18T-S Tri-Flo® Centrifugal Pump

Impeller:

5¾" (146.0mm) Dia.

Seal:

Type D - External Balanced

Casing:

3" (76.2mm) inlet, 2" (50.8mm) outlet- Tri-Clamp

Motor:

5 HP - 1750 RPM, 3-60-230/460 Volt TEFC - Easy Clean

Discharge Pump:

A discharge pump may be required on some applications,  
consult Tri-Clover for recommendations

*Systems handling viscosity over 500cps*

Supply Pump:

TSR5NLS30MDU0C(X)-AO Positive Pump

Base:

Standard

Drive:

Gearhead Motor 3 HP 3PH 60Hz 230/460V,  
Model SK22-184TC, 227 RPM

\*Absorption dependent on characteristics of product.




# Tri-Blender®

Discharge Pump:	TSR5NLS30MDU0C(X)-AO Positive Pump
Base:	Standard
Drive:	Gearhead Motor 3 HP 3PH 60Hz 230/460V, Model SK22-184TC, 251 RPM
<b>Model F2116 EZ-System</b>	
<b>Dry Ingredient Capacity:</b>	Up to 50 lbs. (23 kg) per minute
<b>Installation Size:</b>	33 x 28 in. (54 x 71 cm) floor space requirement
<b>Height:</b>	40° hopper, 64 <sup>3</sup> / <sub>4</sub> in. (162 cm) 60° hopper, 57 <sup>7</sup> / <sub>8</sub> in. (147 cm)
<b>Construction:</b>	All wetted parts are 316 stainless steel with quick-couple Tri-Clamp® connections.
<b>Controls:</b>	Manually actuated butterfly valve. Optional electrically actuated valve with control panel or pneumatic valve available.
<b>Base:</b>	Stainless steel
<b>Motor:</b>	3 HP - 3500 RPM (2.2 kW) TEFC 3 phase 230/460 volt. Optional explosion-proof motor available.
<b>Hopper:</b>	304 stainless steel – 60° angle or 40° angle for bridging- type ingredients
<b>Supply Pump:</b>	Required - model dependent on application
<b>Discharge Pump:</b>	Dependent on application
<b>Powder Inlet:</b>	2 in. (50.8mm) connection
<b>Liquid Inlet:</b>	1½ in. (38.1mm) Tube OD Tri-Clamp connections
<b>Liquid Outlet:</b>	2 in. (50.8mm) Tube OD Tri-Clamp connections



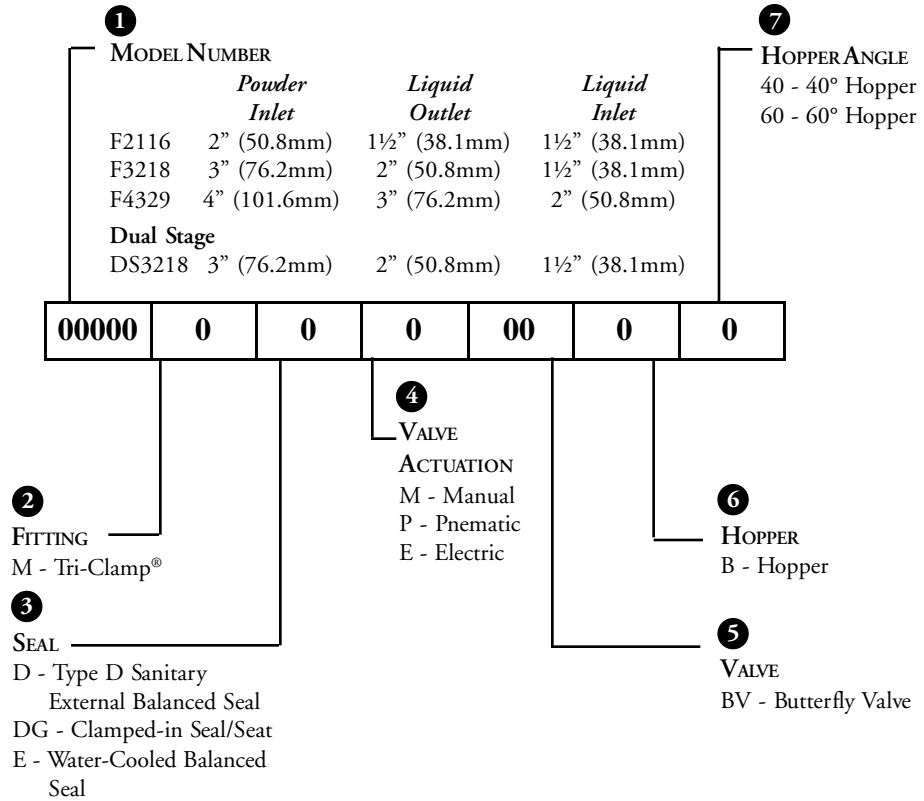
# Tri-Blender®

## Model DS3218 Dual-Stage

<b>Dry Ingredient Capacity:</b>	Up to 100 lbs. (45 kg) per minute (Absorption dependent on product characteristics).	
<b>Installation Size:</b>	20 x 30 in. (51 x 76 cm) floor space requirement	
<b>Height:</b>	40° hopper, 64 <sup>3</sup> / <sub>4</sub> in. (162 cm) 60° hopper, 57 <sup>7</sup> / <sub>8</sub> in. (147 cm)	
<b>Controls:</b>	Manually actuated butterfly valve. Optional electrically actuated valve with control panel or pneumatic valve available.	
<b>Construction:</b>	All wetted parts are 316 stainless steel with quick-couple Tri-Clamp connections	
<b>Base:</b>	Stainless steel	
<b>Motor:</b>	30 HP (22 kW) - 1750 RPM-TEFC 3 phase 230/460 volt. Optional 30 HP 3 phase 50 Hz 380V TEFC motor.	
<b>Hopper:</b>	Type 304 stainless steel - 60° or 40° angle for bridging-type ingredients	
<b>Powder Inlet:</b>	3 in. (76.2mm) Tube OD Tri-Clamp connections	
<b>Liquid Inlet:</b>	1½ in. (38.1mm) Tube OD Tri-Clamp connections	
<b>Liquid Outlet:</b>	2 in. (50.8mm) Tube OD Tri-Clamp connections	
<b>Pump Requirements:</b>		
	<i>Systems handling viscosity up to 500cps</i>	
Supply Pump:	C218MD18T-S Tri-Flo® Centrifugal Pump	
Impeller:	6" (152.4mm) Dia.	
Seal:	Type D - External Balanced	
Casing:	3" (76.2mm) inlet, 1½" (38.1mm) outlet - Tri-Clamp	
Motor:	3 HP - 1750 RPM, 3-60-230/460 Volt TEFC - Easy Clean	
Discharge Pump:	A discharge pump may be required on some applications, consult Tri-Clover for recommendations	
	<i>Systems handling viscosity over 500cps</i>	
Supply Pump:	TSR4WLS25MDU0C(X)-AO Positive Pump	
Base:	Standard	
Drive:	Gearhead Motor 3 HP 3PH 60Hz 236/460V, Model SK12-182TC, 263 RPM	
Discharge Pump:	TSR4WLS25MDU0C(X)-AO Positive Pump	
Base:	Standard	
Drive:	Gearhead Motor 3 HP 3PH 60Hz 236/460V, Model SK12-182TC, 297 RPM	

# Tri-Blender®

## Order Information



**MODEL NUMBER EXAMPLE**

1
2
3
4
5
6
7

**F2116MD - MBV - B60**



## Tri-Clover Inc.

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Tri-Blender®  
The Faster, More Effective  
Dry Ingredient/Liquid  
Blending System



Tri-Clover Inc.

# Tri-Blender®



## Fast, Thorough & Trouble-Free Blending

Tri-Clover makes it easier than ever to mix dry ingredients with liquids, and avoid the time, trouble and lost product associated with reprocessing and pre- and post-blending operations.

Our Tri-Blender is specially designed to thoroughly and efficiently blend dry ingredients and liquids, while minimizing the air introduced into the process. That means the lumping, foaming and flooding associated with conventional mixing equipment is almost totally eliminated.

## Unique Tube-in-Tube Design

The Tri-Blender incorporates a unique tube-within-a-tube design which keeps dry ingredients and liquids separated until they are introduced to the mixing chamber. That's key to the Tri-Blender's efficient operation. And that's why companies from every process industry are turning to the Tri-Blender to streamline blending applications.



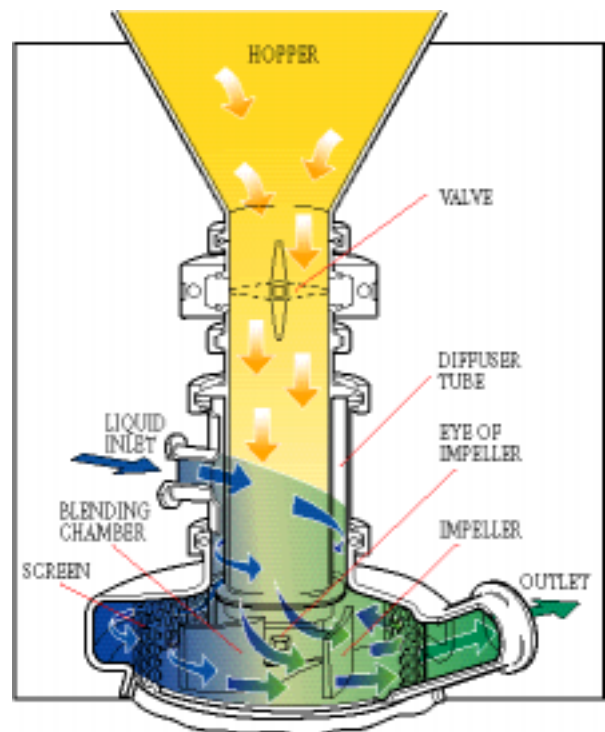
The Tri-Blender is designed to integrate easily into your present process system. Plus, its compact size and easy portability means it can be moved or installed virtually any place in the process.

## Other Key Tri-Blender Benefits Include:

- Fast, uniform and continuous material absorption - up to 350 lbs. (159 kg) per minute
- Choice of automatic or manual feed controls
- Designed for batch blending in some in-line applications
- Dual-stage Tri-Blender is recommended for higher concentrations where consistent addition rates are needed over a long run
- Easily adapted for CIP applications (Dual-stage only)

## Proven In Applications Throughout The Process Industry

The unique Tri-Blender design means easy adaptation to a variety of blending applications in the food, beverage, dairy, chemical and biopharmaceutical industries.





# Proven in Applications Throughout the Process Industry

■ Available in 40° or 60° Type 304 stainless steel hopper configurations.

■ Quick-couple Tri-Clamp® connections used throughout the Tri-Blender to simplify maintenance.

■ Tube-within-a-tube design effectively eliminates all problems associated with prewetting. Liquid and dry ingredients remain separated until each enters the mixing chamber.

■ Outer tube directs liquids to the impeller.

■ Blending chamber screen actually enhances blending of highly hygroscopic powders.

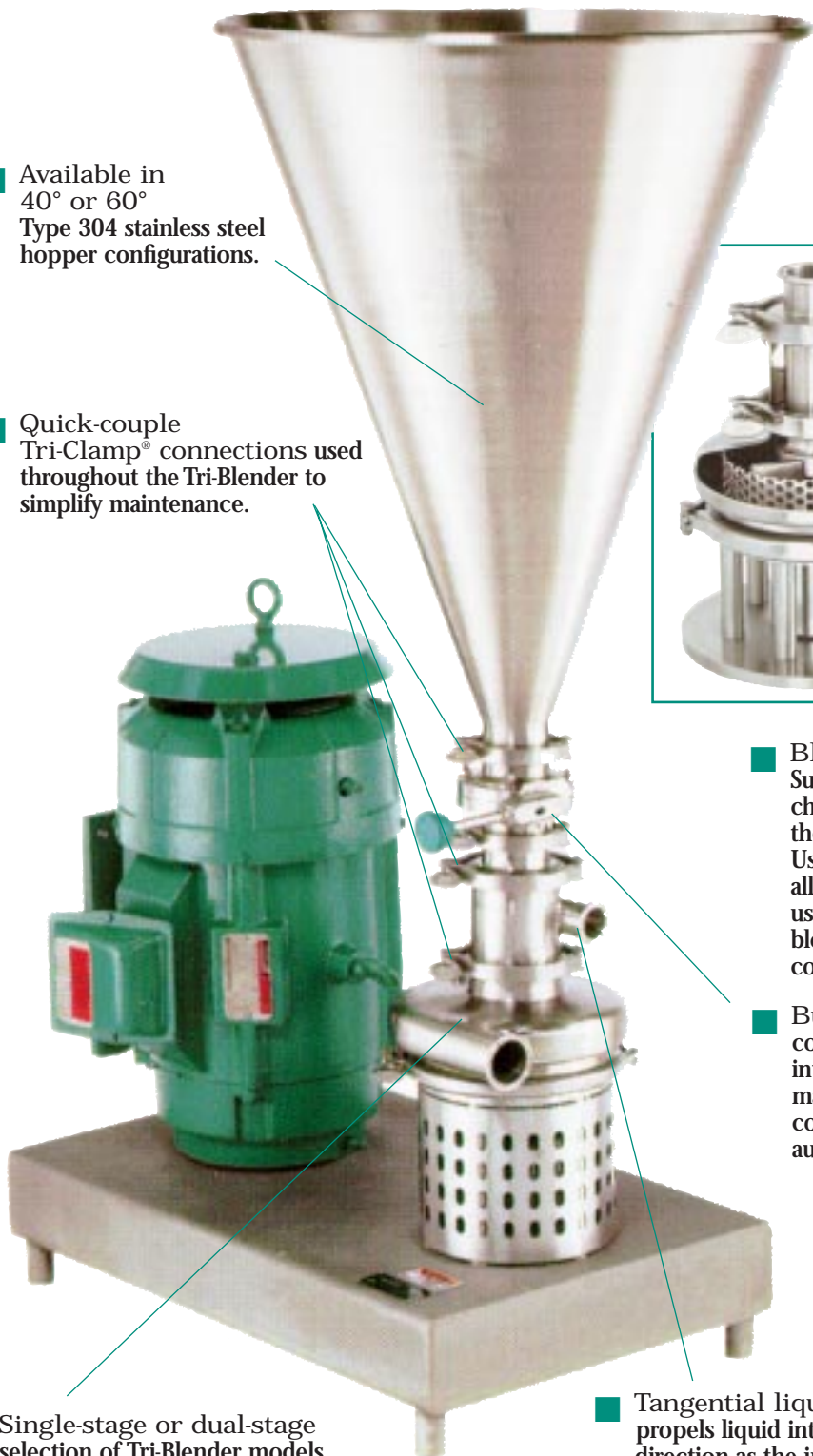
■ Type 316 stainless steel used on all wetted parts.

■ Blending chamber  
Suction generated in the blending chamber pulls dry ingredients from the hopper into the diffuser tube. Use of a supply pump means that all of the blender's vacuum will be used to draw powder into the blending chamber resulting in a consistent rate of powder addition.

■ Butterfly valve controls rate of dry ingredient feed into mixing chamber. Can be operated manually, or equipped with auxiliary controls for integration into automated system.

■ Single-stage or dual-stage selection of Tri-Blender models available to meet application needs.

■ Tangential liquid inlet propels liquid into the blending chamber in the same direction as the impeller rotation, which reduces energy consumption and wetting of the powder inlet tube.



# Wide Selection of Capacities to Meet Your Blending Application Needs



- Model F3218MD Single Stage  
Dry ingredient capacity up to 100 lbs. (45 kg) per minute. Short runs lower concentrations



- Model DS3218 Dual Stage  
Dry ingredient capacity up to 100 lbs. (45 kg) per minute. Double mixing. Addition rates remain consistent as concentration increases

- Model F2116MD Single Stage — *Not shown*  
Dry ingredient capacity: Up to 50 lbs. (23 kg) per minute

- Model F4329MD Single Stage  
Dry ingredient capacity: Up to 350 lbs. (159 kg) per minute



- Model F2116EZ Single Stage Portable  
Dry ingredient capacity: Up to 50 lbs. (23 kg) per minute



*To enhance application convenience, the portable F2116EZ System Tri-Blender goes where you need it. Portable units come complete with supply pump, motor starters, dolly and tube assembly.*

A choice of single-stage or dual-stage Tri-Blenders means you can select a model that fits your application like a glove. Simply choose the model you need, and specify the electrically actuated valve, pneumatic valve, or the manual valve. Other options include skid mounting, automatic custom control packages, and automatic feeds.

The Model F2116EZ is equipped with a wheeled platform for easy portability from application to application. However, the wheeled platform can be ordered as an option on all other Tri-Blender models.

## Seals

### *Single-Stage Models*

Standard units are furnished with Type D sanitary external balanced seal. Optional sanitary seals available include:

- Type DG – clamped-in seal/seal design
- Type E – water-cooled balanced double seal

### *Double-Stage Models*

Standard clamped-in seat design is Carbon vs. SS featuring the convenience of a replaceable insert. Optional materials also available.

## Patented Dual-Stage Tri-Blender® Maximizes Efficiencies

Our patented Model DS3218 Dual-Stage Tri-Blender incorporates a secondary blending chamber which effectively “double blends” liquid and dry ingredients for improved end-product consistency and a smoother, more uniform blend.

Depending on the application, the secondary chamber effectively functions as a discharge pump. In applications up to 500 CPS and up to 50 feet (15 m) of discharge head, the DS3218 entirely eliminates the need for an additional discharge pump, and also delivers significantly higher and more consistent vacuum rate over a wider range of process conditions. That means fast, consistent product flow rates with minimum drop-off through the entire production run.

## Try It Before You Buy It – The Tri-Blender Rental Program

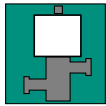
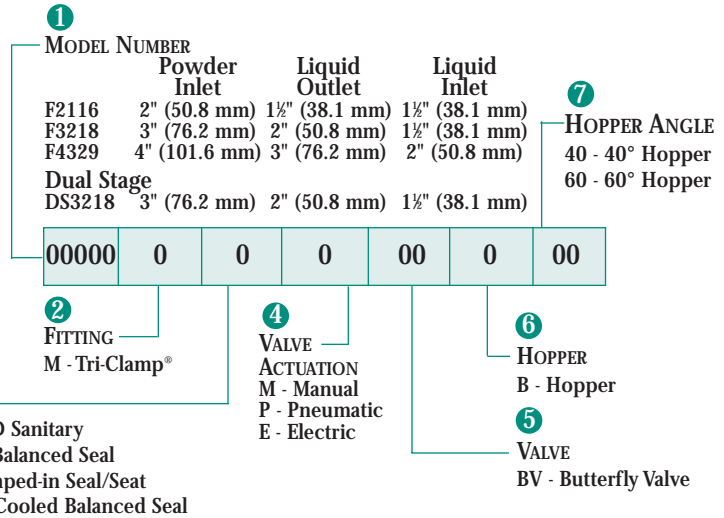
Find out how the Tri-Blender simplifies your blending application with little risk and no long-term commitment. Our “loaner” program lets you experience the simplicity and efficiency of the Tri-Blender in your own application. Ask your Tri-Clover distributor for complete details.

# Ordering Information

## Product Numbering System

### MODEL NUMBER EXAMPLE

① ② ③ ④ ⑤ ⑥ ⑦  
**F2116 M D - M BV - B 60**



### Valves

#### Tri-Flo® Mix-Proof – *Catalog MPV*

Multiple actuator stem designs with full-stroke capability.

#### Air-Actuated – *Catalog AV*

Many styles for automatic flow, and full CIP capability. Also available with optional control top housing. 1" - 4" (25.4 - 101.6 mm) sizes.

#### Fractional Sizes – *Bulletin FV*

Type 316L SS ½" and ¾" (12.7 - 19.0 mm) sizes.

#### Ball – *Bulletin BV*

3-piece body with PTFE seats and packing. 1" - 4" (25.4 - 101.6 mm) sizes.

#### Butterfly – *Bulletin BFV*

Aluminum body. Adaptable to a variety of end connections. 1" - 4" (25.4 - 101.6 mm) sizes.

#### SS Butterfly – *Bulletin B-51*

Stainless steel body. Tri-Clamp® end connections. Variety of seat materials. 1½" - 4" (38.1 - 101.6 mm) sizes.

#### Diaphragm – *Bulletin SV*

Maximum product flow with minimum agitation. ¾" - 4" (6.4 - 101.6 mm) sizes.

#### Diaphragm – *Bulletin DV*

Low-cost systems-oriented diaphragm valve. 1" - 3" (25.4 - 76.2 mm) sizes.

Following are all registered trademarks of Tri-Clover Inc.

Tri-Clover	Tri-Blender
Tri-Clamp	Tri-Flo
Tri-Weld	Super-Speed
Zephyrweld	Tri-Taper
Mainstream	Streamline

AL-6XN is a registered trademark of Allegheny Ludlum Corporation.



### Pumps

#### Tri-Flo® Centrifugal – *Catalog TF*

5 sizes in capacities to 1150 GPM (261 m³/hr). 1½" - 6" (38.1 - 152.4 mm) inlet.

#### Tri-Flo® CL Series Centrifugal – *Catalog CL*

11 sizes in capacities to 2000 GPM (454 m³/hr). 2½" - 4" (63.5 - 101.6 mm) inlet.

#### Tri-Flo® Centrifugal (Water For

Injection/Pharmaceuticals) – *Bulletin WFI*  
 4 sizes in capacities to 700 GPM (159 m³/hr). 1½" - 4" (38.1 - 101.6 mm) inlet.

Series EH Centrifugal (Low Shear) – *Bulletin EH*  
 3 sizes in capacities to 1000 GPM (227 m³/hr). 3" - 6" (76.2 - 152.4 mm) inlet.

#### Positive Rotary – *Catalog PR*

6 sizes to 300 GPM (68 m³/hr) 1" - 6" (25.4 - 152.4 mm) inlet and outlet.

#### T Series Positive Rotary – *Bulletin TS*

(TSR Standard Rotor Design)  
 12 sizes to 500 GPM/290 psi (113 m³/hr/20 bar) 1" - 6" (25.4 - 152.4 mm) inlet and outlet.  
 (TSK Ultra CIP) 5 sizes to 250 GPM/145 psi (56 m³/hr/10 bar) 1" - 3" (25.4 - 76.2 mm) inlet and outlet.

#### Diaphragm Pumps – *Bulletin AOD*

5 sizes to 200 GPM/100 psi (45 m³/hr/7 bar) ¾" - 4" (6.4 - 101.6 mm) inlet and outlet.



### Fittings

#### The Complete Line – *Catalog FTGS*

##### Tri-Clamp®

Sanitary, ½" - 6" (12.7 - 152.4 mm) Tube OD; General service, 1" - 12" (25.4 - 304.8 mm) Tube OD.

##### Tri-Weld®

Standard, 1" - 4" (25.4 - 101.6 mm) Tube OD; Extended tangent, ½" - 4" (12.7 - 101.6 mm) Tube OD.

##### Bevel Seat

Acme thread fittings with combination ends and adapters, 1" - 4" (25.4 - 101.6 mm) Tube OD.

##### Zephyrweld®

For general service, ¾" - 12" (19.0 - 304.8 mm) Tube OD.

#### Tri-Flo® – *Bulletin TF-FT*

Sanitary, 1" - 4" (25.4 - 101.6 mm) Tube OD.

#### AL-6XN® Alloy – *Bulletin AL6-FTG*

Sanitary 1" - 3" (25.4 - 76.2 mm) Tube OD.



### Automated Systems

#### Tri-Blender® – *Bulletin TB*

Blends up to 350 lb./min. (159 kg) dry powder with up to 150 GPM (34 m³/hr).

#### CIP Systems – *Bulletin CIP*

Four standard models. Variations for hot sanitizing service.

#### Filters/Strainers – *Bulletin BFS*

Built to sanitary standards. Low pressure drop and extended service.

#### Bio-Pharm Systems – *Bulletin B-P*

For sterile integrity.



## A Company Engineered For The Customers We Serve

Our Food & Dairy, Bio-Pharm, and Export Divisions ensure the highest levels of customer support in the industry. Each division is organized to provide specific application, equipment and logistics support to help our customers achieve the highest levels of process system efficiency. For more information on how Tri-Clover can be of benefit to your company, contact your local Tri-Clover distributor, or call us at 1-800-242-4000.



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