Air Preparation Equipment







FRLS

- Improve system efficiency
- Side-by-side and stacking units available
- Modular design for easy connection and maintenance
- Variety of port sizes from #10-30 to 1" NPT

pp. 170-174

FILTERS

- Capture solid particulates and remove water by "spinning" the air centrifugally
- Smaller particles are captured as the air flows through the filter element
- Variety of port sizes from #10-32 to 1" NPT
- Manual, automatic, and semi-automatic drain types
- · Polycarbonate or metal bowls
- 25 micron filtration standard,
 5 micron also available

p. 175

REGULATORS

- Adjustable from 7 to 125 psig
- 7 to 30 or 7 to 60 psig models with spring also available
- Variety of port sizes from #10-32 to 1" NPT

p. 176





LUBRICATORS

- Pneumatic actuators and valves perform better and last longer when properly lubricated
- Bowl serves as a reservoir
- Amount of oil dispersed is controlled by an adjustable needle valve
- Variety of port sizes from #10-32 to 1" NPT
- Polycarbonate or metal bowls

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ACCESSORIES

- Relieving shut-off/lock-out valves
- Drain and bowl options
- Replacement bowls
- Muffler and nipple
- Brackets, spacers, and other mounting hardware

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FILTERS, REGULATORS & LUBRICATORS

Maximatic FRLs condition and prepare compressed air for use in fluid power systems. Pneumatic applications with properly conditioned air will operate longer, cost less and improve system efficiency. Clippard offers many different sizes from #10-32 to 1" NPT of filters, regulators, lubricators, and combination units. Their modular design and interconnecting brackets provide flexibility and facilitate simple field installation and/or modification.



Body Material Die cast aluminum

Max. Operating Pressure 150 psig

Regulating Range 125 psig standard; 30 psig and 60 psig optional

Regulator Type Relieving

Filter Drain Semi-automatic differential; automatic available

When the air supply is below 7 psig, the semi-automatic drain will open

Bowl Material Polycarbonate, metal, and cast aluminum

Bowl Guard Steel (on models indicated)

Filtration 25 micron sintered brass filter standard;

5 micron available

FILTERS

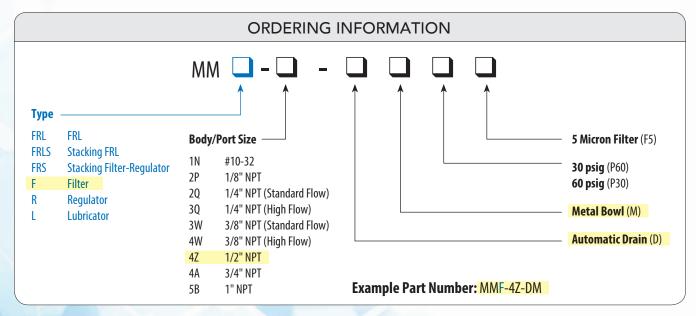
Filters capture solid particulate and remove water by spinning the air centrifugally. Water and larger particles are thrown against the side of the bowl where they condense and/or fall to the lower part of the bowl. Smaller particles are captured as the air flows through the filter element.

REGULATORS

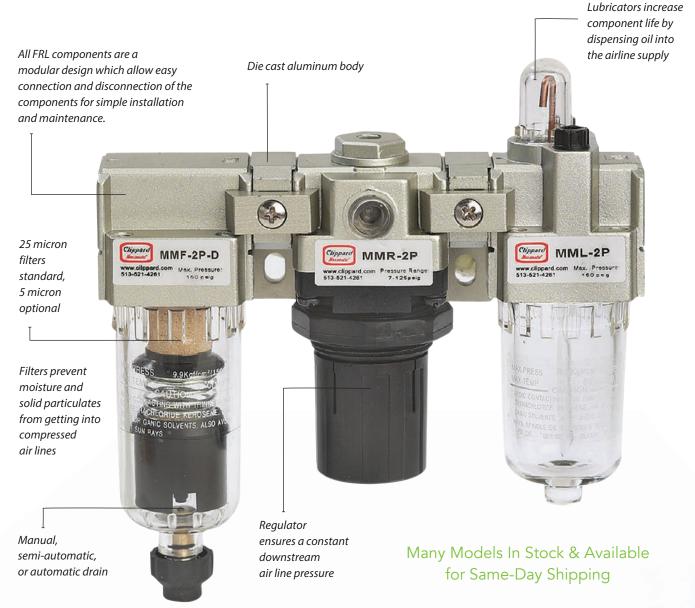
Controlling pressure is an important requirement in all systems. Maximatic regulators are adjustable from 7 to 125 psig. For applications requiring better resolution, 7 to 30 or 7 to 60 psig models with spring are available. The #10-32 size is a piston-style due to its small size, while the 1/8" to 1" feature a diaphragm design.

LUBRICATORS

Pneumatic actuators and valves perform better and last longer when properly lubricated. The bowl serves as a reservoir and supplies oil through the pick-up tube when pressurized. The amount of oil dispersed is controlled by an adjustable needle valve.



Maximatic[®] Series FRLs





Polycarbonate bowls are standard on all filters and lubricators. Bowl shields are standard on MMF/MML 4A and 5B. Optional metal bowl available for filters and lubricators. For more information, visit clippard.com/link/frl

- Large selection of convenient mounting hardware
- #10-32 through 1" NPT ports available
- Easy-to-view sight glass standard on all metal bowls
- Flow rates from 85 to 7,900 l/min
- · Pressure gauge included

FILTER-REGULATOR-LUBRICATOR COMBINATION UNITS





Combination FRLs provide air filtration, regulation and lubrication in one unit for easy mounting and installation. Includes L brackets and gauge.

Bowl: Polycarbonate standard. Steel bowl shields provided on models indicated. Metal bowls with sight glasses also available, add -M suffix to part number.

Regulating Range: 7 to 100 psig on MMFRL-1N, 7 to 125 psig on all others. 30 and 60 psig ranges also available (add -P30 or -P60 suffix to part number).

Drain: Semi-automatic standard on MMFRLS-3 series; manual standard on all others. Automatic drain available—add -D suffix to part number.

Note: Drains not available on lubricators.

Filtration: 25 micron filter standard. 5 micron filter available (add -F5 suffix to part number).

Port	Gauge Port	Flow Rate	Manual Drain	Semi-Auto Drain	Automatic Drain	Standard Bowl*	Gauge
#10-32	1/16" NPT	85 l/min	MMFRL-1N	-	MMFRL-1N-D*	Polycarbonate	PG-10-160J
1/8" NPT	1/8" NPT	510 l/min	MMFRL-2P	-	MMFRL-2P-D*	Polycarbonate	PG-15-160P
1/4" NPT	1/8" NPT	510 l/min	MMFRL-2Q	-	MMFRL-2Q-D*	Polycarbonate	PG-15-160P
1/4" NPT	1/8" NPT	2,000 l/min	-	MMFRL-3Q*	MMFRL-3Q-D*	Poly with Shield	PG-15-160P
3/8" NPT	1/8" NPT	2,000 l/min	-	MMFRL-3W*	MMFRL-3W-D*	Poly with Shield	PG-15-160P
3/8" NPT	1/4" NPT	4,000 l/min	MMFRL-4W	-	MMFRL-4W-D*	Poly with Shield	PG-20-160Q
1/2" NPT	1/4" NPT	4,000 l/min	MMFRL-4Z	-	MMFRL-4Z-D*	Poly with Shield	PG-20-160Q
3/4" NPT	1/4" NPT	4,500 l/min	MMFRL-4A-M	-	MMFRL-4A-M-D*	Poly with Shield	PG-20-160Q
1" NPT	1/4" NPT	5,100 l/min	MMFRL-5B-M	-	MMFRL-5B-M-D*	Poly with Shield	PG-20-160Q

^{*}Add -M suffix to part number for metal bowl with sight glass

STACKING FILTER-REGULATOR-LUBRICATORS





Stacking FRLs provide air filtration, regulation and lubrication in one unit for easy mounting and installation. Includes L bracket and gauge

Bowl: Polycarbonate standard. Steel shield provided on models indicated. Metal bowl with sight glass also available, add -M suffix to part number.

Regulating Range: 7 to 100 psig on MMFRLS-1N, 7 to 125 psig on all others. 30 and 60 psig ranges also available (add -P30 or -P60 suffix to the part number).

Drain: Semi-automatic standard on MMFRLS-3/4/5 series; manual standard on all others. Automatic drain available—add -D suffix to part number.

Filtration: 25 micron filter standard. 5 micron filter available (add -F5 suffix to part number).

Port	Gauge Port	Flow Rate	Manual Drain	Semi-Auto Drain	Automatic Drain	Standard Bowl*	Gauge
#10-32	1/8" NPT	85 l/min	MMFRLS-1N	-	-	Polycarbonate	PG-10-160J
1/8" NPT	1/8" NPT	510 l/min	MMFRLS-2P	-	-	Polycarbonate	PG-15-160P
1/4" NPT	1/8" NPT	510 l/min	MMFRLS-2Q	-		Polycarbonate	PG-15-160P
1/4" NPT	1/8" NPT	1,700 l/min	-	MMFRLS-3Q*	MMFRLS-3Q-D*	Poly with Shield	PG-15-160P
3/8" NPT	1/8" NPT	1,700 l/min	-	MMFRLS-3W*	MMFRLS-3W-D*	Poly with Shield	PG-15-160P
3/8" NPT	1/4" NPT	3,000 l/min	-	MMFRLS-4W*	MMFRLS-4W-D*	Poly with Shield	PG-20-160Q
1/2" NPT	1/4" NPT	3,000 l/min	-	MMFRLS-4Z*	MMFRLS-4Z-D*	Poly with Shield	PG-20-160Q
3/4" NPT	1/4" NPT	4,000 l/min	-	MMFRLS-4A-M	MMFRLS-4A-DM	Poly with Shield	PG-20-160Q
1" NPT	1/4" NPT	4,000 l/min	-	MMFRLS-5B-M	MMFRLS-5B-DM	Poly with Shield	PG-20-160Q

^{*}Add -M suffix to part number for metal bowl with sight glass

STACKING FILTER-REGULATOR-LUBRICATORS



MMFRS-3Q Stacking filter-regulator with bowl shield & semi-automatic drain



MMFRS-2P Stacking filter-regulator with polycarbonate bowl & manual drain

Stacking filter-regulator combinations provide air filtration and precise regulation in a single unit for easy mounting and installation where space is limited. Includes bracket and gauge.

Regulating Range

7 to 100 psig on MMFRS-1N, 7 to 125 psig on all others. 30 and 60 psig ranges also available (add -P30 or -P60 suffix to part number).

Bowl

Polycarbonate standard. Steel bowl shields provided on models indicated. Metal bowls with sight glasses also available, add -M suffix to part number.

Differential Drain

Semi-automatic standard on MMFRS-3/4/5 series; manual standard on all other models. When supply pressure is below 7 psig on all MMFRS-3 and MMFRS-4 models without metal bowls, the standard drain will open. An optional automatic drain is also available—add -D suffix to part number (not available with MMFRS-4A-M).

Filtration

25 micron filter standard. 5 micron filter available (add -F5 suffix to part number). Replacement filters with baffles are also available (p. 177).

Port	Gauge Port	Manual Flow Rate	Semi-Auto Drain	Automatic Drain	Standard Drain	Bowl*	Gauge
#10-32	1/16" NPT	85 l/min	MMFRS-1N	-	-	Polycarbonate	PG-10-160J
1/8" NPT	1/8" NPT	540 l/min	MMFRS-2P	-	MMFRS-2P-D*	Polycarbonate	PG-15-160P
1/4" NPT	1/8" NPT	540 l/min	MMFRS-2Q	-	MMFRS-2Q-D*	Polycarbonate	PG-15-160P
1/4" NPT	1/8" NPT	2,000 l/min		MMFRS-3Q*	MMFRS-3Q-D*	Poly with Shield	PG-15-160P
3/8" NPT	1/8" NPT	2,000 l/min	-	MMFRS-3W*	MMFRS-3W-D*	Poly with Shield	PG-15-160P
3/8" NPT	1/4" NPT	4,000 l/min	-	MMFRS-4W*	MMFRS-4W-D*	Poly with Shield	PG-20-160Q
1/2" NPT	1/4" NPT	4,000 l/min	-	MMFRS-4Z*	MMFRS-4Z-D*	Poly with Shield	PG-20-160Q
3/4" NPT	1/4" NPT	4,500 l/min	-	MMFRS-4A-M	-	Metal with Site Glass	PG-20-160Q
1" NPT	1/4" NPT	5,500 l/min	-	MMFRS-5B-M	MMFRS-5B-D*	Metal with Site Glass	PG-20-160Q

^{*}Add -M suffix to part number for metal bowl with sight glass

FILTERS



MMF-3Q-D
Filter with bowl shield
& automatic drain



MMF-2Q
Filter with polycarbonate
bowl & manual drain



MMF-2Q-D
Filter with polycarbonate
bowl & automatic drain



MMF-2Q-MD
Filter with metal bowl
& automatic drain

Maximatic filters remove moisture and contaminants, and provide air filtration through a 25 micron filter.

Replacement 25 micron and 5 micron filters are available.

Bowl: Polycarbonate standard. Cast steel bowl shield provided on models indicated. Metal bowl with sight glass also available, add -M suffix to part number.

Drain: Semi-automatic standard on MMFRLS-3/4/5 series; manual standard on all others. Automatic drain available—add -D suffix to part number.

Filtration: 25 micron filter standard. 5 micron filter available (add -F5 suffix to part number). Replacement filters with baffles are also available (p. 177).

Port	Flow Rate	Manual Drain	Semi-Automatic Drain	Automatic Drain	Standard Bowl*
#10-32	113 l/min	MMF-1N	-	-	Polycarbonate
1/8" NPT	740 l/min	MMF-2P	-	MMF-2P-D*	Polycarbonate
1/4" NPT	740 l/min	MMF-2Q	-	MMF-2Q-D*	Polycarbonate
1/4" NPT	2,000 l/min	-	MMF-3Q*	MMF-3Q-D*	Poly with Steel Shield
3/8" NPT	2,000 l/min	-	MMF-3W*	MMF-3W-D*	Poly with Steel Shield
3/8" NPT	4,000 l/min	-	MMF-4W*	MMF-4W-D*	Poly with Steel Shield
1/2" NPT	4,000 l/min	-	MMF-4Z*	MMF-4Z-D*	Poly with Steel Shield
3/4" NPT	5,900 l/min	-	MMF-4A-M	MMF-4A-DM	Metal with Site Glass
1" NPT	6,900 l/min	-	MMF-5B-M	MMF-5B-DM	Metal with Site Glass

^{*}Add -M suffix to part number for metal bowl with sight glass

REGULATORS & LUBRICATORS

Maximatic regulators provide precise air regulation from 7 to 125 psig. The adjustment knob must be pulled out to adjust the pressure, preventing accidental adjustment. Maximum inlet pressure is 150 psig. Includes bracket and gauge.

Regulating Range: 7 to 100 psig on MMR-1N, 7 to 125 psig on all others. 30 and 60 psig ranges also available (add -P30 or -P60 suffix to part number).

Part No.	Port	Gauge Port	Flow Rate	Gauge
MMR-1N	#10-32	1/16" NPT	113 l/min	PG-10-160J
MMR-2P	1/8" NPT	1/8" NPT	540 l/min	PG-15-160P
MMR-2Q	1/4" NPT	1/8" NPT	540 l/min	PG-15-160P
MMR-3Q	1/4" NPT	1/8" NPT	2,500 l/min	PG-15-160P
MMR-3W	3/8" NPT	1/8" NPT	2,500 l/min	PG-15-160P
MMR-4W	3/8" NPT	1/4" NPT	4,000 l/min	PG-20-160Q
MMR-4Z	1/2" NPT	1/4" NPT	4,000 l/min	PG-20-160Q
MMR-4A	3/4" NPT	1/4" NPT	5,900 l/min	PG-20-160Q
MMR-5B	1" NPT	1/4" NPT	7,900 l/min	PG-20-160Q







MML-3W Lubricator with bowl shield



MML-2P Lubricator with polycarb. bowl

MML-2Q-M Lubricator with metal bowl



These inexpensive direct-flow lubricators provide lubrication to downstream valves and actuators

Bowl: Polycarbonate standard. Steel bowl shields provided on models indicated. Metal bowls with sight glasses also available, add -M suffix to part number.

LUBRICATOR BOWL FLUID CAPACITY

Model	Bowl#	Capacity
MML-2	27057-2	0.8 oz./24 ml (cc)
MML-3	27057-3	2.3 oz./68 ml (cc)
MML-4	27057-4	6.2 oz./183 ml (cc)

LUBRICATOR OIL DRIP DOME KITS

Includes glass dome, drip tube, and o-ring

Model	Bowl #
MML-2	27057-2
MML-3 MML-4	27057-3 27057-4

Port	Flow Rate	Polycarbonate Bowl	Poly Bowl with Shield	Metal Bowl
#10-32	85 l/min	MML-1N	-	-
1/8" NPT	790 l/min	MML-2P	-	MML-2P-M
1/4" NPT	790 l/min	MML-2Q	-	MML-2Q-M
1/4" NPT	1,700 l/min		MML-3Q	MML-3Q-M
3/8" NPT	1,700 l/min		MML-3W	MML-3W-M
3/8" NPT	5,100 l/min		MML-4W	MML-4W-M
1/2" NPT	5,100 l/min		MML-4Z	MML-4Z-M
3/4" NPT	6,200 l/min	4	MML-4A	MML-4A-M
1" NPT	6,900 l/min	7 - 4	MML-5B	MML-5B-M

MAXIMATIC® SERIES

VALVES, ACCESSORIES & OPTIONS

RELIEVING SHUT-OFF/LOCK-OUT VALVES

May be used in conjunction with Maximatic® FRLs to provide a method of turning off the air supply. Enables filters to be cleaned or replaced, oil to be added to the lubricator, or other maintenance steps to be performed without the air supply.

Valve can also be locked in the "off" position to prevent accidental pressurizing (lock not included).

Part No.	Port	Vent Port	Flow Rate @ 100 psig	Compatible Series (FRL, FRLS, FR, FRS, F, R)
MMSV-3PP	1/8" NPT	1/8" NPT	510 l/min	-2 Series
MMSV-3QP	1/4" NPT	1/8" NPT	710 l/min	-2 Series
MMSV-3QQ	1/4" NPT	1/4" NPT	1,700 l/min	-3 Series
MMSV-3WQ	3/8" NPT	1/4" NPT	2,600 l/min	-3 Series
MMSV-3WW	3/8" NPT	3/8" NPT	3,400 l/min	-4W & -4Z Series
MMSV-3ZW	1/2" NPT	3/8" NPT	5,100 l/min	-4W & -4Z Series

MediumAirAir FlowSee table belowMaterialDie Cast AluminumInput Pressure150 psigMountingIn-line



FILTER DRAIN OPTIONS



Manual



Manual



Semi-Auto





Automatic (-D)
Series 1 & 2 Series 3, 4 & 5

REPLACEMENT FILTERS

Filter Series	5 micron	25 micron
MMF-1	27021	27050
MMF-2	27022	27051
MMF-3	27023	27052
MMF-4	27024	27053
MMF-5	27025	27054

Filter Replaceme	Filter Replacement Bowls						
Polycarbonate		Semi-Auto					
Bowl	Manual Drain	Drain	Automatic Drain				
MMF-1 Series	27055-1	-	-				
MMF-2 Series	27055-2	-	27055-2-A				
MMF-3 Series	-	27055-3	-				
MMF-4/5 Series	-	27055-4	-				
Metal Bowl Shie	ld						
MMF-3 Series	-	27070-3	27070-3-A				
MMF-4/5 Series	-	27070-4	-				
Metal Bowl with Site Glass							
MMF-2 Series	27059-2	-	27059-2-A				
MMF-3 Series	-	27059-3	27059-3-A				
MMF-4/5 Series	-	27059-4	27059-4-A				

Lubricator Replacement Bowls					
	Polycarbonate	Bowl Shield	Metal Bowl*		
MML-1 Series	27057-1	-	-		
MML-2 Series	27057-2	-	27060-2		
MML-3 Series	27057-3	27070-3	27060-3		
MML-4/5 Series	27057-4	27070-4	27060-4		

^{*}All metal bowls come complete with a sight glass

BOWL OPTIONS







Metal with sight glass (-M)

MUFFLER & NIPPLE



Part No.	Description
3849-1	1/8" NPT Polyethylene Muffler
9002-01	1/8" NPT Hex Nipple with Micron Filter

MAXIMATIC® SERIES

ACCESSORIES

Mounting Hardware for Lubricators & Filters

No brackets are furnished with lubricators or filters.
Comes with two screws to mount bracket to MMF/MML.



Replacement Mounting Hardware for Regulators & Stacked Filter-Regulators

Brackets are included with the purchase of these components. Mounting screws not provided.





Filter/Lubricator	Bracket Mounting Thread	Bracket Part No.
MMF-2P	M4	MMH-B240
MML-2P	M4	MMH-B240
MMF-3	M4	MMH-B340
MML-3	M4	MMH-B340
MMF-4Z/4W	M5	MMH-B440
MML-4Z/4W	M5	MMH-B440
MMF-4A	M5	MMH-B540
MML-4A	M5	MMH-B540
MMF-5	M6	MMH-B640
MML-5	M6	MMH-B640

Regulator	Bracket Part No.
MMR-1N/MMFRS-1N	MMH-B120
MMR-2P/2Q	MMH-B220
MMFRS-2P/2Q	MMH-B220
MMR-3Q/3W	MMH-B320
MMFRS-3Q/3W	MMH-B320
MMR-4W/4Z/4A	MMH-B420
MMFRS-4W/4Z/4A	MMH-B420
MMR-5B	MMH-B420
MMFRS-5B	MMH-B420

Spacers

To convert individual filter, regulator and lubricators into combination units without mounting brackets. Seals included.



Spacers with Quick Connect

Threaded pipe adapters allow for a component to be quickly and easily removed from the airline for replacement or service. Adapters can be used to allow for different pipe diameters in the configuration.



Series	Part No.
FRL-1	MMH-Y10
FRL-2	MMH-Y20
FRL-3	MMH-Y30
FRL-4W/4Z	MMH-Y40
FRL-4A	MMH-Y50
FRL-5	MMH-Y60

FRL Series	Part No.	Port Size	
FRL-2	MMH-PA-2P	1/8" NPT	
FRL-2	MMH-PA-2Q	1/4" NPT	
FRL-2	MMH-PA-2W	3/8" NPT	
FRL-3	MMH-PA-3Q	1/4" NPT	
FRL-3	MMH-PA-3W	3/8" NPT	
FRL-3	MMH-PA-3Z	1/2" NPT	
FRL-4W/4Z	MMH-PA-4W	3/8" NPT	
FRL-4W/4Z	MMH-PA-4Z	1/2" NPT	
FRL-5	MMH-PA-5A	3/4" NPT	
FRL-5	MMH-PA-5B	1" NPT	

MAXIMATIC® SERIES

ACCESSORIES

T& L Brackets

L brackets are included with the purchase of combination FRLs, to convert to T, use T bracket only. If no bracket is furnished, use T or L bracket with MMH-YXX spacer (ordered separately).

FRL Series	L Bracket Part No.	
FRL-1	MMH-B110L	2
FRL-2	MMH-B210L	
FRL-3	MMH-B310L	
FRL-4W/4Z	MMH-B410L	
FRL-4A	MMH-B510L	
FRL-5	MMH-B610L	

FRL Series	T Bracket Part No.	
FRL-1	MMH-B110T	0
FRL-2	MMH-B210T	
FRL-3	MMH-B310T	
FRL-4W/4Z	MMH-B410T	
FRL-4A	MMH-B510T	
FRL-5	MMH-B610T	4

Mounting Hardware for Combination Units

To convert individual filter, regulator and lubricators into combination units. Seals included.

FRL Series	Spacer with L Bracket	
FRL-1	MMH-Y10L	1
FRL-2	MMH-Y20L	
FRL-3	MMH-Y30L	
FRL-4W/4Z	MMH-Y40L	-1
FRL-4A	MMH-Y50L	
FRI -5	MMH-Y60I	

FRL Series	Spacer with T Bracket	
FRL-1	MMH-Y10T	
FRL-2	MMH-Y20T	
FRL-3	MMH-Y30T	
FRL-4W/4Z	MMH-Y40T	-
FRL-4A	MMH-Y50T	
FRL-5	MMH-Y60T	

Spacers with Auxiliary Port

Provides parallel port between components.



MMH-Y21-N01

FRL Series	Spacer with Port	Spacer with L Bracket & Port	Spacer with T Bracket & Port
FRL-2	MMH-Y21-N01 (1/8")	MMH-Y21L-N01 (1/8")	MMH-Y21T-N01 (1/8")
	MMH-Y21-N02 (1/4")	MMH-Y21L-N02 (1/4")	MMH-Y21T-N02 (1/4")
FRL-3	MMH-Y31-N01 (1/8")	MMH-Y31L-N01 (1/8")	MMH-Y31T-N01 (1/8")
	MMH-Y31-N02 (1/4")	MMH-Y31L-N02 (1/4")	MMH-Y31T-N02 (1/4")
FRL-4W/4Z	MMH-Y41-N02 (1/4")	MMH-Y41L-N02 (1/4")	MMH-Y41T-N02 (1/4")
	MMH-Y41-N03 (3/8")	MMH-Y41L-N03 (3/8")	MMH-Y41T-N03 (3/8")
FRL-5	MMH-Y61-N03 (3/8")	MMH-Y61L-N03 (3/8")	MMH-Y61T-N03 (3/8")
	MMH-Y61-N04 (1/2")	MMH-Y61L-N04 (1/2")	MMH-Y61T-N04 (1/2")

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CA PROPOSITION 65

All products shipped to or sold to consumers in California include Proposition 65 documentation with the shipment and reference our website. There are over nine hundred (900) chemicals on the Proposition 65 list, some of which are used in Clippard materials and/or processes. Although not all products contain chemicals within the list, Clippard is being cautious and diligent in complying with the California Law.

As of August 30, 2018, chemicals we are aware of that are listed within Proposition 65 are detailed online at clippard.com/link/prop65, or for additional information please contact tech@clippard.com.