

**MAUSER CORP.**

## Closing Instructions

**UN 1A1 Non-Removable Head Steel Drums**

**UN 1A2 Removable Head Steel Drums**

**UN 6HA1 Non-Removable Head Composite Drums**

**UN 6HA1 Removable Head Composite Drums**

**The person responsible for filling and closing these containers for shipment must have a copy of these instructions.**

Pursuant to U.S. Department of Transportation Regulations given in Title 49 Code of Federal Regulations Part 178. Specifications for Packagings §178.2(c)(1)(i), Mauser Corp. must notify each person to whom a packaging is transferred of the type and dimensions of any closures, including gaskets,

needed to satisfy performance test requirements. This notification is to include tightening instructions for closures.

**Note:**

Paragraph 178.2(c) cited above requires **you** to provide closing information to any person to whom this package is transferred who may need to close the packaging prior to reshipment

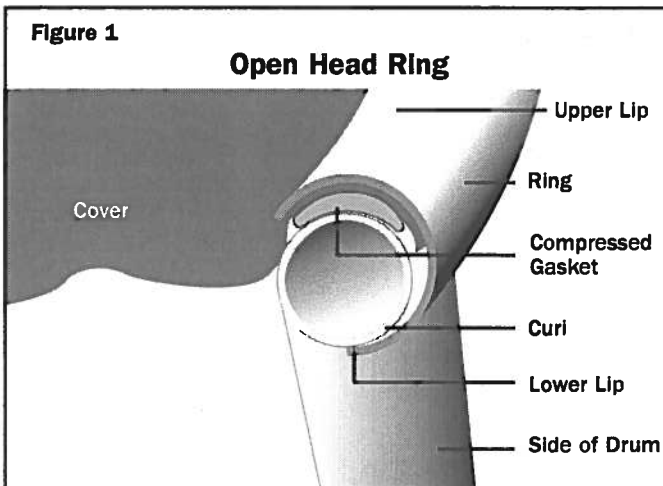
### Closing Instructions for Head Fittings:

All non-removable head, UN 1A1 Steel drums, all fully removable head UN 1A2 Steel Drums, and all Composite Drums 6HA1, that are supplied with plugs and gaskets, must be closed for shipment using only the plugs and gaskets supplied and specified in the design qualification test for the drum as indicated below:

- T/S Plugs: 2-inch and 3/4-inch steel and plastic, installed in T/S steel flanges of corresponding size and tightened to the torque recommended by the manufacturer for the plug and gasket used as indicated below.

- Rieke® Plugs: 2-inch and 3/4-inch steel and plastic, installed in the appropriate Rieke® steel or plastic flange of corresponding size and tightened to the torque recommended by the manufacturer as indicated below.
- Equivalent plugs: 2-inch and 3/4-inch steel and plastic, installed in the appropriate equivalent Steel flange of corresponding size and tightened to the torque recommended as indicated below.

*Note: Equivalent plugs and T/S plugs may be used interchangeably in the octagonal design fittings*



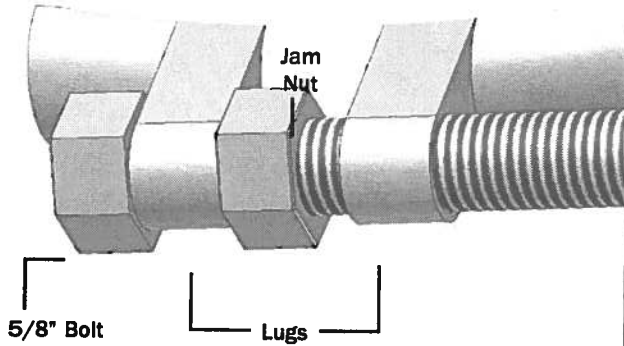
### Closing Instructions for MAUSER CORP. Open Head Covers:

All removable head, UN 1A2, Steel drums supplied with bolt rings, bolts, gaskets and lids must be closed for shipment using only the components supplied and specified in the design qualification tests for the drum as marked according to the installation instructions below.

- Place drum head, with gasket in place as supplied, on the curl at the top of the drum body. (See figure 1)
- Place bolt ring around drum head and curl. (Note: Preferred orientation is with the ring gap in line with the 2" fitting)
- Using a head compressor, apply force to the top of the drum head assembly to compress head gasket.
- Drive bolt into lug until the ends of the bolt ring are as follows: (See Figure 2)

Figure 2

**Open Head Ring and Bolt**



**Closing Instructions for M-C Open Head Covers:**

For steel drum thickness marked on bottom of drum	
1.3/1.1/1.1:	1/2-inch or less ring gap
1.1/1.1/1.1:	1/2-inch or less ring gap
1.1/0.8/1.1:	3/8-inch or less ring gap
1.0/1.0/1.0:	1/2-inch or less ring gap

For composite drum thickness marked on bottom of drum	
1.1/1.1/1.1:	1/2-inch or less ring gap
0.8/0.8/0.8:	3/8-inch or less ring gap

*Note: If prescribed ring gap can not be achieved, torque ring to 75 ft. lbs. (+/- 5 ft. lbs.)*

If head compressor is not available, start bolt into lug, alternate tapping of ring with a mallet and drive bolt with wrench, until bolt ring ends meet above requirements.

When ring has been tightened as required, the jam nut must be tightened against the unthreaded lug to prevent the bolt from backing out of the closing ring.

**Prescribed Closure Torques for Steel Drums (ft.lbs.)**

Item	T/S Style Closures	
	3/4" (ft.lbs.)	2" (ft.lbs.)
<b>T/S Steel Plugs</b>		
Rubber Gaskets	12	20
Polyethylene, Teflon® Gaskets	20	30
<b>T/S Zinc Die Cast Plugs</b>		
Rubber Gaskets	12	20
Polyethylene, Teflon® Gaskets	20	30
<b>T/S Polypropylene 7 Nylon Plugs</b>		
Rubber Gaskets	8	20
Polyethylene Gaskets	8	30
<b>T/S Polyethylene Plug, High Density</b>		
Rubber Gaskets	8	15
<b>T/S Self Gasketing Polyethylene Plugs</b>	5	12

*Materials classified "POISONOUS BY INHALATION" must be sealed with T/S Steel, Gasketed, Tab-Seal Caps or equivalent  
Closure torques listed above are minimum values*

Item	Rieke® or Equivalent Closures			
	Steel Flanges		Nylon flanges	
	3/4" (ft.lbs.)	2" (ft.lbs.)	3/4" (ft.lbs.)	2" (ft.lbs.)
<b>Rieke® Steel Plugs</b>				
Rubber Gaskets	15	30	—	—
Polyethylene Gaskets	20	40	—	—
<b>Rieke® Plastic Poly-ViseGrip® Plugs</b>				
Rubber Gaskets	9	20	9	20
Polyethylene Gaskets	9	20	9	20
<b>Rieke® Poly-ViseGrip® Plug with Built-in Gasket</b>				
	9	20	9	20

*Recommended torque tolerance: +6,-2 ft.lbs.*

**Prescribed Closure Torques for Composite Plugs (ft.lbs.)**

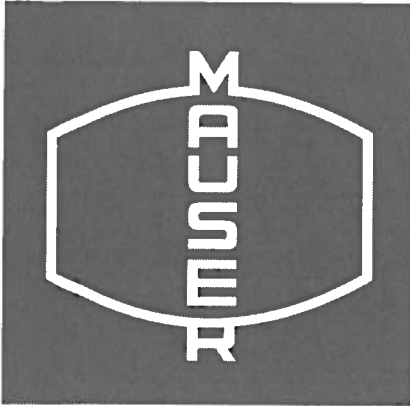
Item	Torque (ft.lbs.)
<b>2" Buttress (05R) Plugs</b>	
B4 Gasket	20
<b>2" Buttress (05T) Plugs</b>	
EPDM Gasket	29
<b>2"NPS (02) Combo Plugs</b>	
EPDM Gasket	15
<b>3/4" Polyethylene Plugs</b>	
EPDM Gasket	4

**Important Telephone Numbers**

**MAUSER CORP.** [www.mausercorp.com](http://www.mausercorp.com)  
 Burlington, ONT (905)332-4800  
 Houston, TX (713)672-0580  
 Woodbridge, NJ (732)634-6000

**CHEMTREC®** [www.chemtrec.org](http://www.chemtrec.org)  
 Report a Spill (800)424-9300  
 Safety Information (800)262-8200

All trademarks listed are the properties of their respective owner  
 It is the customers' sole responsibility to ensure that MAUSER CORP. packaging selected is capable of safely containing the product to be packaged  
 Containers should not be pressurized or used as long term storage containers  
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# MAUSER CORP.

## Closing Instructions

**UN 1A1 Non-Removable Head Steel Drums**

**UN 1A2 Removable Head Steel Drums**

**UN 6HA1 Non-Removable Head Composite Drums**

**UN 6HA1 Removable Head Composite Drums**

**The person responsible for filling and closing these containers for shipment must have a copy of these instructions.** Pursuant to U.S. Department of Transportation Regulations given in Title 49 Code of Federal Regulations Part 178. Specifications for Packagings §178.2(c)(1)(i), Russell-Stanley must notify each person to whom a packaging is transferred of the type and dimensions of any closures, including gaskets,

needed to satisfy performance test requirements. This notification is to include tightening instructions for closures.

**Note:**

Paragraph 178.2(c) cited above requires you to provide closing information to any person to whom this package is transferred who may need to close the packaging prior to reshipment

### Closing Instructions for Head Fittings:

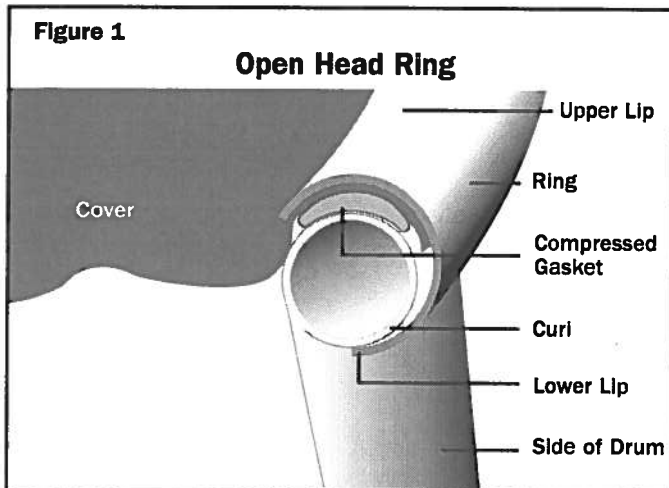
All non-removable head, UN 1A1 Steel drums, all fully removable head UN 1A2 Steel Drums, and all Composite Drums 6HA1, that are supplied with plugs and gaskets, must be closed for shipment using only the plugs and gaskets supplied and specified in the design qualification test for the drum as indicated below:

- T/S Plugs: 2-inch and 3/4-inch steel and plastic, installed in T/S steel flanges of corresponding size and tightened to the torque recommended by the manufacturer for the plug and gasket used as indicated below.

- Rieke® Plugs: 2-inch and 3/4-inch steel and plastic, installed in the appropriate Rieke® steel or plastic flange of corresponding size and tightened to the torque recommended by the manufacturer as indicated below.

- Equivalent plugs: 2-inch and 3/4-inch steel and plastic, installed in the appropriate equivalent Steel flange of corresponding size and tightened to the torque recommended as indicated below.

*Note: Equivalent plugs and T/S plugs may be used interchangeably in the octagonal design fittings*



### Closing Instructions for MAUSER CORP. Open Head Covers:

All removable head, UN 1A2, Steel drums supplied with bolt rings, bolts, gaskets and lids must be closed for shipment using only the components supplied and specified in the design qualification tests for the drum as marked according to the installation instructions below.

- Place drum head, with gasket in place as supplied, on the curl at the top of the drum body. (See figure 1)
- Place bolt ring around drum head and curl. (Note: Preferred orientation is with the ring gap in line with the 2" fitting)
- Using a head compressor, apply force to the top of the drum head assembly to compress head gasket.
- Drive bolt into lug until the ends of the bolt ring are as follows: (See Figure 2)

**STEEL DRUM CLOSING STATEMENT  
CFR 49 PART 178-178.2 (c) (1) NOTIFICATION**

All steel containers should be closed after filling and before transportation in accordance with the tightening torque's in Appendix 1.

Containers fitted with crimped overseals over the closures will be fully torqued at the plant of manufacture.

**APPENDIX 1**

Closing Torques for Plug / Gasket Combinations

PLUG TYPE	GASKETS	TIGHTENING TORQUE	
		3/4" Din Plugs	2" Din Plugs
Tri-Sure Steel	Rubber - Black Buna, White Buna, Butyl, White Neoprene, Viton, Silicone & EPDM	12 Ft. lbs	20 Ft. lbs
	Polyethylene, Irradiated Polyethylene & Teflon	20 Ft. lbs	30 Ft. lbs
Tri-Sure Polyethylene Polypropylene/Nylon	Rubber - Black Buna, White Buna, Butyl, White Neoprene, Viton, Silicone & EPDM	8 Ft. lbs	20 Ft. lbs
	Polyethylene, Irradiated Polyethylene & Teflon	8 Ft. lbs	30 Ft. lbs
Tri-Sure Polyethylene	None (Self Gasketing)	5 Ft. lbs	12 Ft. lbs
Tri-Sure Polypropylene (Poly Clad)	None (Self Gasketing)	1/2" Plug	2 1/2" Plug
	None (Self Gasketing)	5 Ft. lbs	12 Ft. lbs
Rieke Steel  For 1 1/2" steel plugs use 2" plug torques	Rubber - Quartermaster Hycar, White Buna, White Asbestos, White Dnpon, EPT Wht&Black	15 Ft. lbs	30 Ft. lbs
	Poly Seal (Plastic) Irradiated & Non-Irradiated	20 Ft. lbs	40 Ft. lbs
Rieke Polyethylene Polypropylene/Nylon	Rubber - White Buna, EPT Black & White Dnpon, Irradiated & Non-Irradiated	9 Ft. lbs	20 Ft. lbs
Rieke Polyethylene Polypropylene/Nylon	None - (Self Sealing)	9 Ft. lbs	20 Ft. lbs

**Open Head Containers**

18 3/8" Diameter and 22 1/2" Diameter

All Open Head containers should have the Locking Ring Bolt torque's checked after filling & before transportation in accordance with Appendix Procedure for Checking Bolt Tightening Torque's:

- 1) Release the Jam Nut.
- 2) Tighten the Locking Ring Bolt to torque's stated in Appendix 2.  
While torquing, bump the ring with a mallet directly opposite the lugs, and on both sides.  
Note: Bump the ring at a 30 degree downward angle.
- 3) Retighten the Jam Nut to 25-30 Ft. lbs. torque, against the Unthreaded Lug.

**APPENDIX 2**

Closing Torques for Locking Rings for 30 & 55 AG Drums

55 GAL RING	GASKET TYPES	BOLT TIGHTENING TORQUE
12 GA Forged Lug - X391	G557	45 Ft. lbs. - Ring Gap 1/16" to 3/8"
12 GA Forged Lug "C" Section All Types	ALL GASKETS Except G557	60 Ft. lbs. MIN Ring Gap Min 1/8" to Max 5/8"
16 GA Bolt Ring All Types	ALL GASKETS	Torque - 8 to 15 Ft. lbs. Ring Gap Min 1/8" to Max 5/8"
30 GAL RING	GASKET TYPES	BOLT TIGHTENING TORQUE
12 GA Forged Lug All Types	ALL GASKETS	60 Ft. lbs. MIN Ring Gap Min 1/8" to Max 5/8"
16 GA Bolt Ring All Types	ALL GASKETS	Torque - 8 to 15 Ft. lbs. Ring Gap Min 1/8" to Max 5/8"

Note: For Lever Locking Rings: Rings should be closed securely & Latched

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Mauser

Mauser USA, Inc.  
DOT 178 Notice  
FRM-07P

Charlotte

**DOT 178 Notice  
Closure Requirements for Plastic Drums**

In Regulation 49 CFR 178.2(c), the Department of Transportation (DOT) requires drum manufacturers to inform their customers of how to close drum fittings and closure rings in order to return drums to their UN marking performance levels after filling.

**Closing Torques for Fittings**

Below are recommended closing torques for plastic drum plugs. Closing plastic drums to these torques after filling will return your drums to full performance levels for their UN markings, which is required for shipping. (Note: Torque values assume clean, dry plugs and openings. Avoid over torquing.)

**Closing Torques for Drums Marked 1H1 (Tight Head), Packing Group Y (ft.-lbs.)**

Plastic plug	3/4"	2"
Buttress	n/a	20
NPT	9	20

**Closing Torques for Drums Marked 1H2 (Open Head), Packing Group Y (ft.-lbs.)**

Plastic plug	3/4"	2"
NPT	5	8

**Closing Torques for High Performance Drums Marked 1H1 (Tight Head), Packing Group X (ft.-lbs.)**

American Buttress	25
Euro-Buttress	55

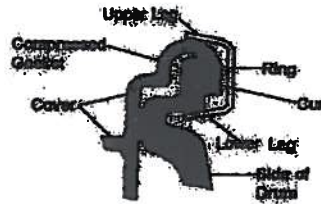
**Closing Torques for Steel/Plastic Composite Drums Marked 6HA1 (Tight Head) or 6HA2 (Open Head), Packing Group Y (ft.-lbs.)**

Plastic plug	3/4"	2"
NPT with gasket	5-8	10-15

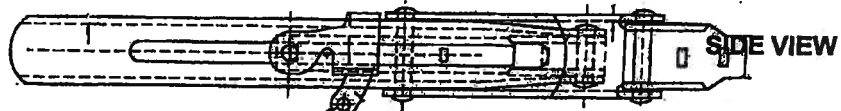
**OPEN HEAD RING CLOSURE REQUIREMENTS**

Close drums for shipment by placing ring around drum head and lip. Compress gasket between drum body lip and cover by pressing downward on the drum cover or by tapping ring with mallet while tightening. Use only rings, covers and gaskets supplied with drums.

To ensure components meet performance level requirements, ring is installed right side up when locking tab closes in a down position. Be sure locking tab is secured through slot in ring handle.

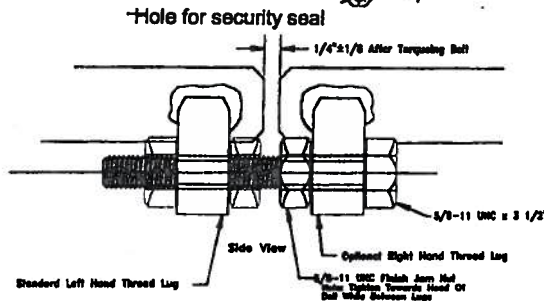


**LEVER LOCK**



**BOLT RING CLOSURE**

1/4" ± 1/8"



To ensure proper closure, do not exceed ring closure gap.

**SIDE VIEW**

**NOTE: Use of other than manufacturer-specified components may void certification and warranty.**

Drums bear a DOT/UN specification mark solely on the basis of use with components specified in design qualification tests. Drums were tested with water or according to specific gravity as marked on the drums and were closed according to closure manufacturer's recommendations. All customers are advised that use of these drums and any components supplied in respect to relevant compatibility is the sole responsibility of the user.