



Dresser Meters & Instruments – Bolts & Gaskets

Refer to our configuration charts that address the issue of varying bolt lengths based on application for the following:

- Meter Body Type and Size
- Flange Material
- Gaskets
- With or Without Screen Gaskets
- Quantity of Bolts required per meter

All bolts shipped with meters or meter sets have a red, lubricious, polymer based coating to help prevent galling of the threads in the meter. The bolts can be packaged with meter orders.

Our recommended torque specification for lubricated and non-lubricated bolts is:

Meter Size	Bolt Diameter	Torque (ft-lbs.)	
		Lubricated	Non-Lubricated (not recommended – for reference only)
8C – 23M 4"	5/8"	55	60
23M - 56M	3/4"	104	115
102M	7/8"	159	175

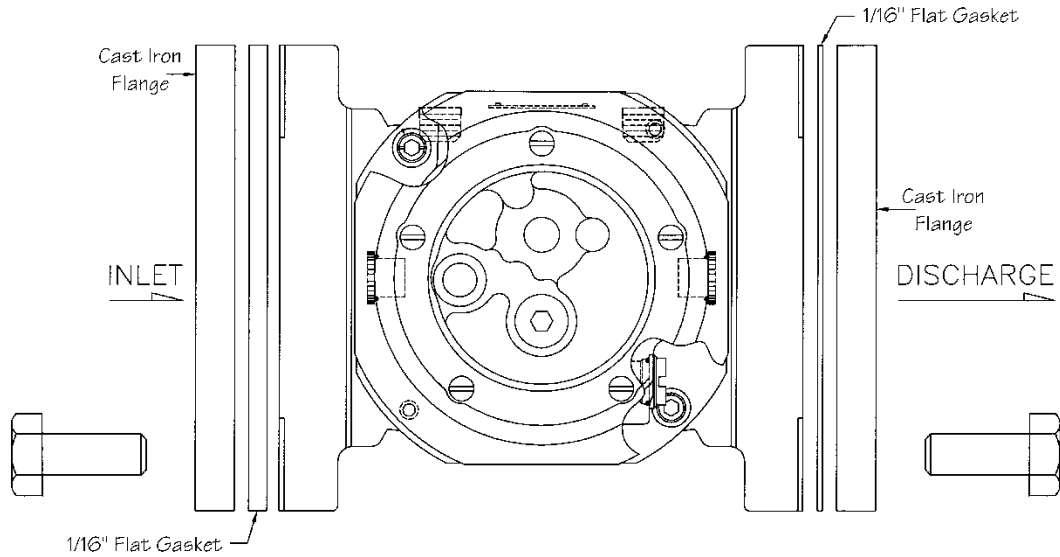
These torque recommendations are based on engineering estimates and should effectively seal the piping/meter flanges while lowering the stress on the meter cylinder. However, lower torque may be necessary based on unforeseen variables. At no point should the torque *exceed* the recommended specification.

Full-face insulating gaskets with little or no laminated Neoprene backing may be more difficult to seal. The installation and leak checking procedures outlined in the meter Installation and Operation Manuals provide instructions on how to check for a proper seal.

A glass reinforced Epoxy retainer gasket with an imbedded sealing O-ring is recommended for applications requiring a full face, insulating gasket. Dresser offers the LineBacker® insulating gasket for this application. Contact your Customer /Technical Service Representative for more information on this product.

In general, the design standard for coarse threads is that the internal thread depth is 1.5 to 2 times the bolt diameter (i.e., the 15/16" thread depth for 5/8-11 bolt diameter on our 8C - 23M 4" meters is 1.5 times) with a minimum of engagement of 5 threads. It is critical that the bolt does not bottom out, preventing the flange from being properly tightened. We provide the minimum flange bolt depth for our meters and the customer must determine the requisite bolt length based on their piping design with a minimum of 1-1/2 thread engagement.

Cast Iron Flanges (ANSI B16.1, Class 125) with 1/16" Gaskets on Inlet and Discharge



(Drawing not to scale)

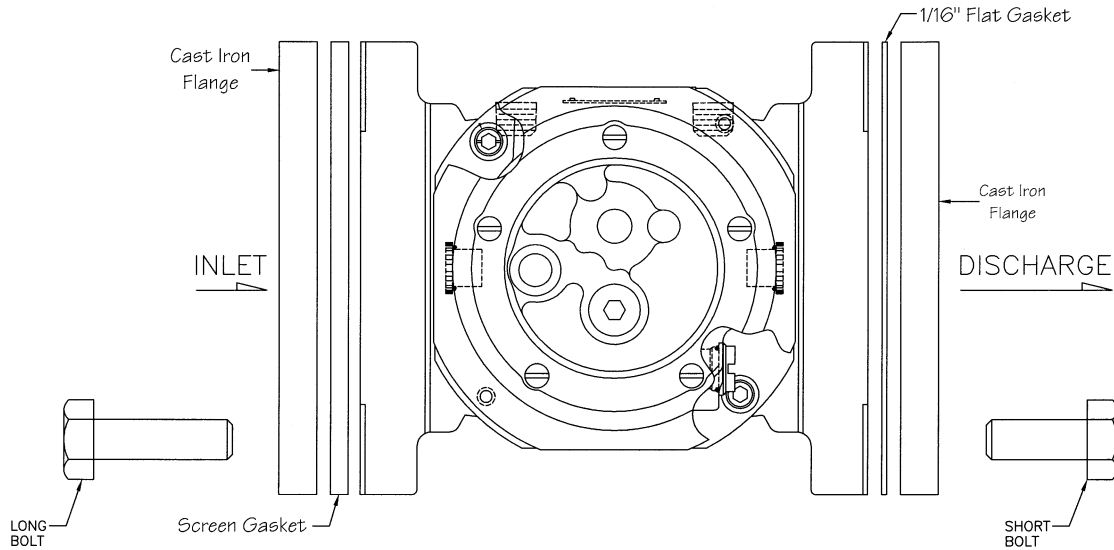
Series B Meter Body (TQM)

Meter	Bolt Size	Bolt P/N	Qty per Meter
8C/11C/15C/2M/3M	5/8"-11 x 1-1/2"	010044-003	8
5M/7M	5/8"-11 x 1-1/2"	010044-003	8
11M/16M/23M-4"	5/8"-11 x 1-3/4"	010044-004	16
23M/38M/56M	3/4"-10 x 2-1/2"	010194-107	16

Series A Meter Body (LM-MA)

Meter	Bolt Size	Bolt P/N	Qty per Meter
3M/5M/7M	5/8"-11 x 1-1/2"	010044-003	8
11M/16M	5/8"-11 x 1-3/4"	010044-004	16
23M/38M/56M	3/4"-10 x 2-1/2"	010194-107	16
102M	7/8"-9 x 3"	010342-107	24

Cast Iron Flanges (ANSI B16.1, Class 125) with a PSI Screened Gasket on the Inlet and a 1/16" Gasket on the Discharge



(Drawing not to scale)

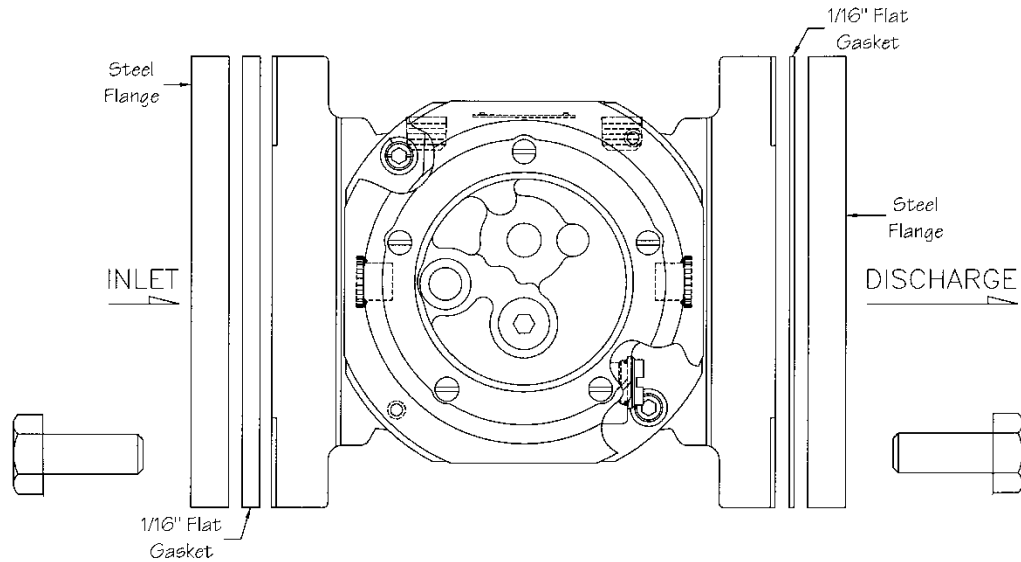
Series B Meter Body (TQM)

Meter	Bolt Size	Bolt P/N	Qty per Meter
8C/11C/15C/2M/3M	5/8"-11 x 1-1/2"	010044-003	8
5M/7M	5/8"-11 x 1-1/2"	010044-003	4
	5/8"-11 x 1-3/4"	010044-004	4
11M/16M/23M-4"	5/8"-11 x 1-3/4"	010044-004	8
	5/8"-11 x 2"	010044-005	8
23M/38M/56M	3/4"-10 x 2-1/2"	010194-107	8
	3/4"-10 x 2-3/4"	010194-108	8

Series A Meter Body (LM-MA)

Meter	Bolt Size	Bolt P/N	Qty per Meter
3M	5/8"-11 x 1-1/2"	010044-003	8
5M/7M	5/8"-11 x 1-1/2"	010044-003	4
	5/8"-11 x 1-3/4"	010044-004	4
11M/16M	5/8"-11 x 1-3/4"	010044-004	8
	5/8"-11 x 2"	010044-005	8
23M/38M/56M	3/4"-10 x 2-1/2"	010194-107	8
	3/4"-10 x 2-3/4"	010194-108	8
102M	7/8"-9 x 3"	010342-107	24

Steel Flanges (ANSI B16.5, Class 150) with 1/16" Gaskets on Inlet and Discharge



(Drawing not to scale)

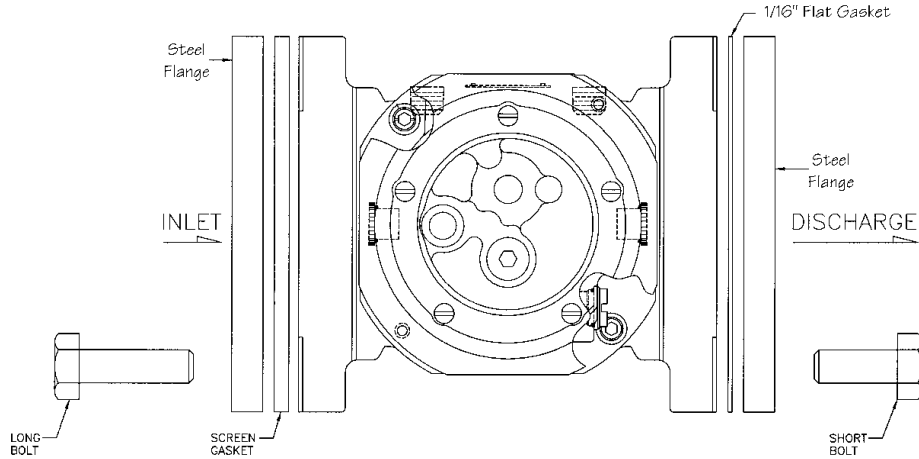
Series B Meter Body (TQM)

Meter	Bolt Size	Bolt P/N	Qty per Meter
8C/11C/15C/2M/3M	5/8"-11 x 1-1/2"	010044-003	8
1M300	3/4"-10 x 1-3/4"	010194-104	8
3M300	5/8"-11 x 1-3/4"	010044-004	16
5M/7M	5/8"-11 x 1-3/4"	010044-004	8
11M/16M/23M-4"	5/8"-11 x 1-3/4"	010044-004	16
23M/38M/56M	3/4"-10 x 2-1/2"	010194-107	16

Series A Meter Body (LM-MA)

Meter	Bolt Size	Bolt P/N	Qty per Meter
3M	5/8"-11 x 1-1/2"	010044-003	8
5M/7M	5/8"-11 x 1-3/4"	010044-004	8
11M/16M	5/8"-11 x 1-3/4"	010044-004	16
23M/38M/56M	3/4"-10 x 2-1/2"	010194-107	16
102M	7/8"-9 x 3"	010342-107	24

Steel Flanges (ANSI B16.5, Class 150) with a PSI Screened Gasket on the Inlet and a 1/16" Gasket on the Discharge



(Drawing not to scale)

Series B Meter Body

Meter	Bolt Size	Bolt P/N	Qty per Meter
8C/11C/15C/2M/3M	5/8"-11 x 1-1/2"	010044-003	4
	5/8"-11 x 1-3/4"	010044-004	4
1M300	3/4"-10 x 1-3/4"	010194-104	4
	3/4"-10 x 2"	010194-105	4
3M300	5/8"-11 x 1-3/4"	010044-004	8
	5/8"-11 x 2"	010044-005	8
5M/7M	5/8"-11 x 1-3/4"	010044-004	4
	5/8"-11 x 2"	010044-005	4
11M/16M/23M-4"	5/8"-11 x 1-3/4"	010044-004	8
	5/8"-11 x 2"	010044-005	8
23M/38M/56M	3/4"-10 x 2-1/2"	010194-107	8
	3/4"-10 x 2-3/4"	010194-108	8

Series A Meter Body (LM-MA)

Meter	Bolt Size	Bolt P/N	Qty per Meter
3M	5/8"-11 x 1-1/2"	010044-003	4
	5/8"-11 x 1-3/4"	010044-004	4
5M/7M	5/8"-11 x 1-3/4"	010044-004	4
	5/8"-11 x 2"	010044-005	4
11M/16M	5/8"-11 x 1-3/4"	010044-004	8
	5/8"-11 x 2"	010044-005	8
23M/38M/56M	3/4"-10 x 2-1/2"	010194-107	8
	3/4"-10 x 2-3/4"	010194-108	8
102M	7/8"-9 x 3"	010342-107	24



EXAMPLE OF HOW TO DETERMINE THE BOLT LENGTH REQUIRED TO INSTALL A DRESSER METER WITH MATING FLANGE & GASKET

This document reflects the type of information that may be useful in making a determination of meter bolt length required. Assumptions were used for gasket and flange thickness. The add/subtract 1/8-inch allows for a degree of tolerance.

METER BOLT INFORMATION TABLE

METER	BOLT THREAD	"A" THREAD DEPTH	"B" 5-TURNS MINIMUM	MINIMUM BOLT GRADE
3M175	5/8-11 UNC	15/16	1/2	XXX-XXX

Note: All dimensions shown in inches

METER BOLT LENGTH (without washer under head) WORKSHEETS

Example – Minimum Length

Meter Description	3M175
"B" 5-Turns Minimum	1/2
+ (add) Gasket Thickness	1/16
+ (add) Flange Thickness	1/2
+ (add) 1/8 inch	1/8
Minimum Bolt Length	1-1/8

Example - Maximum Length

Meter Description	3M175
"A" Thread Depth	15/16
+ (add) Gasket Thickness	1/16
+ (add) Flange Thickness	1/2
- (subtract) 1/8 inch	1/8
Maximum Bolt Length	1-3/8

More information can be found in The Machinery's Handbook and in many of the construction and piping handbooks for these calculations. There are too many factors to make a blanket statement on this issue. In general, the design standard for coarse threads is that the internal thread depth is 1.5 to 2 times the bolt diameter (i.e., the 15/16 thread depth on our 8C-16M meters is 1.5 times the 5/8-11 bolt diameter). The standard rule of thumb is that the bolt engagement should be 1 to 1.25 times the bolt diameter as a minimum and at least 5 threads of engagement is desired. It is also critical the bolt does not bottom out, as this will not allow the flange to be properly tightened even though the bolt may be at the proper torque. It is our recommendation that each situation be properly evaluated by the pipe fitter / piping designer as pipe influences, flange styles and gaskets can greatly affect the required bolt length.

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