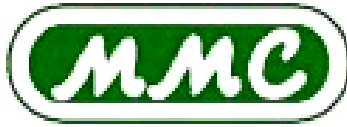




**MMC INTERNATIONAL CORP**

**GENERAL GUIDELINES  
TO  
OPERATE AND MAINTAIN  
MMC C/L COUPLINGS  
(NON RATCHET TYPE)  
150# A.N.S.I. RATING**

**MMC INTERNATIONAL CORPORATION  
60 INIP DRIVE  
INWOOD, NEW YORK 11069 USA**



**MMC INTERNATIONAL CORP**

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SECTION I  
GENERAL GUIDELINES  
TO  
OPERATE AND MAINTAIN  
MMC C/L COUPLINGS  
150# A.N.S.I. RATING

**1.0 General:** MMC C/L couplings have been designed to allow for quick connection and disconnection of standard pipe and hose flanges.

The design provides a safe and labor saving method for secure flange to flange connections.

The MMC C/L Coupling can be affixed to a pipe manifold side to the end of a connection hose or loading arm.

Couplings are available in studded (Illustrated), and spool piece types in a size range of 4" through 20".

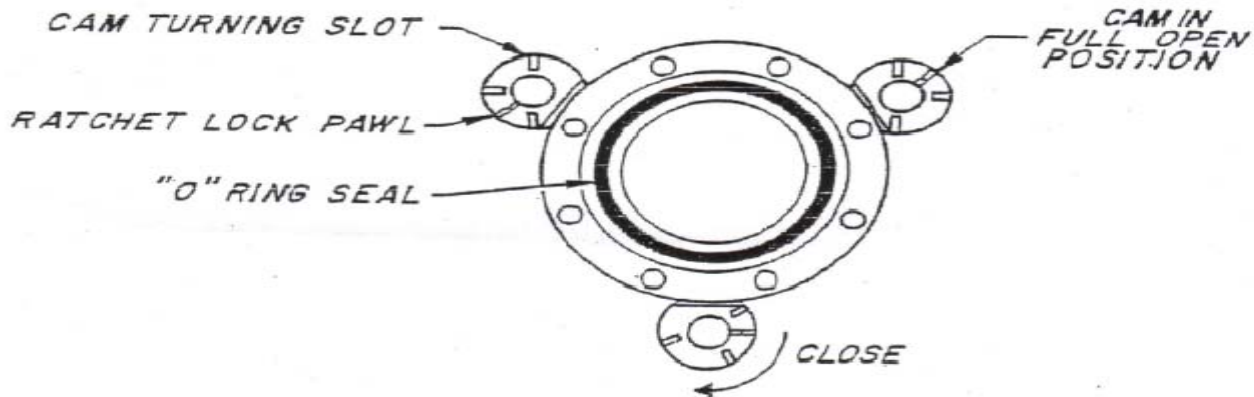
The C/L coupling locking cams are provided with a positive type helical cam lock, applied in the closing clockwise rotation direction. A ratchet lock mechanism is engaged upon locking down the cams

A special Bronze locking wrench is provided to lock and unlock the cams.

An "O"-Ring seal is provided within the standard raised face (or optional flat face) for each C/L Coupling, and is the means of sealing mating flange faces. This is a dynamic acting seal, whereby product fluid pressure increases the sealing action. The mating flange face coupled to a C/L flange, need not be of special finish, standard flange face finishing is satisfactory. Mating flanges connected to a C/L coupling flange must be of the same pressure rating.

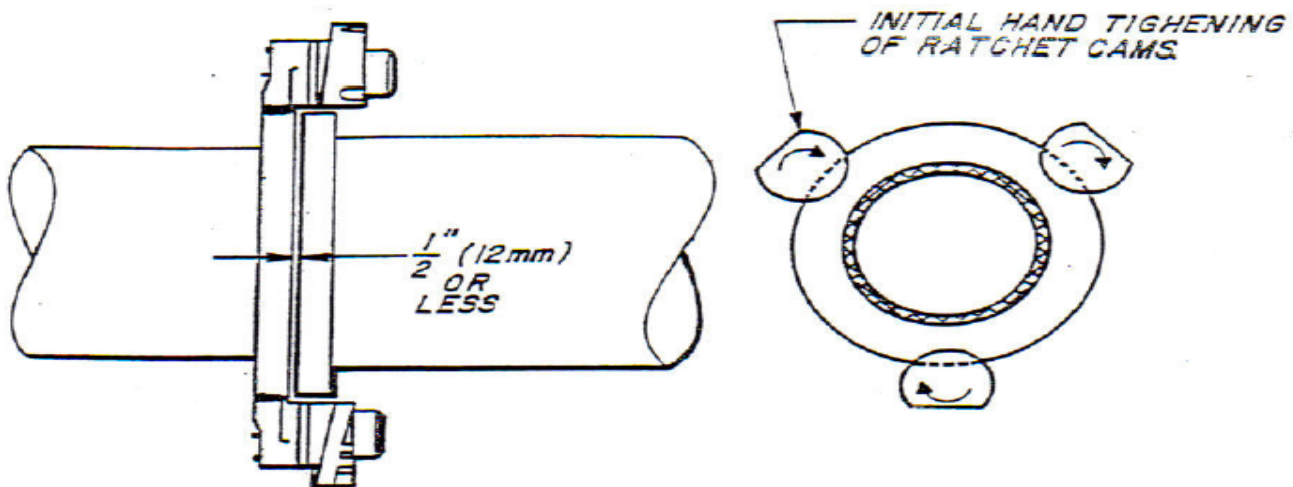
## OPERATING INSTRUCTIONS

1. With all cams in the full open position, the coupling is ready to accept the guided mating flange.



TYPICAL 6", 150 , C/L FLANGE SHOWN.

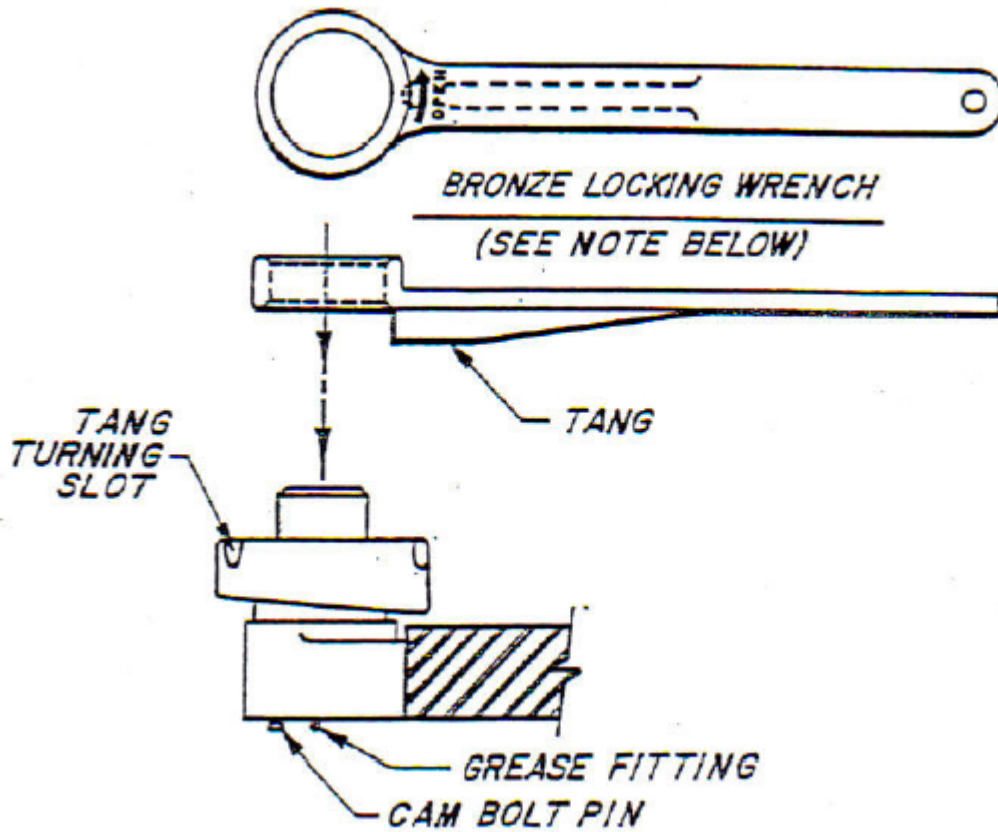
2. When the mating flange is within the locking range of cam ( $\frac{1}{2}$ ", 12mm) the cams may be initially **hand tightened**, by rotating them in a clockwise direction. At this time, the locking wrench is not need.



3. Then using the locking wrench provided, an even cam tightening procedure is recommended with final re-tightening to hard stop. To lock the cam, rotate in clockwise direction.

3. (continued.)

STANDARD SUPPLIED BRONZE LOCKING WRENCH

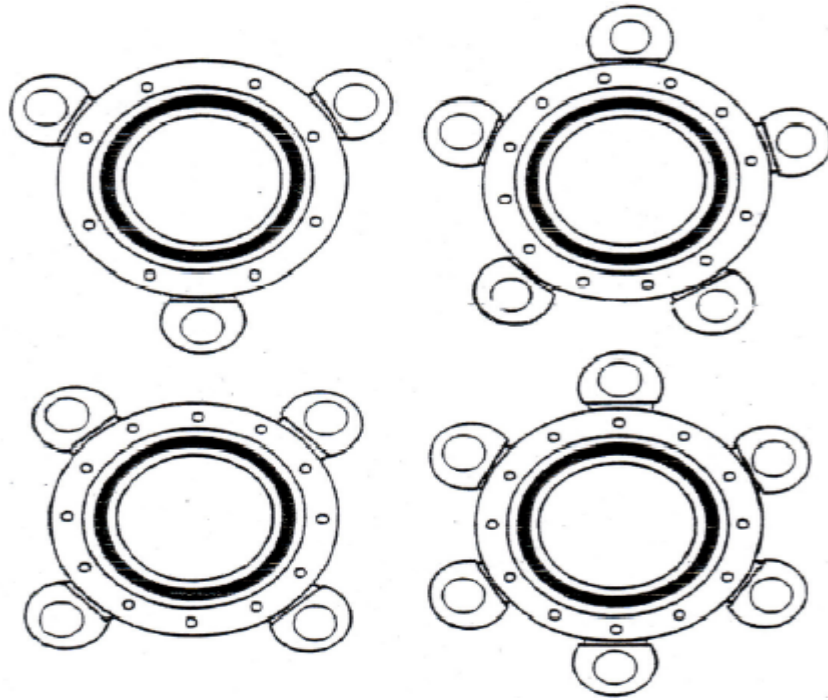


4. To disconnect a C/L Flange connection, a reverse order of operation is followed

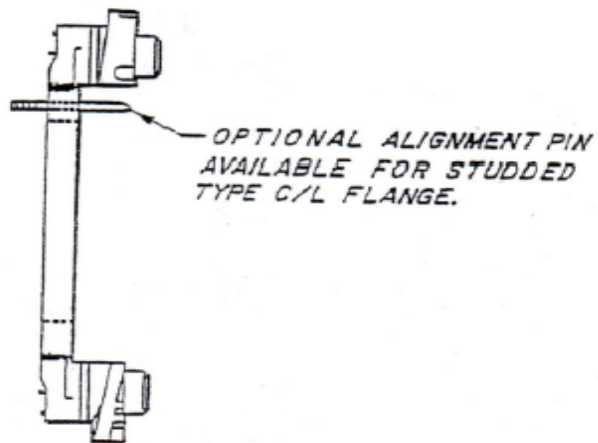
**CAUTION !**  
DO NOT STRIKE THE CAMS WITH STEEL HAMMERS  
WHICH MAY CAUSE METAL SPARKING TO OCCUR

# PREFERRED CAM ORIENTATION

( FOR FIXED INSTALLATION SITES )



The arrangements, as shown above, apply to studded, Spool Piece and weldneck C/L Flange assemblies



## SECTION II

### **2.0 MAINTENANCE**

1. When the C/L Flanges are not in use, the seal face should be covered with a steel blind, or an aluminum blind; both types are available from MMC.

**WARNING NOTE: Aluminum blinds are for drip sealing and sealing face protection only. These blinds are limited to a 50-psi maximum pressure rating and are not to be used in place of steel blinds for higher pressure applications.**

2. The standard Buna-N O-ring seal, or optional material seal, should be inspected for cuts and deep nicks before each use. If any doubt exists as to the condition of the inspected o-ring it should be replaced

O-ring seals in various materials are available from MMC to suit special applications.

3. Periodically grease the cam-bolt assembly via the grease fitting located at the bottom of each cam-bolt. The grease used should be suitable for the seasonal temperature range of the environment of the installation.
4. At a six month interval, inspect cam surfaces for signs of mechanical abuse.

### **SECTION III**

### **WARRANTY**

The seller, MMC or its licensed agents, fully warrants equipment of its manufacture against defects in materials or workmanship for a period of one year from the date of shipment. No other warranty period, in excess of one year, may be expressed or implied by sub-agents or others, unless authorized in writing by MMC. The liability of the seller under this warranty is limited, at seller's option, solely to repair or replace with equivalent equipment.

The seller, upon the expiration of the warranty period, has the option to apply a limited credit, not to exceed the original equipment sales price, toward the purchase of a new piece of equipment, if returned equipment is beyond reasonable repair. In any event, non-warranty repair charges will be quoted to buyer, for authorization, before repair work commences.

In the Event of Returns for Warranty Repairs:

- A. The buyer is to notify the seller in writing upon discovery of the defects.
- B. Upon receipt of written authorization from the seller, the equipment is returned as directed, transportation prepaid by the buyer.
- C. Buyer is to disclose the use of this product within hazardous chemical substances. It is the responsibility of the buyer to clean or decontaminate this product before returning for repairs. Buyer's refusal will void warranty at seller's option.
- D. If seller's examination of such equipment disclosed to his satisfaction that defects were not caused by negligence, misuse, improper installation, accident or unauthorized repair or alteration by the buyer, repairs will be immediately affected.
- E. Buyer is to provide shipping instructions for the return, including mode of transportation.

This warranty does not include mechanical parts failure due to wear or corrosion from normal usage, nor does it cover limited life elastomer components.

This warranty is in lieu of all other warranties, expressed or implied, including that implied of fitness for a particular purpose to the original purchaser or to any other person. Seller shall not be liable for consequential damages of any kind.

**IMPORTANT:**

Unauthorized repair or component replacement by the user, will void this warranty.

Jan 2007



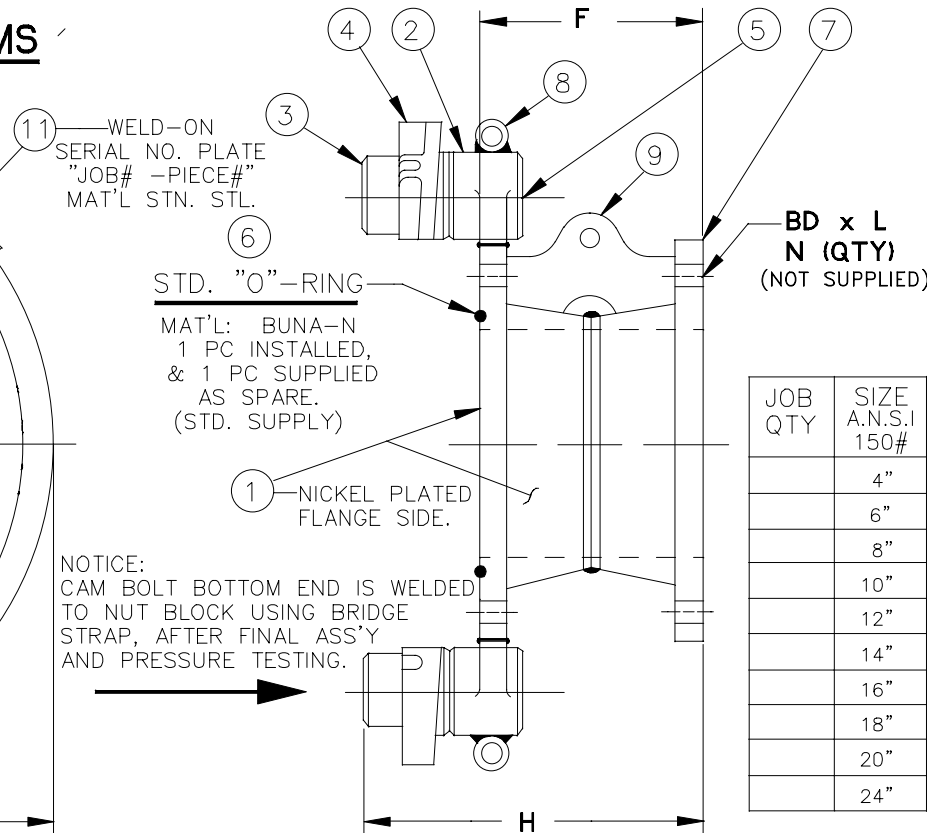
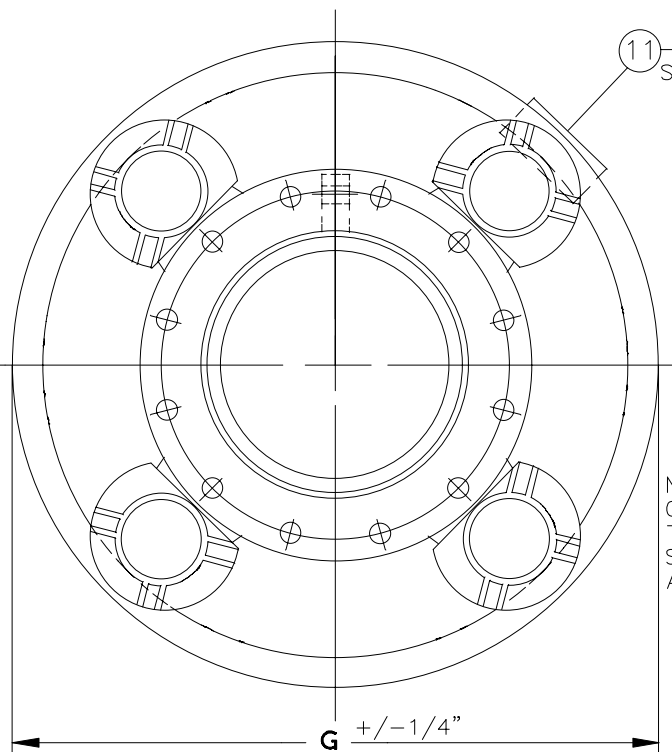
## SECTION V

### LIST OF APPLICABLE DRAWINGS

<u>Drawing No</u>	<u>Rev</u>	<u>Description</u>
B-2277-2-STLN	-	150# A.N.S.I. C/L Flange Spool Piece with Optional Accessories Non_Ratchet Lock Type
B-2274-2-STLN	-	150# A.N.S.I. Studded C/L Flange, Submersible Service, Non- Ratchet Lock Type.

UNAUTHORIZED USE, MANUFACTURE, OR REPRODUCTION IN WHOLE OR IN PART IS PROHIBITED.

# NON RATCHET LOCK CAMS



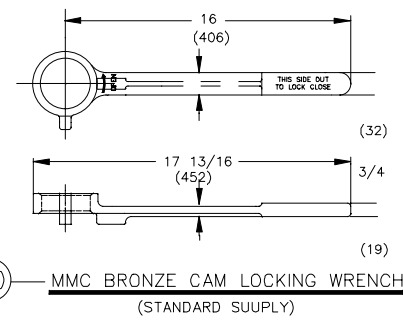
11—WELD-ON SERIAL NO. PLATE "JOB# -PIECE#" MAT'L STN. STL.

6—STD. "O"-RING MAT'L: BUNA-N 1 PC INSTALLED, & 1 PC SUPPLIED AS SPARE. (STD. SUPPLY)

1—NICKEL PLATED FLANGE SIDE.

NOTICE: CAM BOLT BOTTOM END IS WELDED TO NUT BLOCK USING BRIDGE STRAP, AFTER FINAL ASS'Y AND PRESSURE TESTING.

BD x L N (QTY) (NOT SUPPLIED)



10—MMC BRONZE CAM LOCKING WRENCH (STANDARD SUUPLY)

JOB QTY	SIZE A.N.S.I. 150#	CAM QTY	DIM "F"	DIM "G"	DIM "H"	ASSEMBLY WEIGHT		BOLT DIA. "BD" x L" MIN.	QTY "N"
						LBS	KGS		
	4"	3	6"	19	9 5/8	89	40	5/8 x 3	8
	6"	3	7"	21 3/4	10 11/16	110	50	3/4 x 3 1/4	8
	8"	3	8"	23 3/4	11 7/8	141	64	3/4 x 3 1/2	8
	10"	4	8"	27	11 15/16	185	84	7/8 x 3 3/4	12
	12"	4	9"	29 3/4	12 15/16	242	110	7/8 x 4	12
	14"	5	10"	32	14 1/16	320	145	1 x 4 1/4	12
	16"	5-6	10"	33 5/8	14 1/8	387	176	1 x 4 1/2	16
	18"	8	11"	35 3/16	15 1/4	450	204	1-1/8x4 3/4	16
	20"	10	11 3/8"	37 3/4	15 3/4	537	244	1-1/8x5 1/4	20
	24"	12	12"	42 3/8	16 9/16	732	332	1-1/4x5 3/4	20

## NOTES:

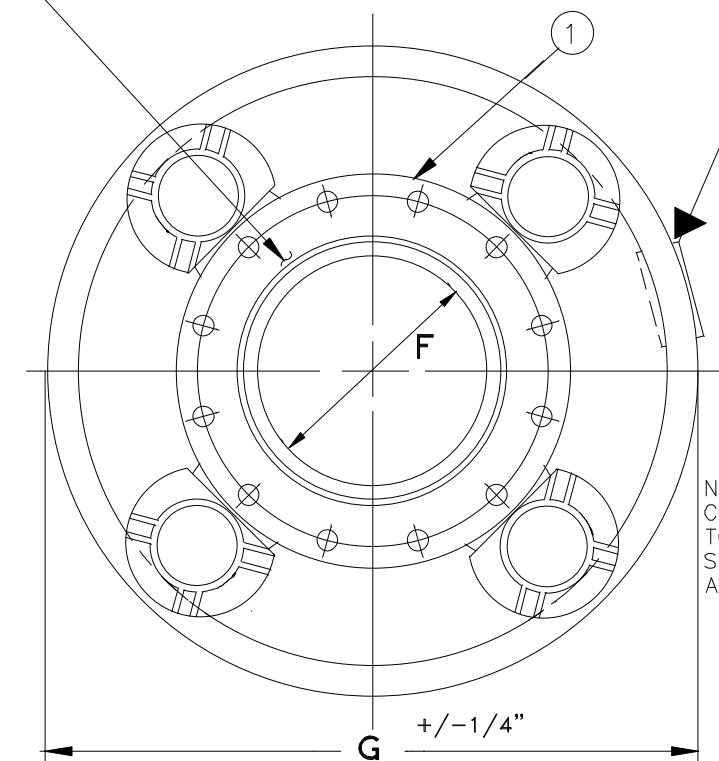
- OVERALL DIMENSIONS PER TABLE
- EXTERIOR FINISH: ONE COAT EACH, PRIMER, RED OXIDE ALKYD ENAMEL. FINISH, JOTUN PILOT II #39W72 ENAMEL, BLUE-GRAY TINT #F-23. OR EQUIVALENT PRIMER/FINISH COATINGS. INTERIOR FINISH: ONE COAT BLACK GLOSS WATERBORNE ENAMEL.
- STD. HYDROSTATIC TEST PRESS: 450PSI (32KG). MAX. WORKING PRESSURE 285PSI (20KG) @ 100°F (38°C).
- ASSEMBLED WEIGHT IN AIR: ( SEE TABLE )
- ALL WELDING JOINTS PER ASME V / API 1104. DYE PENETRANT TESTING ALL JOINTS STD., X-RAY INSPECTION OF FLANGE TO FLANGE BUTT WELD AS REQUESTED BY CUSTOMER AS QUOTED EXTRA COST.
- FLANGE DIMENSIONS, TOLERANCES, AND MATERIAL SPECIFICATIONS PER A.N.S.I. B16.5. MATING FLANGE SIZE TO A.N.S.I. B16.5
- SEE TABLE FOR CAM QUANTITY PER COUPLING SIZE.
- LIFTING PAD OPTIONAL PER CUSTOMER PURCHASE ORDER.

1	10	WRENCH, CAM LOCKING, ALLOY 8A, PT# A-1384-1A	BRONZE	A147
SEE NOTE 8	9	LIFTING PAD, TYP. SHOWN, LOADING & QTY. TO BE SPEC'D	STEEL	A285
1	8	CAM GUARD RING, 1 1/4 DIA., SCH. 160 WALL THK. PIPE	STEEL	A106
1	7	FLANGE, WELD-NECK, 150# A.N.S.I., FLAT FACE	STEEL	A105
2	6	"O"-RING, PER C/L SIZE, (1 PC INSTALLED + 1 SPARE)	BUNA-N	
1 PER CAM ASSY	5	GREASE FITTING, RECESSED, STD. ALEMITE CONNECTION	STN.STL.	T304
SEE NOTE 7	4	CAM, NON- RATCHET L'K TYPE, CA-6NM, PT# B-2215-7	STN.STL.	A487
SEE NOTE 7	3	CAM BOLT, NICKLE PLATED, PT# A-1103-4	STEEL	A311
SEE NOTE 7	2	NUT BLOCK, CAST STL., WCB, PT# PER D2275-1/2/3	STEEL	A216
1	1	FLANGE, W/NECK, 150# A.N.S.I., FLAT FACE, NICKEL PLATED	STEEL	A105
REQ'D	PT.#	DESCRIPTION	MAT'L	ASTM#

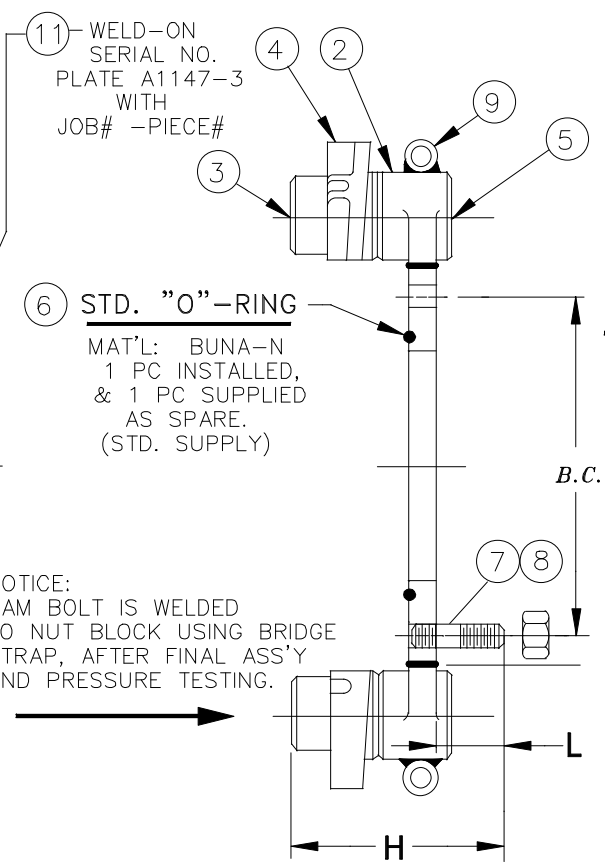
JOB NO. CUST:	DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED			MMC 150# A.N.S.I. C-L FLANGE SPOOL PIECE SUBMERSIBLE SERVICE		MMC INTERNATIONAL CORP. INWOOD, L.I. NEW YORK	
	FRAC.	DEC.	ANG.				
P.O. #	± 1/8			SCALE NONE		NO. REQ'D	
	ASS'Y PART NO.			DRAWN: F.S.G		DATE: 02-22-07	
QTY.:				CHK'D:		DATE:	
				APP'D:		DATE:	
						DWG. NO. <b>B2277-2-STLN</b>	
						REV	

UNAUTHORIZED USE, MANUFACTURE, OR REPRODUCTION IN WHOLE OR IN PART IS PROHIBITED.

SEAL FACE INCLUDING "O" RING GROOVE, ARE NICKEL PLATED AS STD. ON STEEL FLANGES.



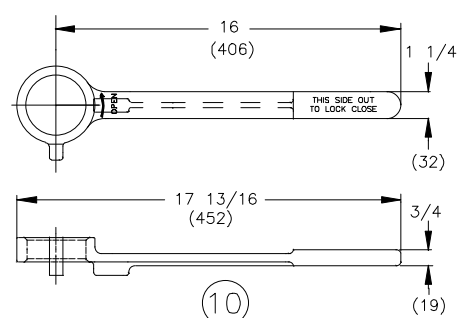
( NON RATCHET LOCK TYPE )



11 WELD-ON SERIAL NO. PLATE A1147-3 WITH JOB# -PIECE#

6 STD. "O"-RING  
MAT'L: BUNA-N  
1 PC INSTALLED,  
& 1 PC SUPPLIED  
AS SPARE.  
(STD. SUPPLY)

NOTICE:  
CAM BOLT IS WELDED  
TO NUT BLOCK USING BRIDGE  
STRAP, AFTER FINAL ASS'Y  
AND PRESSURE TESTING.



MMC BRONZE CAM LOCKING WRENCH  
(STANDARD SUUPLY)

SIZE A.N.S.I. 150#	CAM QTY	DIM "F"	DIM "G"	DIM "H"	ASSEMBLY WEIGHT		BOLT CIRCLE STUD L'GT		STUD QTY "N"
					LBS	KGS	"BC"- "L" MIN.	"L"	
4"	3	4"	19"	6 3/8	88	40	7.5	2	8
6"	3	6.07"	21 3/4"	7	98	45	9.5	2 1/8	8
8"	3	8"	23 3/4"	7	110	50	11.75	2 1/8	8
10"	4	10"	27"	7 1/2	135	61	14.25	2 1/2	12
12"	4	12"	29 3/4"	8	146	66	17.00	2 3/4	12
14"	5	13.3"	32"	8 1/2	201	91	18.75	2 7/8	12
16"	5-6	15.3"	33 5/8"	8 3/4	210	95	21.25	2 7/8	16
18"	8	17.3"	35 1/4"	9 1/8	310	141	22.75	3 1/4	16
20"	10	19.3"	37 3/4"	9 3/8	370	168	25.00	3 3/8	20
ABOVE DIM. ARE IN INCHES +/- 1/8"					AIR WEIGHT ONLY PER ASS'Y		"L" DIM. +/- 1/8"		

REVISIONS			
SYM	DESCRIPTION	DATE	APP'D.
A	UPDATE FLANGE MATERIAL TO 316 STN. STL.	10-17-18	F.S.G

**NOTE:**

- EXTERIOR FINISH:  
ONE COAT EACH,  
FINISH, JOTUN PILOT II #39W72 ENAMEL, BLUE-GRAY TINT #F-23.  
OR EQUIVALENT PRIMER/FINISH COATINGS.  
INTERIOR FINISH: ONE COAT BLACK GLOSS WATERBORNE ENAMEL.
- STD. HYDROSTATIC TEST PRESS: 450PSI (32 KG).
- ASSEMBLED WEIGHT IN AIR: 146# , 66KG.
- ALL WELDING JOINT PER ASME V / API 1104.  
ALL OTHER CUSTOMER WELDING REQUIREMENTS AT EXTRA COST.
- FLANGE DIMENSIONS, TOLERANCES, AND MATERIAL SPECIFICATION  
PER A.N.S.I./ASME B16.5.

1	10	WRENCH, CAM LOCKING, ALLOY 8A	BRONZE	B147
1	9	CAM GUARD RING, 1 1/4 PIPE SCH. 160 WALL THK.	STEEL	A285
SEE TABLE	8	NUT, HEX, HEAVY PATTERN	TYPE 304	STN.STL. A194
SEE TABLE	7	STUD, AMERICAN STD 60° VEE	TYPE 304	STN.STL. A193
1	6	"O"-RING, PER C-L SIZE, 1 SPARE INCLUDED	BUNA-N	
AS CAM QTY	5	GREASE FITTING, RECESSED	STN.STL.	T304
↑	4	CAM, NON RATCHET L'K TYPE, ALOY 6A-6NM	STN.STL.	A487
↓	3	CAM BOLT, NICKEL PLATED	STEEL	A311
AS CAM QTY	2	NUT BLOCK, CAST GRADE WCB	STEEL	A216
1	1	FLANGE, STUDDED, 150# A.N.S.I., FL'T FACE, 316 STN. STL.	STN. STL.	A182
REQ'D	PT.#	DESCRIPTION	MAT'L	ASTM#

MMC JOB#:	DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED	MMC 150# A.N.S.I. STUDDED C-L FLANGE SUBMERSIBLE SERVICE	MMC INTERNATIONAL CORP. INWOOD, L.I. NEW YORK
CUST:	GENERAL: +/- 1/16 (1.5)		
P.O.#:	FLG, OTHER: +/- 3/16 (5)		
DATE: QTY:	SCALE NONE NO. REQ'D	DRAWN: F.S.G CHK'D:	DWG. NO. REV
	ASS'Y PART NO. (SIZE)-H2274-2R150SDD	DATE: 02-22-07 DATE:	B2274-2-STLN
		APP'D: F.S.GIANNONE DATE:	