



OPERATION & INSTALLATION INSTRUCTIONS

3 PIECE BALL VALVE - CARBON AND STAINLESS STEEL

READ CAREFULLY BEFORE ATTEMPTING TO INSTALL, OPERATE MAINTAIN OR DISASSEMBLE THIS VALVE. PROTECT YOURSELF AND OTHERS BY OBSERVING ALL SAFETY INFORMATION.

WARNING

FOR YOUR SAFETY, IT IS IMPORTANT THAT THE FOLLOWING PRECAUTIONS BE TAKEN PRIOR TO INSTALLATION, ANY SERVICING OR REMOVAL OF THE VALVE FROM THE LINE OR BEFORE ANY DISASSEMBLY:

AT ALL TIMES DURING THIS ENTIRE PROCEDURE, KEEP HANDS OUT OF THE VALVE. A REMOTELY ACTUATED VALVE COULD CLOSE AT ANY TIME AND RESULT IN SERIOUS INJURY.

THIS VALVE MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE POWER PIPING STANDARDS (ANSI B31.1) & ALL LOCAL CODES.

CONSIDERATION SHOULD BE GIVEN TO THE PLACEMENT AND POSITION OF THE VALVE WHEN INSTALLING. THE VALVE SHOULD BE POSITIONED IN SUCH A MANNER THAT THE HANDLE WILL NOT BE BUMPED OR SNAGGED AND INADVERTENTLY OPERATE THE VALVE.

FOR APPLICATIONS HAVING ELEVATED TEMPERATURES(OVER 100°F) REFER TO THE PRESSURE / TEMPERATURE PERFORMANCE CURVES PUBLISHED IN THE CATALOG TO DETERMINE THE MAXIMUM SAFE WORKING PRESSURE FOR THE SEAT MATERIAL. DO NOT EXCEED THIS RATING.

WEAR ALL PROTECTIVE EQUIPMENT NORMALLY REQUIRED TO GUARD AGAINST DISCHARGE OF TRAPPED FLUID BEFORE ATTEMPTING TO REMOVE OR DISASSEMBLE THIS VALVE.

DO NOT ATTEMPT TO REMOVE OR DISASSEMBLE THIS VALVE WHILE IT IS UNDER PRESSURE. DEPRESSURIZE THE LINE AND VALVE AS FOLLOWS : PLACE THE VALVE IN THE OPEN POSITION AND DRAIN THE LINE. CYCLE THE VALVE TO RELIEVE PRESSURE TRAPPED IN THE BODY CAVITY. AFTER REMOVAL AND BEFORE DISASSEMBLY, CYCLE THE VALVE SEVERAL TIMES.

INSTALLATION

THE FOLLOWING PROCEDURES WILL AID YOU IN THE INSTALLATION. PLEASE FOLLOW THEM CAREFULLY.

I THREADED BODY ENDS:

USE STANDARD PIPING PRACTICES WHEN INSTALLING VALVE. TO PREVENT DAMAGE TO THE VALVE WHEN TIGHTENING VALVE TO PIPE, APPLY WRENCH TO THE BODY END (11) NEAREST THE PIPE BEING TIGHTENED. TFE PIPE TAPE IS A SUITABLE SEALANT FOR THREADED VALVES. TO PREVENT STAINLESS STEEL PIPE THREADS FROM GALLING, APPLY PROPER LUBRICATION TO THE THREADS.

II SOCKET AND BUTT WELD BODY ENDS:

WARNING

THIS VALVE MUST BE PARTIALLY DISASSEMBLED BEFORE INSTALLING, AS THE SEATS AND SEALS IN THE VALVE CANNOT WITHSTAND THE HIGH TEMPERATURES THE VALVE WILL BE SUBJECTED TO DURING WELDING.

BODY SECTION

1. TURN HANDLE (6) TO THE FULL OPEN POSITION.
2. TACK WELD THE VALVE BODY END (11) IN PLACE
3. LOOSEN ALL 4 BOLTING, REMOVE 2,3,4 BOLTS (12) & NUTS (13).
4. SWING OUT THE CENTER VALVE SECTION (1,2,3,4,5,6,7), PREVENT THE SEATS (9) FROM FALLING OUT
5. FINISH WELDING THE TWO BODY ENDS (11).
6. SWING BACK THE CENTER VALVE SECTION AND SLIDE ASSEMBLY BETWEEN THE BODY ENDS (11) UNTIL THE GROOVES IN THE BODY ARE RESTING ON THE BODY ENDS.
7. INSTALL THE 2,3,4 BOLTS & NUTS, FINGER TIGHTEN ALL BOLTS, KEEPING CENTER SECTION CENTERED BETWEEN THE BODY ENDS (11).
8. TIGHTEN ALL BODY BOLTS (12, 13) TORQUE VALUES ARE LISTED IN DRAWING USE A CROSS CORNER PATTERN WHEN TIGHTENING BOLTS (12, 13).

MAINTENANCE

ROUTINE MAINTENANCE CONSISTS OF TIGHTENING THE ADJUSTABLE PACK GLAND (5) 1/4 TURN PERIODICALLY TO COMPENSATE FOR THE WEAR CAUSED BY THE STEM'S (2) TURNING AGAINST THE RESILIENT TEFLON PACKING (4). PERIODICALLY OBSERVE THE VALVE TO BE SURE OF PROPER PERFORMANCE, MORE FREQUENT OBSERVATION IS RECOMMENDED UNDER EXTREME OPERATING CONDITION.

OVERALL MAINTENANCE CONSISTS OF REPLACING SEATS (9) PACKING (4) & BODY END SEAL (10). A STANDARD REPAIR KITS CONSISTING OF THESE PARTS MAY BE OBTAINED FROM YOUR DISTRIBUTOR.

DISASSEMBLY

THIS BALL VALVE IS DESIGNED TO BE SERVICED IN OR OUT OF THE PIPE LINE, THE FOLLOWING INSTRUCTIONS ARE FOR IN-LINE DISASSEMBLY.

1. COMPLY FULLY WITH THE INSTRUCTIONS IN THE WARNING SECTION AT THE BEGINNING OF THIS DOCUMENT.
2. AFTER BLEEDING PRESSURE, BE SURE TO CYCLE THE VALVE, LEAVE THE VALVE IN THE OPEN POSITION. THE CENTER BODY SECTION WILL NOT SWING OUT IF THE VALVE IS IN THE CLOSED POSITION.
3. REMOVE THE HANDLE NUT (7) SPRING WASHER (7A) HANDLE (6, 6A)
4. USING AN APPROPRIATE SIZE WRENCH, LOOSEN THE FOUR BOLTS & NUTS (12, 13) REMOVE 3 OF THE 4 BOLTS FROM THE VALVE. LEAVE THE REMAINING BOLT IN PLACE WITH THE NUT BACKED OFF AT LEAST A 1/4". SWING THE VALVE BODY(1) OUT OF THE PIPE LINE. BE CAREFUL NOT TO DAMAGE THE SEALING SURFACE AT EACH END OF THE VALVE.
5. ROTATE STEM(2) SO THAT THE VALVE IS IN THE FULLY CLOSED POSITION, REMOVE THE BODY END SEAL (10) FROM THE BODY END (11) AND THE SEATS (9) FROM THE VALVE BODY(1). BODY SEALS MAY BE TIGHTLY COMPRESSED IN THEIR GROOVE, USE EXTREME CARE WHEN PRYING THEM OUT. DAMAGE SUCH AS SCRATCHES TO THE BOTTOM OF THE GROOVE WILL CAUSE LEAKS. IF THE SEATS (9) ARE NOT EASILY REMOVED, GENTLY TAP THE BALL(8) WITH A PIECE OF WOOD OR OTHER SOFT MATERIAL.
6. REMOVE THE BALL (8) FROM THE VALVE BODY(1).
7. PRESS THE STEM (2) FROM THE TOP INTO THE VALVE BODY(1) AND REMOVE IT THROUGH ON END OF THE BODY.
8. CAREFULLY PRY OUT AND DISCARD THE OLD STEM PACKING (4) BY A SHARP INSTRUMENT MAY BE NEEDED, AND THE STEM THRUST WASHER (3). BE CAREFUL NOT TO DAMAGE ANY OF THE STEM SEALING OR BEARING SURFACES.

SERVICING

1. REPLACE THE FOLLOWING ITEMS : THRUST WASHER(3), PACKING(4), BALL SEATS(9) AND BODY END SEALS(10).
2. CLEAN AND INSPECT THE BALANCE OF THE VALVE PARTS, MAKING SURE THAT NONE ARE DAMAGED AND THAT THE BALL(8) AND INSIDE SURFACES OF THE BODY ENDS ARE FREE OF NICKS. REPLACE AS REQUIRED.
3. PRIOR TO ASSEMBLY, APPLY A LIGHT COATING OF LUBRICANT. COMPATABLE WITH THE FLUID MEDIA BEING USED. TO ALL SURFACE OF THE THRUST WASHER(3), PACKING(4), BODY END SEALS(10) AND SEATS(9).

ASSEMBLY

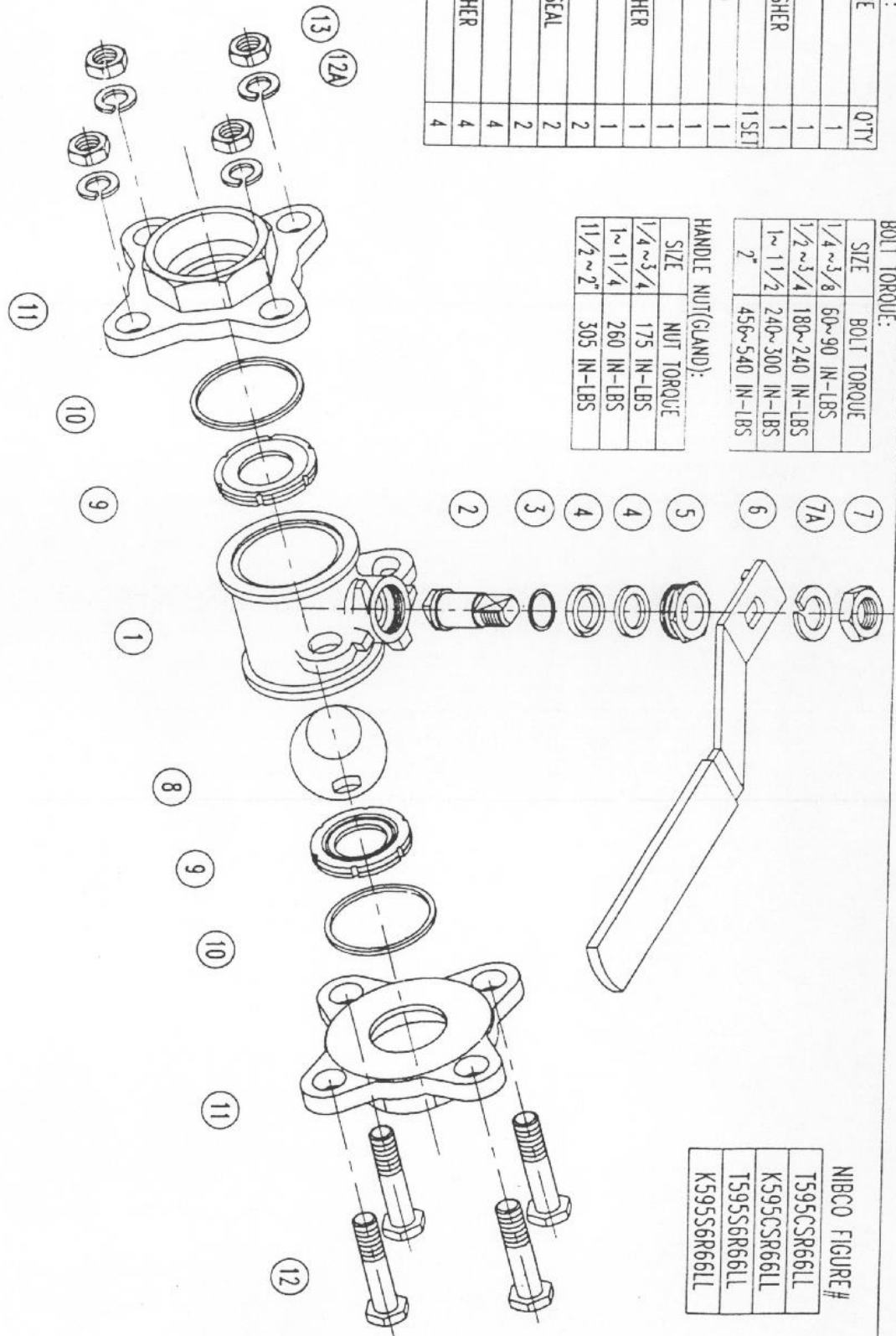
THE FOLLOWING INSTRUCTIONS ARE FOR IN-LINE ASSEMBLY. FOR BENCH ASSEMBLY, WHICH MAY BE MORE CONVENIENT, FOLLOW A SIMILAR PROCEDURE BY HOLDING THE VALVE IN A VISE BY ONE BODY END. USE CARE NOT TO CUT OR SCRATCH THE SEATS(9) OR BODY END SEALS(10).

1. WITH THE VALVE BODY(1) SWUNG TO THE OUT-OF-LINE POSITION, INSERT THE THRUST WASHER(3) INTO THE STEM BORE.
2. INSERT THE THREADED END OF STEM(2) INTO THE STEM BORE AND UP OUT THE TOP OF THE VALVE. BE CAREFUL NOT TO DAMAGE THE STEM THRUST WASHER(3).
3. HOLDING THE STEM WITH THRUST WASHER IN PLACE FROM INSIDE THE VALVE, INSTALL TWO PACKING(4), AND THE PACK GLAND(5) ON THE STEM(2).
4. PLACE A WRENCH THROUGH THE BODY ON THE BOTTOM OF THE STEM BLADE(2) TO HOLD THE STEM(2) STATIONARY. PLACE ANOTHER WRENCH ON THE STEM(2) AND TURN THE PACK GLAND(5) DOWN UNTIL PACKING(4) BOTTOM AND THE STEM(2) COMES SNUGLY IN PLACE. TIGHTEN THE PACK GLAND(5) UNTIL SNUG, PLUS AN ADDITIONAL 1/4 - 1/2 TURN.
5. ALIGN THE STEM BLADE(2) INSIDE THE VALVE BODY(1) WITH THE BALL(8). INSERT THE BALL(8) AND ROTATE THE STEM(2) TO THE FULLY CLOSED POSITION.
6. WORKING AT EITHER END OF THE VALVE BODY(1), PLACE A SEAT(9) INTO THE VALVE BODY(1). PUSH THE SEAT(9) SNUGLY AGAINST THE CLOSED BALL(8).
7. PLACE A BODY END SEAL(10) INTO THE MACHINED SEALING GROOVE OF THE BODY END (11). BE CERTAIN THE GROOVE AND SEAL(10) ARE CLEAN.
8. REPEAT STEPS 6 AND 7 FOR ASSEMBLY OF THE OPPOSITE END OF THE VALVE.
9. TURN THE STEM(2) TO THE FULLY OPEN POSITION.
10. SWING THE ENTIRE BODY ASSEMBLY BACK INTO THE PROPERLY ALIGNED AND INTER LOCKED POSITION BETWEEN THE BODY ENDS(11), BEING CAREFUL NOT TO SCRATCH THE BODY SEALS(10). THE BODY END(11) MAY HAVE TO BE SPREAD SLIGHTLY TO ACCEPT THE BODY (1).
11. CLOSE THE VALVE.
12. BOLT THE VALVE TOGETHER WITH BODY BOLTS(12) SPRING WASHERS(12A) AND NUTS(13) TIGHTEN THE NUT(13) IN SEQUENCE 4,2,3, AS SHOWN PAGE 2. ALTERNATING BETWEEN THEM TO THE TORQUE LISTED IN DRAWING.
13. PLACE THE HANDLE(6), SPRING WASHER(7A) AND STEM NUT(7) OVER THE STEM(2). TIGHTEN THE STEM NUT(7) UNTIL SNUG.

ITEM	PART NAME	Q'TY
1	BODY	1
2	STEM	1
3	THRUST WASHER	1
4	PACKING	1 SET
5	PACK GLAND	1
6	HANDLE	1
7	STEM NUT	1
7A	SPRING WASHER	1
8	BALL	1
9	SEAT	2
10	BODY END SEAL	2
11	BODY ENDS	2
12	BOLT	4
12A	SPRING WASHER	4
13	NUT	4

BOLT TORQUE:	
SIZE	BOLT TORQUE
1/4 ~ 3/8	60 ~ 90 IN-LBS
1/2 ~ 3/4	180 ~ 240 IN-LBS
1 ~ 1 1/2	240 ~ 300 IN-LBS
2"	456 ~ 540 IN-LBS

HANDLE NUT (GLAND):	
SIZE	NUT TORQUE
1/4 ~ 3/4	175 IN-LBS
1 ~ 1 1/4	260 IN-LBS
1 1/2 ~ 2"	305 IN-LBS



NIBCO FIGURE#
T595CSR66LL
K595CSR66LL
T595S6R66LL
K595S6R66LL

* recommended spare parts (seat & seal kit)

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