NIBCO INC.
WORLD HEADQUARTERS
1516 MIDDLEBURY ST.
ELKHART, IN 46516-4740
USA
PHONE: 574.295.3000
FAX: 574.295.3307
WEB: www.nibco.com

TECHNICAL BULLETIN

Review Date: 10/13/2021
Original Date: 02/01/2020
Document ID: NTB-0201-05

Hot Tap Sizing for NIBCO® Gate Valves

NIBCO Technical Services is contacted periodically to discuss tapping diameters of our gate valves. This information is vital to adding a branch to an existing line. The following discussion should help you better understand this procedure.

WARNING: NIBCO does not recommend hot tapping through a ball valve.

Hot tapping is a procedure for installing connections in an existing pipe, tank or vessel while in operation. Once the line is pierced, a new branch line is created. The branch line can be welded on with a weld-o-let, or mechanically applied with a tapping saddle or split tee. Typically, the procedure that's applied is as follows:

1. A weld-o-let or tapping saddle is applied to the pipe.
2. A weld neck flange is applied to the weld-o-let or a flange is applied to a saddle or split tee.
3. Install gate valve. Make sure valve gate completely clears waterway.
4. A tapping machine is then applied to the other side of the gate valve.
5. Pierce the existing line with the tapping machine and remove the coupon (cut-out) and flush.
6. Close the gate valve and remove the tapping machine. The new line is created.

The following is a list of tapping dimensions for the metal-seated Class 125/150/250, Model Series F-617/F-619/F-637/F-639/F-667/F-669, IBBM gate valves with existing seat mounting lugs:

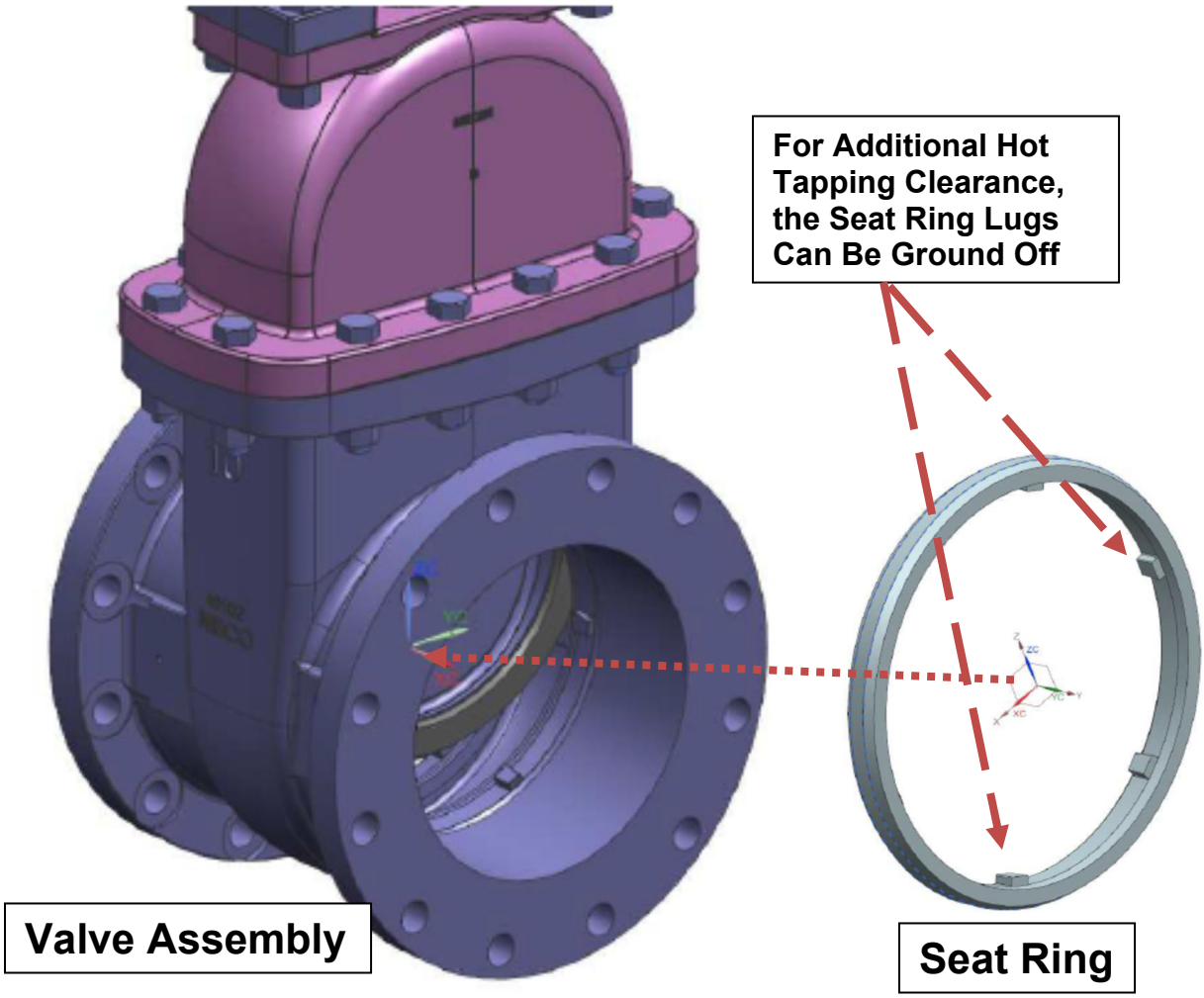
IBBM Gate Valve Hot Tap Dimensions
Table 1

SIZE	HOT TAP MAXIMUM DIAMETER
2”	1-1/2”
2-1/2”	2”
3”	2-1/2”
4”	3-3/8”
6”	5-3/16”
8”	7-7/16”
10”	9-7/16”
12”	11-7/16”
14”	13-3/8”
16”	15-3/16”
18”	17-1/4”
20”	19-3/16”
24”	23-3/16”

If seat installation lugs are removed in the field, it is possible for the seat lugs to be ground off the seat rings in the valve.

CAUTION: The mechanic must be careful to not damage the seat, when grinding the lugs and all debris and savings generated from lug-removal activity must be cleaned form the valve, afterwards. Removing the seat lugs will allow for full pipe size hot tapping (i.e. 4" valve / 4" tap).

NOTE: The plant can remove the lugs from a valve as a Made-To-Order operation. This is recommended whenever possible, to avoid damaging the valve in the field requiring it be replaced. Damage imparted to the valve as a result of field modifications is not covered under warranty.



NOTE: Bronze gate valves may also be used for tapping at their full pipe size.

Dimensions for hot tapping NIBCO Resilient Wedge Gate Valves, RWS Series, is shown below in Table 2.

Resilient-Wedge Gate Valves Hot Tap Dimensions
Table 2

NIBCO VALVE SIZE	NIBCO ACTUAL ID	DUCTILE IRON PIPE ID	AWWA C900 200 PSI PVC PIPE ID	BLACKHAWK HOT TAP CUTTER SIZE	KOPPL HOT TAP CUTTER SIZE NOMINAL
4"	3.94	4.30	4.11	3.438	3.50
6"	5.91	6.40	5.91	5.469	5.25
8"	7.87	8.55	7.76	7.312	7.25
10"	9.84	10.58	9.51	9.500	9.50
12"	11.81	12.64	11.31	11.500	11.25
14"	13.78	14.74	N/A	12.750	N/A
16"	15.75	16.80	N/A	14.688	N/A

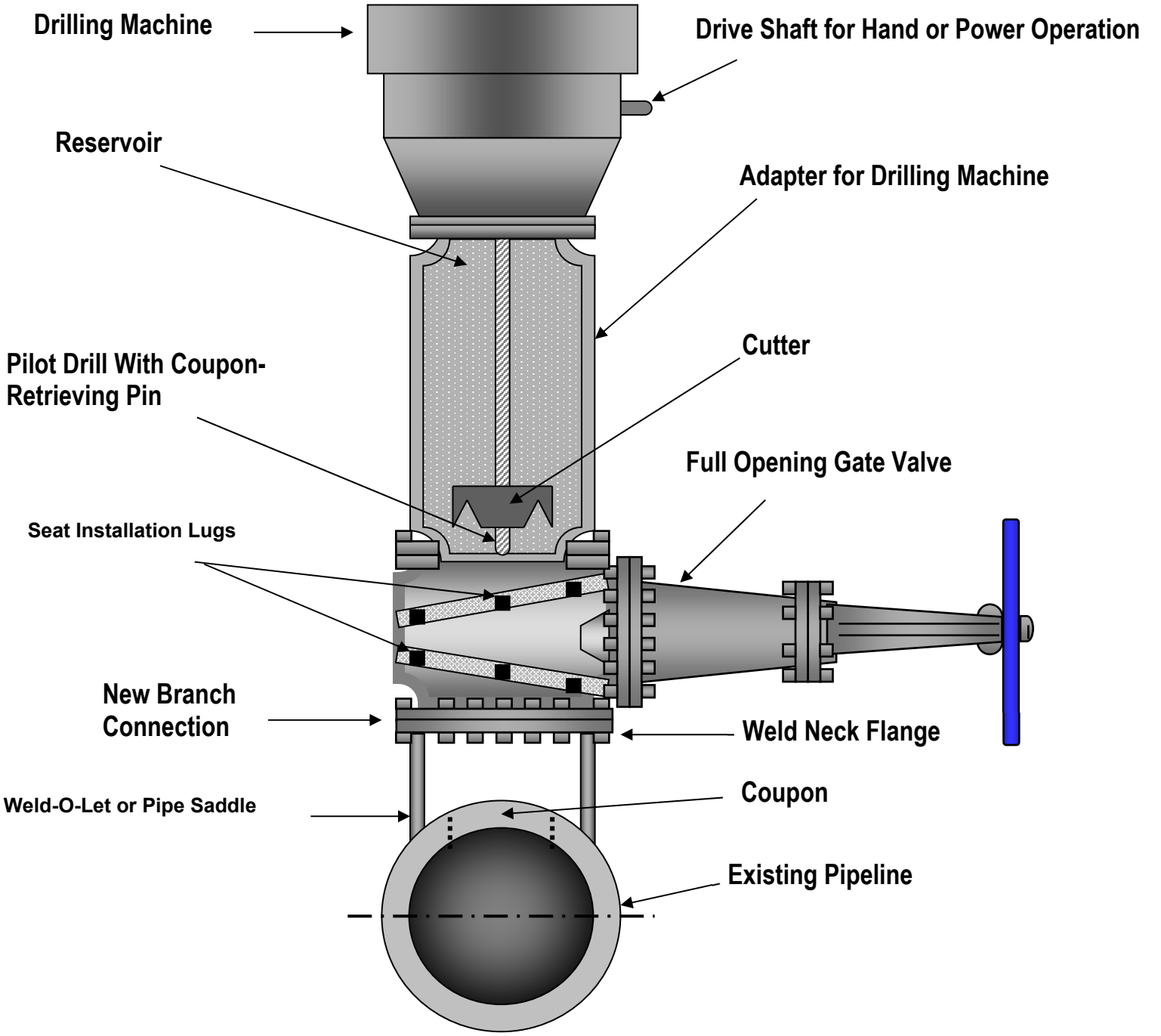
Extra precaution must be taken when hot tapping through a **resilient-wedge gate valve**. The softer materials involved (body coating and wedge coating) must not be compromised during the hot tapping activity to ensure the valve continues to function properly.

Though it is imperative to be sure to backseat the wedge out of the waterway when hot tapping any gate valve, it is more especially critical with an ***elastomeric-encapsulated wedge***, as found on a NIBCO RW or RWS gate valve. A nick, cut, or tear will essentially undermine the rubber-coated wedge's sealing capability.

Unlike metal-seated valves, where a slight nick on the bottom of the wedge wouldn't affect seating faces, such damage would compromise the ability of the resilient wedge to seat against the epoxy-coated body.

Additionally, a scrape or scratch on the epoxy coating on the body will exposure the iron substrate underneath. This can lead to oxidation of the iron body and ultimately undermining the epoxy coating on the valve, leading to catastrophic failure due to corrosion.

The utmost diligent care must be undertaken to clean out the waterway after hot tapping a resilient-wedge valve, to prevent any shavings or debris from the tapping operation from fouling the rubber on the wedge or the epoxy on the body.


Drilling Machine
Drive Shaft for Hand or Power Operation
Reservoir
Adapter for Drilling Machine
Cutter
Pilot Drill With Coupon-Retrieving Pin
Full Opening Gate Valve
Seat Installation Lugs
New Branch Connection
Weld Neck Flange
Weld-O-Let or Pipe Saddle
Coupon
Existing Pipeline