INSTALLATION HARDWARE REFERENCE GUIDE FOR INSERTION TURBINE FLOW METERS



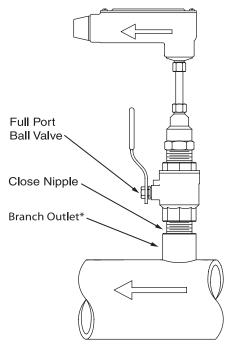


All ONICON insertion type meters can be installed and removed via a 1" or larger full port ball valve without system shutdown. The terms "Standard" and "Hot Tap" refer to the installation method of the isolation valve kit only.

Standard Installation Hardware: For new construction or scheduled shutdown. Once kit is installed, the flow meter can be installed or removed without system shutdown.

Hot Tap Installation Hardware: For applications which require the access hole in the pipe to be drilled through the valve using a wet tap drilling machine while the hydronic system is pressurized and operating.

The most commonly ordered installation kits are listed below. For a complete list of installation kits offered by ONICON refer to the next two pages.



* Weld-on fitting, copper tee or saddle

Pipe Material	Kit Description	Items Included With Kit	Item Number
Carbon Steel/Black Iron	Standard flow meter installation kit for 1¼" and larger welded steel pipe	1" full port bronze ball valve1" brass close nipple1" weld-on carbon steel branch outlet	INSTL1
	Standard flow meter installation kit for 1¼" to 2½" threaded steel pipe	 1" full port bronze ball valve 1" brass close nipple (pipe dia x 12" long) threaded nipple with 1" NPT outlet 	INSTL7
	Hot tap flow meter installation kit for 11/4" and larger welded steel pipe	 1¼" full port bronze ball valve 1¼" brass close nipple 1¼" x 1" brass reducing bushing 1¼" weld-on carbon steel branch outlet 	INSTL2
Copper Tube (priced by size)	Standard flow meter installation kit for 1" to 2" copper tube Items comply with NSF61.	 1" full port bronze ball valve 1" copper street adapter with MNPT threads Copper tee with 1" outlet *1" kit includes tee with 1½" outlet and bushing 	INSTL3
	Standard flow meter installation kit for 2½" to 3" copper tube Items comply with NSF61.	1" full port bronze ball valve1" copper street adapter with MNPT threadsCopper tee with 1" outlet	INSTL4
	Standard flow meter installation kit for 4" copper tube Items comply with NSF61.	1" full port bronze ball valve1" copper street adapter with MNPT threads1" copper tee with 1" outlet	INSTL9
	Hot tap flow meter installation kit for 2½" to 6" copper tube	 1¼" full port bronze ball valve 1¼" brass close nipple 1¼" x 1" brass reducing bushing SS clamp-on saddle with 1¼" outlet 	INSTL22

STANDARD INSTALLATION HARDWARE FOR INSERTION FLOW METERS

All ONICON insertion flow meters can be installed and removed via a 1" or larger full port ball valve without system shutdown. The terms "Standard" and "Hot Tap" refer to the installation kit types only.



How to use this selection guide:

- Select the type of installation hardware required, either Standard or Hot Tap.
- 2. Choose the pipe material.
- 3. Choose the Installation Kit based on material preference and/or pipe size.
- Standard Installation Hardware: For new construction or scheduled shutdown. Once the kit is installed, the flow meter can be installed or removed without stopping flow.
- Hot Tap Installation Hardware: For applications which require the access hole in the pipe to be drilled through the valve using a wet tap drilling machine while the hydronic system is pressurized and operating.
 * Saddles may include a 1" bushing.

TYPE	PIPE MATERIAL	KIT DESCRIPTION	ITEMS INCLUDED IN KIT	ITEM NUMBER
STD	Carbon Steel/ Black Iron (welded pipe)	Installation kit for 1¼" and larger welded steel pipe	1" full port bronze ball valve1" brass close nipple1" weld-on carbon steel branch outlet	INSTL1
		Stainless steel installation kit for 1¼" and larger welded steel pipe	1" full port SS ball valve1" SS close nipple1" weld-on carbon steel branch outlet	INSTL5
STD	Carbon Steel/ Black Iron (threaded pipe)	Installation kit for 11/4" - 21/2" threaded steel pipe	1" full port bronze ball valve 1" brass close nipple (pipe dia. x 12" long) threaded nipple 1" NPT outlet	INSTL7
		Stainless steel installation kit for 1¼" to 2½" threaded steel pipe	 1" full port SS ball valve 1" SS close nipple (pipe dia. x 12" long) threaded nipple 1" NPT outlet 	INSTL8
STD	Copper Tube	Installation kit for 1" to 2" copper tube Items comply with NSF61.	 1" full port bronze ball valve 1" copper street adapter with MNPT threads Copper tee with 1" outlet *1" kit includes tee with 1½" outlet and bushing 	INSTL3
		Installation kit for 2½" to 3" copper tube Items comply with NSF61.	 1" full port bronze ball valve 1" copper street adapter with MNPT threads Copper tee with 1" outlet 	INSTL4
		Installation kit for 4" copper tube Items comply with NSF61.	1" full port bronze ball valve1" copper street adapter with MNPT threadsCopper tee with 1" outlet	INSTL9
STD	Cement-Lined Ductile Iron	Installation kit for 3" to 6" cement- lined ductile iron	1" full port bronze ball valve1" brass close nippleClamp-on saddle with 1" outlet*	INSTL10
		Installation kit for 8" to 16" cement- lined ductile iron	1" full port bronze ball valve1" brass close nippleClamp-on saddle with 1" outlet*	INSTL11
		Stainless steel installation kit for 3" to 16" cement-lined ductile iron	1" full port SS ball valve1" SS close nippleSS clamp-on saddle with 1" outlet*	INSTL12
STD	PVC	Installation kit for 1½ " to 6" PVC pipe	 1" full port bronze ball valve 1" brass close nipple Bronze clamp-on saddle with 1" outlet* 	INSTL13
		Installation kit for 8" to 12" PVC pipe	 1" full port bronze ball valve 1" brass close nipple Bronze clamp-on saddle with 1" outlet* 	INSTL14
		Stainless steel/PVC installation kit for 2" to 4" PVC pipe (for process and industrial applications)	1" full port SS ball valve1" SS close nippleSch. 80 PVC saddle with 1" outlet	INSTL15
		Stainless steel/PVC installation kit for 6" PVC pipe (for process applications)	1" full port SS ball valve1" SS close nippleSch. 80 PVC saddle with 1" outlet	INSTL16
		Stainless steel installation kit for 8" to 12" PVC pipe	1" full port SS ball valve1" SS close nippleSS clamp-on saddle with 1" outlet*	INSTL17
STD	Stainless Steel	Stainless steel installation kit for stainless steel pipe	1" full port SS ball valve 1" SS close nipple 1" SS weld-on branch outlet	INSTL18

HOT TAP INSTALLATION HARDWARE FOR INSERTION FLOW METERS

All ONICON insertion flow meters can be installed and removed via a 1" or larger full port ball valve without system shutdown. The terms "Standard" and "Hot Tap" refer to the installation kit types only.



How to use this selection guide:

- Select the type of installation hardware required, either Standard or Hot Tap.
- 2. Choose the pipe material.
- 3. Choose the Installation Kit based on material preference and/or pipe size.
- Standard Installation Hardware: For new construction or scheduled shutdown. Once the kit is installed, the flow meter can be installed or removed without stopping flow.
- Hot Tap Installation Hardware: For applications which require the access hole in the
 pipe to be drilled through the valve using a wet tap drilling machine while the hydronic
 system is pressurized and operating.
 * Saddles may include a 1 1/4" bushing

TYPE	PIPE MATERIAL	KIT DESCRIPTION	ITEMS INCLUDED IN KIT	ITEM NUMBER
НТАР	Carbon Steel/ Black Iron (welded pipe)	Hot tap installation kit for 1¼" and larger welded steel pipe	11/4" full port bronze ball valve 11/4" brass close nipple 11/4" x 1" brass reducing bushing 11/4" weld-on carbon steel branch outlet	INSTL2
		Stainless steel hot tap installation kit for 1¼" and larger welded steel pipe	11/4" full port SS ball valve 11/4" SS close nipple 11/4" x 1" SS reducing bushing 11/4" weld-on carbon steel branch outlet	INSTL6
НТАР	Carbon Steel/ Black Iron (thread- ed pipe)	Hot tap installation kit for threaded steel pipe (1½" and up)	• 1¼" full port bronze ball valve • 1¼" brass close nipple • 1¼" x 1" brass reducing bushing • Bronze/ductile iron clamp-on saddle with 1¼" outlet	INSTL19
		Stainless steel hot tap installation kit for threaded steel pipe (1½" and up)	11/4" full port SS ball valve 11/4" SS close nipple 11/4" x 1" SS reducing bushing Bronze/ductile iron clamp-on saddle with 11/4" outlet	INSTL20
НТАР	Copper Tube	Hot tap installation kit for 2" copper tube Items comply with NSF61	11/4" full port bronze ball valve 11/4" SS close nipple 11/4" x 1" SS reducing bushing Ductile iron or SS clamp-on saddle with 11/4" outlet	INSTL21
		Hot tap installation kit for 2½" to 6" copper tube Items comply with NSF61	11/4" full port bronze ball valve 11/4" SS close nipple 11/4" x 1" SS reducing bushing SS clamp-on saddle with 11/4" outlet*	INSTL22
НТАР	Cement- Lined Ductile Iron	Hot tap installation kit for 3" to 6" cement-lined ductile iron	11/4" full port bronze ball valve 11/4" brass close nipple 11/4" x 1" brass reducing bushing Clamp-on saddle with 11/4" outlet*	INSTL23
		Hot tap installation kit for 8" to 16" cement-lined ductile iron	11/4" full port bronze ball valve 11/4" brass close nipple 11/4" x 1" brass reducing bushing Clamp-on saddle with 11/4" outlet*	INSTL24
		Stainless steel hot tap installation kit for 3" to 6" cement-lined ductile iron	11/4" full port SS ball valve 11/4" SS close nipple 11/4" x 1" SS reducing bushing SS clamp-on saddle with 11/4" outlet*	INSTL25
		Stainless steel hot tap installation kit for 8" to 16" cement-lined ductile iron	11/4" full port SS ball valve 11/4" SS close nipple 11/4" x 1" SS reducing bushing SS clamp-on saddle with 11/4" outlet*	INSTL26
НТАР	PVC	Hot tap installation kit for 1½" to 6" PVC pipe	11/4" full port bronze ball valve 11/4" brass close nipple 11/4" x 1" brass reducing bushing Bronze clamp-on saddle with 11/4" outlet*	INSTL27
		Hot tap installation kit for 8" to 12" PVC pipe	11/4" full port bronze ball valve 11/4" brass close nipple 11/4" x 1" brass reducing bushing Bronze clamp-on saddle with 11/4" outlet*	INSTL28
		Stainless steel hot tap installation kit for 2" to 6" PVC pipe	11/4" full port SS ball valve 11/4" SS close nipple 11/4" x 1" SS reducing bushing SS clamp-on saddle with 11/4" outlet*	INSTL29
		Stainless steel hot tap installation kit for 8" to 12" PVC pipe	• 1½" full port SS ball valve • 1½" SS close nipple • 1½" x 1" SS reducing bushing • SS clamp-on saddle with 1½" outlet*	INSTL30
НТАР	Stainless Steel	Hot tap installation kit for stainless steel pipe	11/4" full port SS ball valve 11/4" SS close nipple 11/4" x 1" SS reducing bushing 11/4" weld-on SS branch outlet	INSTL31