TONISCO SYSTEM

HOT TAPPING & LINE STOPPING SERVICES

TONISCO System Oy Kalkun kehätie 19 33330 Tampere FINLAND Tel. +358 3 2611 724 www.tonisco.com

TONISCO® Service

Hot tapping and pipe plugging Services from experienced service teams. Hot tapping range from DN10 to DN800 up to 60 bar and 200°C

TONISCO System Oy is over 45-year old Finnish company specialized in hot tapping and line stopping. TONISCO has a wide range of hot tapping equipment for various needs. TONISCO customers can attach new branches to existing pressurized pipeline networks without stopping the flow and processes connected to them. Hot tapping with TONISCO is safe, cost effective and environmental friendly way to make variations to pipeline networks without interrupting the network. Hot tapping saves a lot of time, environment and last but not least a customer´s wallet.

TONISCO Hot tapping -process

TONISCO hot tapping process starts always from the needs of customer. Together with TONISCO specialists customers can find the best way to execute the alteration work for the pressurized pipeline network without stopping the flow. Hot tapping can be used in *district heating and cooling networks, water distribution and waste water networks, building maintenance services, gas and oil networks and in process plants.*

TONISCO Technology

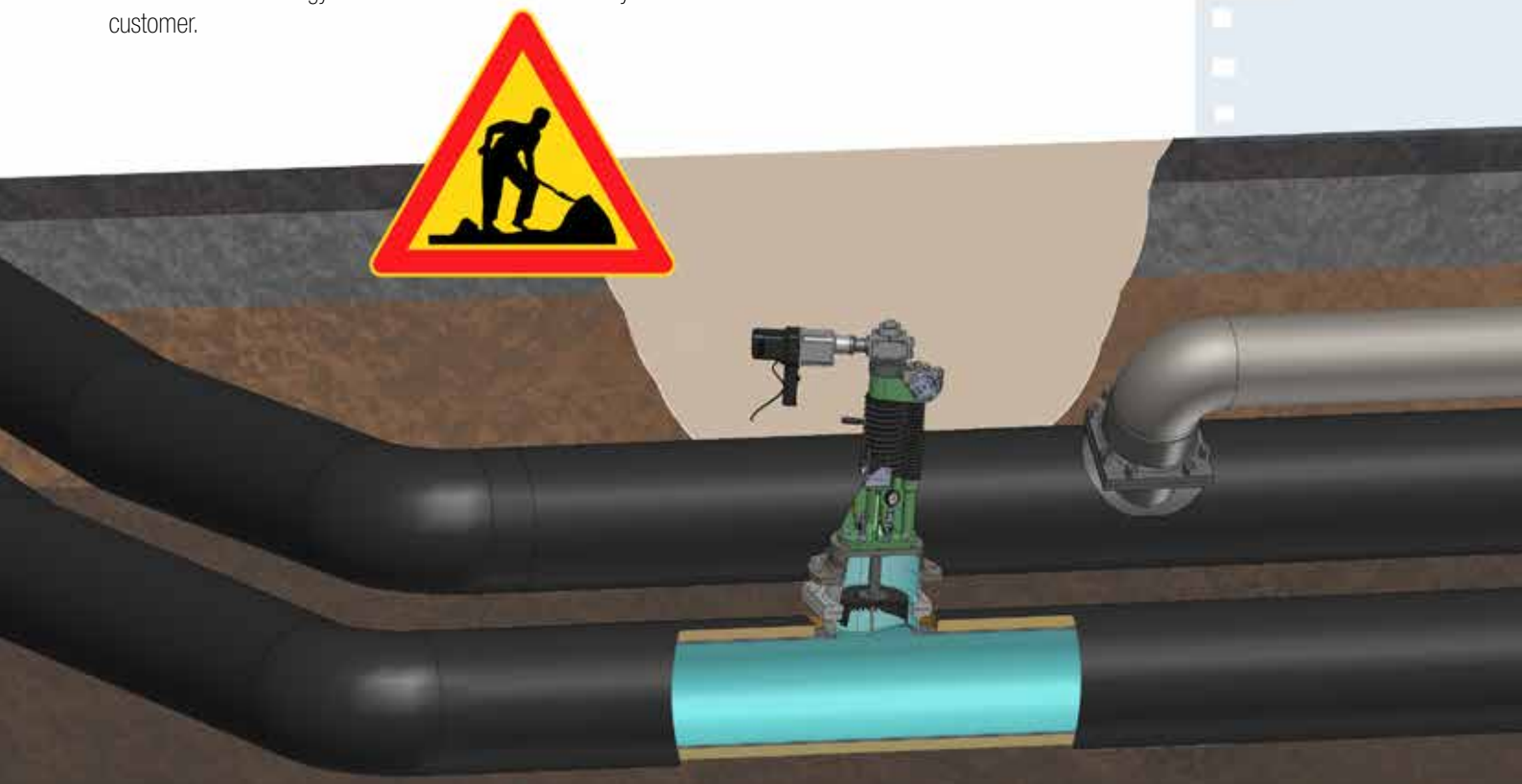
By using TONISCO technology it is possible to make branches from DN10 to DN800. Pipeline materials can vary from plastic and composite to stainless steel. TONISCO hot tapping equipment are modified to fit almost all the standard valves and hot tapping components there are in the market. That is one of the reasons why TONISCO is considered the most flexible partner on the field of hot tapping. All our effort in research and development of TONISCO technology is made in order to save money of the customer.

TONISCO Service

TONISCO offers hot tapping service in over 20 countries. TONISCO´s drilling crew consists of well-trained drilling experts and the latest technology to execute hot tapping on time and cost effectively. Size of the new branch can vary from DN10 to DN800. TONISCO drilling crew is devoted to “zero error principle”. By choosing TONISCO Service customer can be sure that hot tapping process meets always highest quality standards.

TONISCO Customers

TONISCO has a wide customer base. TONISCO offers lots of services to both public and private sectors. Customer can be a big energy provider or a local contractor who has a need for hot tapping. Where there is a need to keep networks operational there is TONISCO.



TONISCO Service offers:

Hot tapping
Line stopping (By-pass-method)
Pipe cutting
Pipe squeezing

for pipeline networks in:

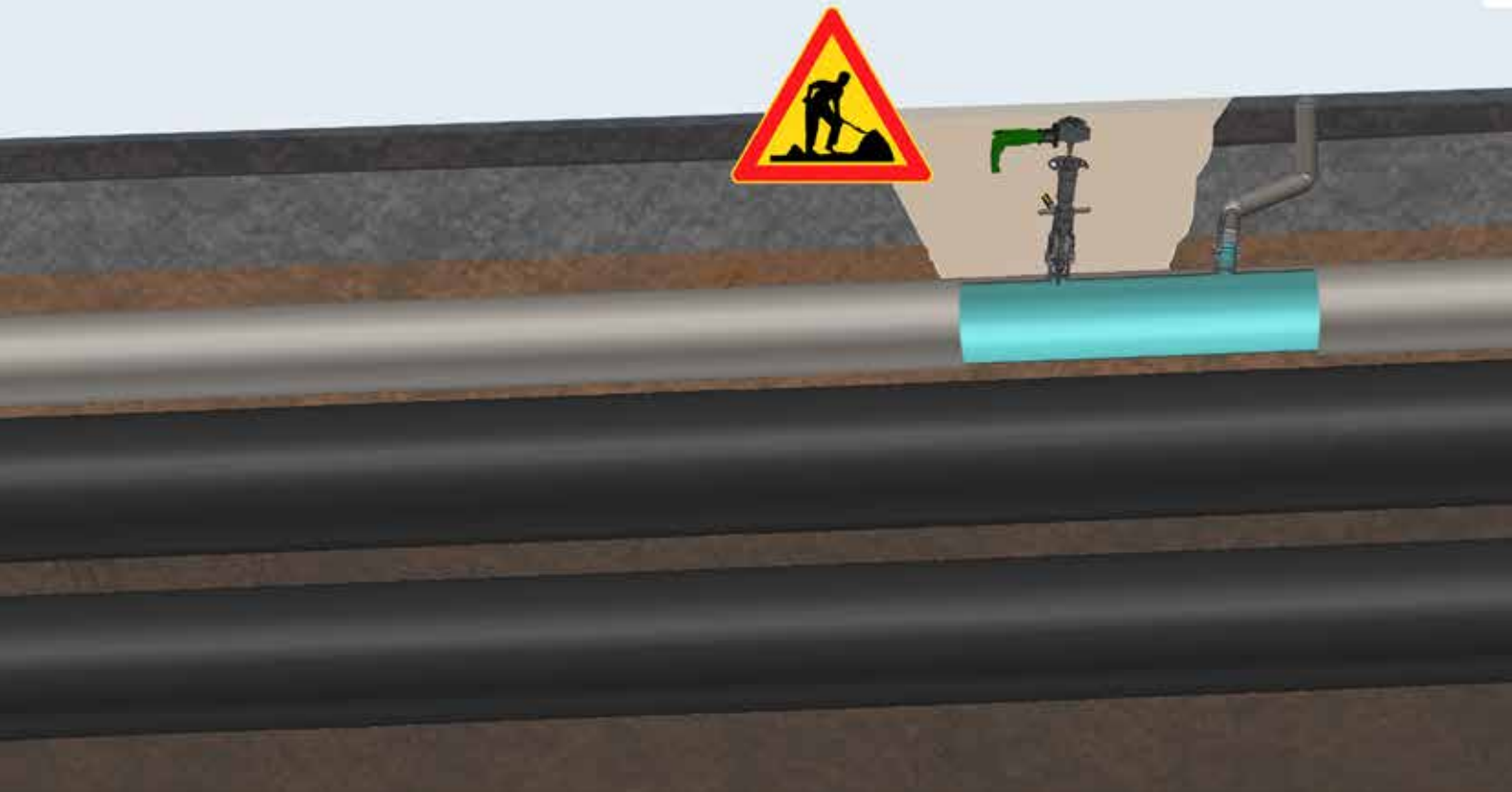
District heating and cooling
Water and sewage
Building maintenance services
Gas distribution
Process Plants industry
Petrochemical industry
and more...

TONISCO Service is used for:

Connecting new customers to district heating, cooling, water or gas networks
Connecting new processes to pipe network in plants
Adding new components like valves, sensors and pumping stations to pipe networks
Expanding the pipe networks coverage
Repairing or changing parts of the pipe networks

All maintenance, alteration or repairs can be made without interrupting the flow and operation of the mainline up to 60 bar of pressure.

Contact the sales in order to keep your process going!
+358 (0) 3 2611 724
sales@tonisco.com



TONISCO® Hot tapping principle using weldable TONISCO sluice and ball valves

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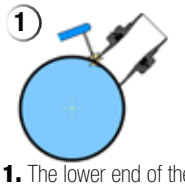

1. The lower end of the TONISCO valve or a hot tapping ball valve is formed according the shape of the main line by grinding. The valve is then welded electrically perpendicularly towards the main directly on the centerline of the main.

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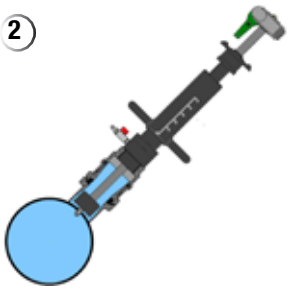

2. After welding the drilling machine is mounted to the connection threads of the valve. The tightness of the whole drilling assembly is controlled by a pressure test. Thereafter the actual drilling shall take place under pressure first using the central drill and then the hole saw.

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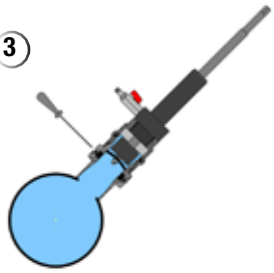

3. After completing the drilling the shaft with both central drill and hole saw with the loosened pipe wall piece shall be let to OUT-position.

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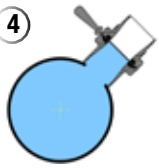

4. TONISCO valve is closed by pushing the sluice plate into the Sealing groove, Ball valve would be closed simply by closing the ball mechanism. Now the hot tapping machine can be dismounted.

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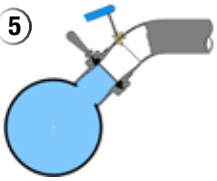

5. The formerly prepared branch line shall be welded to the upper end of the TONISCO valve. The tightness of all welding seams can be controlled by test pressuring against the sluice plate.

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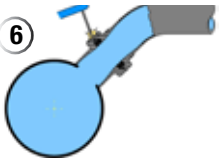

6. As the final stage the sluice plate groove shall be welded solid electrically. Elastomer sealing inside the TONISCO valve ensure the tightness of the valve both sluice plate in or out -position.

TONISCO® Hot tapping principle using non-weldable bolted hot tapping saddles and flanged valves

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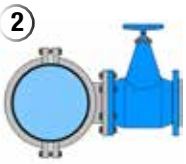

1-2. First the mainline shall be carefully cleaned. Then the Hot tapping saddle equipped with suitable rubber sealing will be installed using bolted connection.
When the saddle is properly mounted to the main the flanged ball- or gate valve shall be connected to the flange of the saddle

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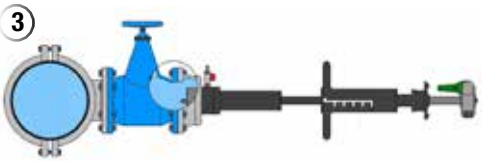

3. TONISCO Hot tapping machine shall be assembled by choosing the proper adapter and inserting the shaft of right length, pilot drill and the hole saw. Before attaching the machine to the valve make sure that the valve mechanism works properly. Always attach the machine to a fully opened valve then carrie out a pressure test

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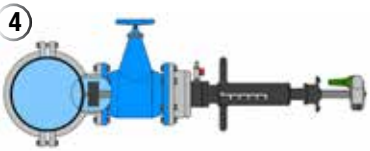

4. After choosing the right rotating speed the drilling starts by carefully feeding the pilot drill through. The pressure gage confirms the penetration.

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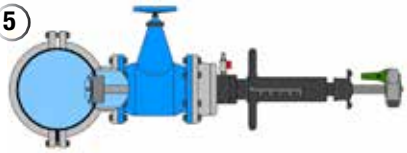

5. The boring of the actual hole is made using a hole saw at a smaller rpm. The loosened part of the main pipe is gripped to the pilot drill and the cutting waste is gathered by the special hole saw magnet. Hole saw drilling in the size range from DN20 to DN200 lasts around 15-45 min.

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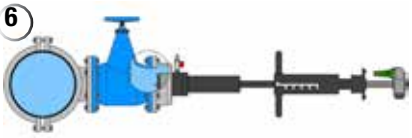

6. After completing the drilling the shaft can be let out from the drilling chamber using the shaft brake to control the movement. After the shaft is all away out, the valve can be closed and the machine removed.

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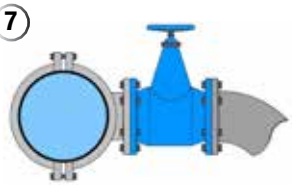


7. As the final stage the actual branch line can be connected to the valve and the valve may be opened. The branch is made under pressure.

FOR MORE INFORMATION CONTACT US AT
+358 2 611 724
sales@tonisco.fi
www.tonisco.com

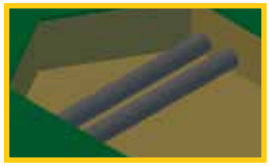
TONISCO® Service

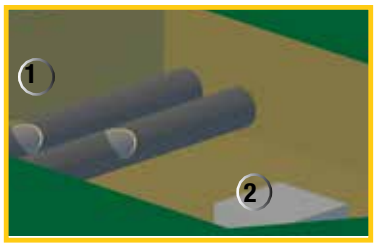
HOT TAPPING SOLUTIONS FOR LARGE SCALE CONNECTIONS UNDER PRESSURE

The Safest, Fastest & most Cost-Effective way to make big hot tapping outlets in weldable district heating and cooling systems.

TONISCO® SERVICE WILL ORGANIZE THE HOT TAPPING PROCESS ACCORDING THE NEEDS OF THE CUSTOMER

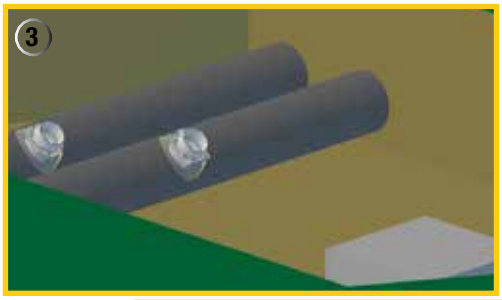
The process starts by carrying out the excavation works and building the base for the shut-off valves. The customer can use local construction company or a service partner can organize it.
STEP 1. Removing of the insulation from the place where the customer wants the new line to be connected.
STEP 2. Choosing the location of the shut-off valves





WELDING OF THE TONISCO® HOT TAPPING VALVES TO THE MAIN

STEP 3. Welding of the TONISCO valves to the mainline. The customer ensures that all neccesary tests will be done to ensure that the welds fullfill all the requirements needed.
After the valves are welded in place the partner will start prepairing the new line that will be connected to the TONISCO® Hot tapping valve.

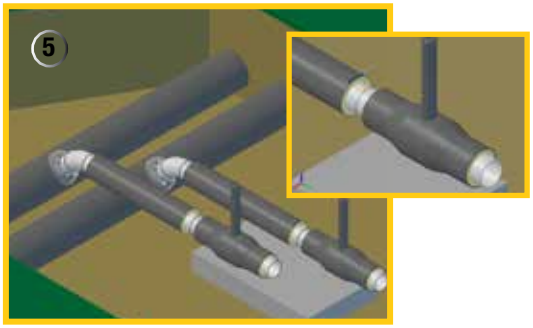


HOT TAPPING THROUGH THE TONISCO® HOT TAPPING VALVE

STEP 4. TONISCO® Service will carry out the Hot tappings and insert the sluice plates after the drilling is through. TONISCO® Service will carry out a pressure test for the welding seams before starting the hot tapping process.

WELDING OF THE NEW CONNECTION AND THE SHUT-OFF VALVE

STEP 5. After the hot tapping process the customer will connect the prefabricated and preinsulated new line with the preinsulated Shut-Off valves to the TONISCO® Hot tapping Valve by welding.
TONISCO® hot tapping valves are designed to be used only once. After the new line is completed by hot tapping the sluice plate will be removed and the controlling opening welded shut. As a result there will be a new completely welded outlet



RESULT: THE CUSTOMER HAS A WELDED NEW OUTLET READY TO BE CONNECTED TO A NEW SYSTEM SIMPLY BY OPENING THE SHUT-OFF VALVE

TONISCO® SERVICE WILL TAKE CARE OF:
- **Planning of the hot tapping work**
- **Delivery of the hot tapping valves and components**
- **Hot tapping works**

CUSTOMER COMPANY WILL TAKE CARE OF:

- **Organising of the worksite and the digging of the excavation**
- **All the welding works and testing**
- **Welding works until the pre-insulated Shut-off valve**

BENEFITS OF THE SOLUTION FOR THE CUSTOMER

TONISCO® Under pressure solution:

- Causes no disturbance for the existing network
- Adds flexibility for the building project due to the use of standard Shut-Off valves
- Saves money, time and environment
- Energy and cost effective solution to build and connect new pipe lines to existing networks

TONISCO® SERVICE

SOLUTIONS FOR PLUGGING & BY-PASS UNDER PRESSURE

The safest & fastest method of making repairing and alteration works without stopping the flow in the system by using flow stopping and contemporary by-pass

The solution can be used for:
- Changing faulty valves and other pipeline components
- Repairing of damaged parts of the network
- Rebuilding old lines
All above without interrupting the flow in the network

Service description

1. THE CUSTOMER OR THE SERVICE PARTNER WILL ORGANIZE THE WORK SITE AND EXCAVATION WORKS

The under pressure by-pass process starts with the excavation works. Customers will use its own partners when conductiong the excavation. TONISCO® Service will give instructions concerning the excavation and plugging locations if needed.

2. WELDING OF THE PLUGGING FITTINGS TO THE MAIN

STEP 1 & 2. After the excavation works TONISCO® Service or the service partner will weld the plugging fittings to the pipe line and perform the neccesary weld inspections.

3. HOT TAPPING THROUGH THE SPECIAL GATE VALVE

STEP 3. After the pressure test and the welding inspections TONISCO® Service will carry out all the neccessary hot tappings. The size of the stopped line determines the size of the hole saw and the reinforcement plates needed.

4. BUILDING OF THE BY-PASS CONNECTION AND MAKING THE UNDER PRESSURE PLUGGINGS

STEP 4 & 5. After the hot tappings the temporary by-pass line is build. The by-pass line allows TONISCO® Service to maintain the flow in the pipe line during the alteration works. When the by-pass line is ready and tested TONISCO® Service will carry out the under pressure pluggings.

5. CARRYING OUT THE ALTERATION WORKS

STEP 6. When the plugs are secured and tested TONISCO® Service or the service partner will carry out the wanted alteration works. The under pressure Line Stopping solution can be used for;
- Changing faulty valves and other pipeline components
- Repairing of damaged parts of the network
- Rebuilding old lines
- and for countless other maintenance works

All repairing works without draining of the lines or interruptions to the network

STEP 7. After all the alteration works have been finished and the new line has been tested the process is ready. All the test documents and project plan will be passed on to the client when TONISCO® Service releases the project.

All plugging and alterations works has been done without any interruptions to the network - with guaranteed work!

TONISCO® SERVICE

SOLUTIONS FOR UNDER PRESSURE CALIBRATION OF FLOW METERS

Allows customers to calibrate their flow meters without interrupting the network

Laser-Optical calibration of flow meters gives the customer the possibility to calibrate the existing flow meters without interrupting the operation of the network. It ingreases the control of the process and gives exact data to the provider as well as the users.

Service description

OPTOLUTION

The Welding

The Customer will point the wanted measuring point for TONISCO® Service. TONISCO® Service will then mount the special calibration ball valve to the main line and do all the welding works.

After the welding process the Customer can test the weldings itself or order the tests from TONISCO® Service

The Hot Tapping

After the welds has been properly tested TONISCO® Service can carry out the Hot Tapping process. As a result of the Hot Tapping there will be a precise hole in the main line which will be used to insert the Optic-lens inside the special ball valve.

TONISCO® Service has more than 40-years experience in making Hot Tappings all over the world and when Customer orders the Tapping Process from TONISCO® Service it can be confident that everything will go as planned.

The Installation & Measuring

After Hot Tapping TONISCO® Service will insert the Special Optic-lens to the Ball valve. When the lens its locked to its place the Measuring installation is ready for measuring.

The Final part for the Laser-Optic flow measuring is to Install the Laser unit. The installation of the Laser unit as well as all the measuring tasks are carried out by the skilled and experienced OPTOLUTION professionals.

One of the main advantages is that the same measuring point can be used over and over again in order to maintain the constant control of the flow.

DN600 DISTRICT COOLING, HELSINKI, FINLAND, FEBRUARY 2010

DN600 BIG TONISCO® Hot Tapping Valves were used to connect a new industrial region to an existing district cooling system in the Capital of Finland. The hot tapping process was carried out in a maintenance cave just below the City Centre.

The space was very limited but due to the compact size of the TONISCO Hot tapping system the whole project was completed during one weekend.The valve was welded electrically to the mainline and the pressure during the process was 4,5 bar.

The line in question was the Central distribution line for the whole district cooling of the City of Helsinki and surrounding areas. It was estimated that by using TONISCO's tehcnology and Services more than 2 500 buildings and industrial facilities where able to maintain their systems operative during the whole Project. The City of Helsinki and the users saved a great amount of time and money. TONISCO Has been a loyal partner for the District heating and Cooling provider of Helsinki for over 25 years.

DN400 DISTRICT HEATING, TORINO, ITALY, OCTOBER 2013

DN400 BIG TONISCO® Hot Tapping Valves were used to connect a new industrial region to an existing district Heating system in Northern Italy.

The mainline was DN600 steel line. The valve was welded electrically to the mainline and the pressure test was carried out by TONISCO Hot Tapping Service using 4,0 bar compressed air.

The pressure in the mainline during the process was 6,0 bar and the fluid inside was District Heating water compound. The hot tapping was carried out using TONISCO B40 Hot tapping machine.

DN125 DISTRICT HEATING, OFTRINGEN, SWITZERLAND, MARCH 2013

DN125 TONISCO® Hot Tapping Valves were used to connect a new Housing area to an existing district heating system in Western Switzerland. The mainline was DN150 steel line.

First the TONISCO® Welding rings were welded to the mainline. The valves were then welded electrically to the welding rings. The pressure test was carried out by TONISCO Hot Tapping Service using 4,5 bar compressed air.

The pressure in the arrival mainline during the process was 8.0 bar and the fluid inside was district heating water. The hot tapping was carried out using TONISCO B30 Hot tapping machine and TONISCO DN125 Clamp Adapter.

After the two connections were accomplished the new line was build by welding. The sluice plate was then removed and the controlling seams was welded shut. As a result the customer had a completely new outlet lines wich were easy to insulate

DN 400, DISTRICT HEATING, HEINOLA, FINLAND, APRIL 2016

District heating line leakage was fixed under pressure in Heinola Southern Finland.The DN400 heating line was plugged from both sides of the leakage and a DN150 temporary By-pass was build in between the stoppers during the repairing works. The network was kept fully operational while the leakage and all the damaged parts of the line was renewed also. The work was carried out as an emergency 24/7 Service and the whole leakage was fixed in 48 hours after the first contact from the Customer.
TONISCO Service carried out all the welding and Line Stopping works. The whole operation was carried out without causing any interruptions to the heat delivery or draining any parts of the other network. Special thanks were given from the fast reply time and the effective delivery of the work.

DN 400, DISTRICT HEATING, KOUVOLA, FINLAND, MAY 2016

Heating Plant in Eastern Finland didn't have any working valves in the outgoing side of the plant. TONISCO Service installed new DN400 butterfly valves to the outgoing an ingoing lines of the Heating Plant. The Line Stopping operation was made in extremely short and challenging space but nevertheless all the valve changing works were able to carry out without causing any interference to the operation of the Heating Plant.
The System used was the DN400 Line Stopping machine with hydraulic opration system and maximum working pressure up to 24 bar. TONISCO Service carried out all the welding and Line Stopping works

DN 300 FERNWÄRME, VAASA, FINNLAND, DEZEMBER 2015

A part of district heating line that had multiple leakages was replaced and renewed under pressure in the center of Vaasa in Southern Finland. Several Line-Stopping and Hot tapping works were carried out and the overall length of District heating line replaced was 1,3 km. TONISCO Service carried out all the under pressure welding, installation and insulation works as well as all the Line Stopping and Hot tapping works. By choosing TONISCO Service for rebuilding the network the Customer was able to renew a substantial sector of it's al network without interrupting the delivery of heat to it's customers at any point. One of the key benefits of the Line Stopping solution is the flexibility in the work schedule because the heat delivery remains constant at all times.

DN200, COOLING, BASEL, SWITZERLAND, JUNE 2012

Hot tapping work was performed to a cooling network of a research laboratory and server center in Basel. Size of the hot tap was DN200 and the Hot tapping machine used was TONISCO B30. The branching was carried out using Flanged Hot tapping saddles and a DN200 Stainless steel ball valves. All the components were equipped with PN25 Flanges.

The material of the mainline was Stainless steel and the size was DN250 and the fluid inside was ethylene glycol and water compund. The pressure in the line during the hot tapping process was 4,5 bar.

DN250, COOLING, HELSINKI, FINLAND, MARCH 2013

The Finnish broadcasting company (YLE) needed to make a new branch to their central district cooling main line in Capital of Finland. The main line was DN400 and the size of the hot tap was DN250. The Hot tapping machine used was TONISCO B40. Due to the compact size of TONISCO Hot tapping system the branching operation was able to execute in the tight maintenance corridor. All the Hot tapping works were carried out without interrupting any processes in the building

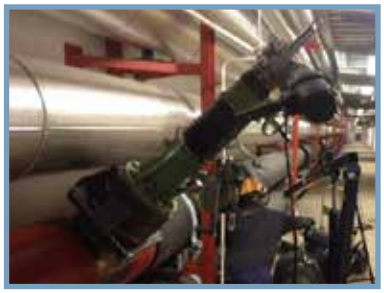
The branching was carried out using flanged Hot tapping saddles and DN250 PN16 flanged full bore Steel ball valves. The pressure in the system was 3,0 bar and the fluid inside the system was water glycol compound.

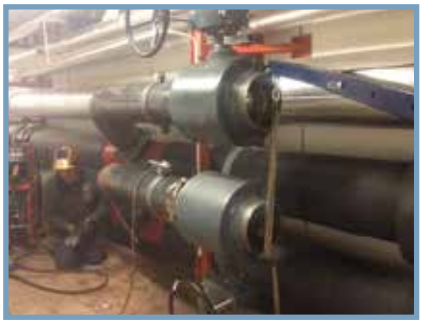
DN250, DISTRICT HEATING, STOCKHOLM, SWEDEN, MARCH 2015

TONISCO Hot tapping Service carried out two DN250 hot tappings in a service tunnel near Karolinska Institut in the Capital of Sweden. The main line was DN400 Steel and the fluid inside was normal District heating water.

TONISCO® Service did all the welding, installation and line building works up to the Standard Shut-Off valve. Hot tapping was carried out using TONISCO B40 Hot tapping machine.

The pressure in the system during the hot tapping process was 6/8 bar. With the help of TONISCO Hot tapping service the whole expansion of the heating system was done without interrupting the existing process - Under pressure





DN300 COOLING WATER HOT TAPPING, REYKJAVIK, ICELAND, JUNE 2014

DN300 Hot Tapping was made to enlarge the cooling capacity of an Aluminium factory in Reykjavik Iceland. The hot tapping process was carried out using DN600 Hot tapping saddle with flanged DN300 PN10 outlet and DN300 PN10 Sluice valve.

The Customer provided the Valve and TONISCO® Service delivered the Hot tapping Saddle. The installation of the Hot tapping Saddle and the valve was carried out by TONISCO® Service.

The hot tapping machine used to make the hot tapping was TONISCO® B40 Hot tapping machine with flanged DN300 adapter. The material of the main was Cast iron and the wall thickness around 12,0 mm. The pressure inside the main line during the hot tapping process was 5,0 bar.

DN250 WASTE WATER, HELSINKI, FINLAND, SEPTEMBER 2014

TONISCO® Service carried out a DN250 hot tapping to an existing waste water main nearby Helsinki the Capital of Finland. The new outlet was made in order to build a secondary by-pass in order to make maintenance works to the existing pumping station.

The size of the main was PEH600 and the wall thickness of the pipe was 41,2 mm. The pressure during the hot tapping process was constant 4,0 bar. Due to the large wall thickness a special hole saw was used.

The hot tapping process was carried out using DN600 PN10 Hot tapping saddle and DN250 PN10 Sluice valve. All the components was delivered by TONISCO® Service as well as all the installation and hot tapping works. The pressure test for the components was carried out by using 4,5 bar compressed air.

DN300 WASTE WATER PLUGGING, SALO, FINLAND, NOVEMBER 2013

DN300 Waste water line plugging was made in order to install a new pumping station under pressure. TONISCO® Service delivered all the hot tapping components and made all the installation and hot tapping works related to the plugging. The DN200 hot tapping was made using DN300 Hot tapping saddle with DN200 PN10 outlet.

After the hot tapping TONISCO® Service inserted the TONISCO® Plugging device to the main and kept it plugged during the whole assembly of the new Shut-Off valve. The pressure in the main during the plugging process was 1,6 bar.

TONISCO SYSTEM

TONISCO System Oy
Kalkun kehätie 19
33330 Tampere
FINLAND
Tel. +358 3 611 724
sales@tonisco.com
www.tonisco.com

TONISCO System Oy is a Finnish company originally established in 1969. During the past four decades TONISCO has been developing underpressure pipeline maintenace tools for customers. TONISCO Hot Tapping Team has made new connections to existing pipelines for customers such as water, steam and heat supplying companies, waste water treatment companies as well as the suppliers of gas. Besides these pipelines, TONISCO Hot Tapping technique is also frequently used in most of the process- chemical- and petrochemical plants.

Whenever there is a need for underpressure branch in a pipeline, the operator of the network may contact the TONISCO office by phone or via E-mail. TONISCO technicians will gather all essential facts about the case and choose the proper components and methods for the under pressure connection in question, and - if so agreed - they will also carry out the actual branching. Normally the whole planning and branching work will not take more than one or two working days