



## **WATERWORKS 101 2024**

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# Pipe

## **C900 (Water) Pipe:**

*-Description Example: 150MM DR18 C900 PVC PIPE 6.1M*



Breakdown: 150MM is the pipe size (6"). DR18 is the Dimensional Ratio of the pipe. C900 PVC is a type of pipe. 6.1M is the length of each piece of pipe.

-This pipe is blue in colour and is used for the transportation of potable water. Norwood Waterworks stocks sizes from 4" – 12" diameters. 4" Diameters are stocked in DR14 & DR18, it is important to pick the right one. It has a thicker wall to ensure consistent strength and pressure ratings. It is designed to handle pressurized water, and therefore has thick walls / is the heaviest type of PVC pipe Norwood stocks.

-Norwood Waterworks carries both IPEX and Westlake brand C900. Brand preference can vary depending on the customer, so ensure to supply the right brand.

-Larger diameter C900 pipe (14" – 60") is available but is typically only brought in as a special order. These larger sizes are sometimes referred to as C905 rather than C900.

*-Interesting Fact:* The Outside Diameter (OD) of C900 pipe is the same as Cast Iron OD. This allows C900 pipe to fit into Cast Iron (CI) and Ductile Iron (DI) fittings such as tees, crosses, and bends. This is useful, as some sharp-angled bend fittings, crosses, and substantial reduction fittings (i.e. going from 12" to 6") are only available in CI/DI due to pressure limitations of PVC. IPEX has introduced C907 PVC fittings available in 250mm and 300mm sizing to substitute the use for CI. PVC fittings last longer, are lighter, and do not require the use of an anode.





### Dimensions in Millimetres

Nominal Size	Avg. Inside Diameter	Min. Wall Thickness	Avg. Outside Diameter
--------------	----------------------	---------------------	-----------------------

#### Class 165 (DR25)

100	112	5	122
150	161	7	175
200	212	9	230
250	260	11	282
300	309	13	335

#### Class 235 (DR18)

100	108	7	122
150	155	10	175
200	204	13	230
250	250	16	282
300	297	19	335

#### Class 305 (DR14)

100	104	9	122
150	149	13	175
200	198	16	230
250	242	20	282
300	287	24	335

### Dimensions in Inches

Nominal Size	Avg. Inside Diameter	Min. Wall Thickness	Avg. Outside Diameter
--------------	----------------------	---------------------	-----------------------

#### Class 165 (DR25)

4	4.42	.192	4.80
6	6.35	.276	6.90
8	8.33	.362	9.05
10	10.21	.444	11.10
12	12.15	.527	13.20

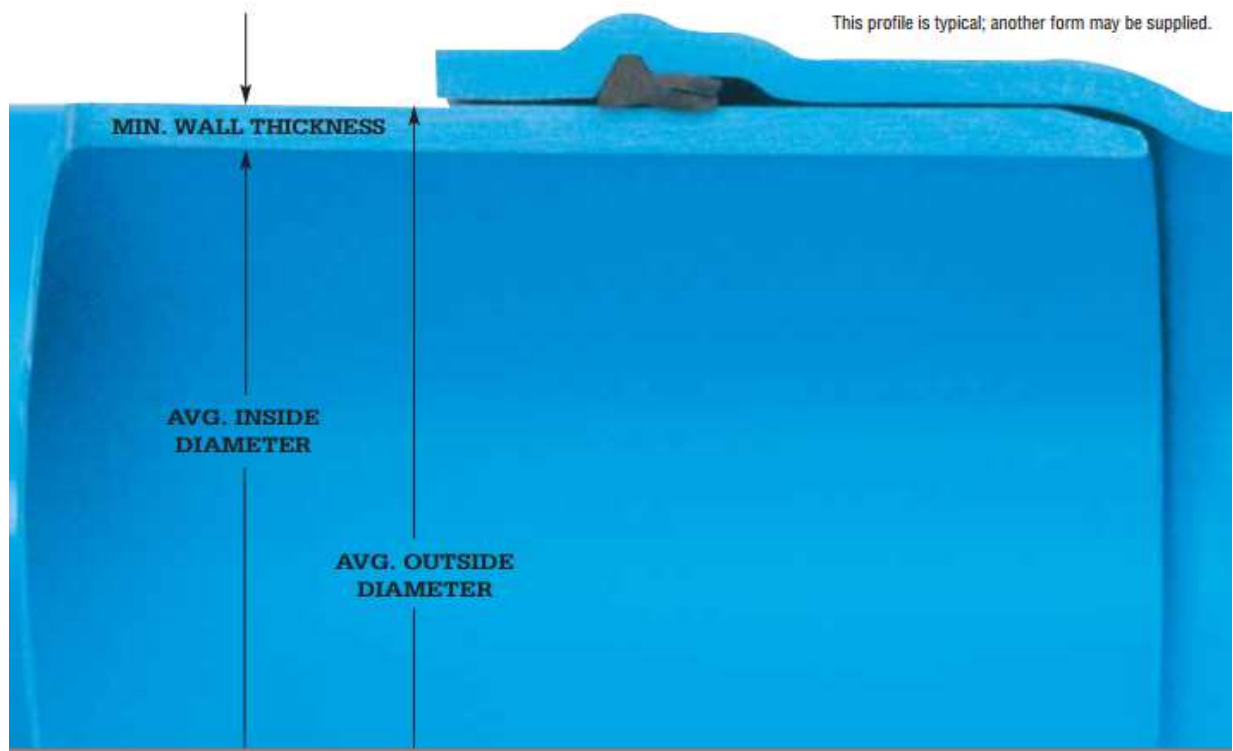
#### Class 235 (DR18)

4	4.27	.267	4.80
6	6.13	.383	6.90
8	8.05	.502	9.05
10	9.87	.616	11.10
12	11.73	.733	13.20

#### Class 305 (DR14)

4	4.11	.343	4.80
6	5.91	.493	6.90
8	7.76	.646	9.05
10	9.51	.793	11.10
12	11.31	.943	13.20

Dimension Ratio (DR) is the outside diameter of the pipe divided by the minimum wall thickness.



## Elbows / Sweeps:

-Description Example: **250MM PVC C900 90 ELL G-G**



Breakdown: 250MM is the size of the pipe (10"). PVC C900 is the type of pipe. 90 is the angle of the fitting. ELL is the type of fitting. G-G refers to both gasket / "bell" ends.

-Elbows are available for all types of pipes (C900, SDR, and Ultra-Rib/Korflo). Ductile iron (DI) elbows are also stocked. SDR and Ultra-Rib come in 90°, 45°, and 22.5° angles. C900 comes in 90°, 45°, 22.5°, and 11.25° angles. Sweeps also come in 5° & 11° & 22.5° & 45° angles.

PVC C900 90° Elbow (G-G)



## Increasesers (Reducers):

-Picker / Description Example: **200MMX150MM C900 INCR SPG-G**



Breakdown: 200MM is the size of the larger end (8"). 150MM is the size of the smaller end (6"). C900 is the type of pipe. INCR is the type of fitting. SPG-G refers to one end being spigot and one end being gasket or "belled".

-Commonly called "increaser", "reducer", or "bushings". They are available for Ultra-Rib, SDR, a combination of Ultra-Rib to SDR, or C900. Ductile iron (DI) increasers are also available, but just hub-hub.

-PVC increasers as a rule cannot reduce to half or smaller of the larger diameter. Example: 12" C900 cannot be reduced to 6" or smaller diameter C900. For a greater increase / reduction, multiple increasers/reducers can be used in-line. Ductile Iron (DI) increasers can also accommodate larger reductions than PVC.

PVC C900 Bushing (sometimes requested as a reducer/increaser)



### Plugs / Caps:

-Picker / Description Example: **150 PVC C900 Plug**



Breakdown: 150MM is the size of the pipe (6"). PVC c900 is the type of fitting. Plug is the type of fitting.

-Plugs and caps perform similar tasks. Both are used to seal off, or dead end a pipe. Plugs are inserted into the bell end of the pipe, and caps can be pushed onto the spigot end of the pipe. The advantage of a cap is that it can be placed anywhere the pipe is cut off, plugs can only be used on the bell end of the pipe.



## **Tees:**

*-Picker / Description Example:* **150MMX150MM PVC C900 TEE G-G-G**



Breakdown: 150MM is the size of the main run (6"). 150MM is the size of the run coming off the tee (6"). PVC C900 is a type of pipe. Tee is a type of fitting. G-G-G refers to all gasket or "bell" ends (B-B-B)

-Tees are available for all types of pipes (C900, SDR, and Ultra-Rib). Ductile iron (DI) tees are also stocked.

**C900 tee fitting**



**Tap couplings:**

**-Picker / Description Example: 150x50MM PVC C900 CC TAPT CPLG**

are used for C900 applications. It is a PVC C900 coupling with a threaded hole in the side. Tap couplings are used to slide over a water main and allow for a 2" service to be attached into the coupling to feed a building or house. Tap couplings are not available for SDR, an inserta-tee or saddle tee is used to connect to an existing sewer or storm line. C900 Tap coupling – simply remove the plastic cover, and thread in your connection.

**C900 Tap Coupling**

## SDR (Sewer/Storm) Pipe:

-Picker / Description Example: **200MM SDR35 PVC PIPE 4.27M**



Breakdown: 200MM is the size of the pipe (8"). SDR35 PVC is the type of pipe. 4.27M stands for the length of each piece of pipe and tells us it is Westlake pipe because of the 4.27M length.

Note: IPEX DR35 pipe is sold in 4M lengths.

-This pipe is green in colour and is used for storm and sewage lines. Norwood Waterworks stocks sizes from 4" – 24" diameters. Larger diameter SDR35 is available (30" to 60") but is not commonly kept in stock. In comparison to C900, SDR35 is much thinner and lighter.

-Like C900, Norwood Waterworks stocks both IPEX SDR35 and Westlake DR35.

-SDR is also available as SDR28. It is not as commonly used in large diameters but is engineer spec for sewer service line from buildings to the main sewer line. Norwood stocks SDR28/DR28 in 4" and is white in colour.

-It is a gravity style pipe that is not pressurized. Pressurized, or commonly referred to as forced sewer main is constructed using SDR26 (Pressure pipe)

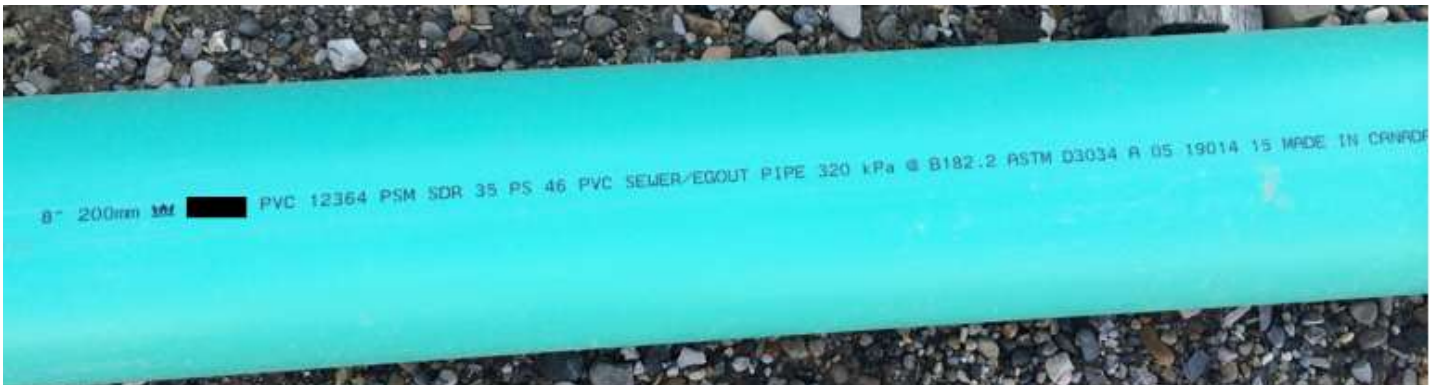
-The SDR (standard dimension ratio) is the ratio of pipe diameter to wall thickness and can be expressed as:  $SDR = D/S$  D = Pipe O.D S = Wall Thickness

SDR11 means that the outside diameter (D) of the pipe is eleven times the wall thickness (S)

-High SDR ratio mean the pipe wall is thin compared to the pipe O.D (Low pressure rating)

-Low SDR ratio mean the pipe wall is thick compared to the pipe O.D (High pressure)

### Westlake DR35, 200mm pipe:



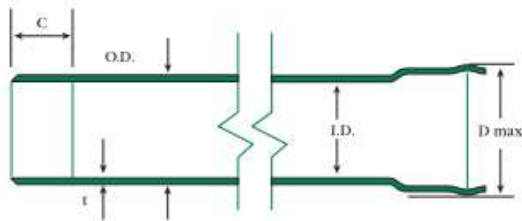


## Westlake DR35 Pipe:



## DIMENSIONS

### 1. Ring-Tite and Enviro-Tite



where, O.D. = average outside diameter  
 I.D. = average inside diameter  
 t = minimum wall thickness  
 Dmax = approximate outside diameter of the bell  
 C = insertion depth distance

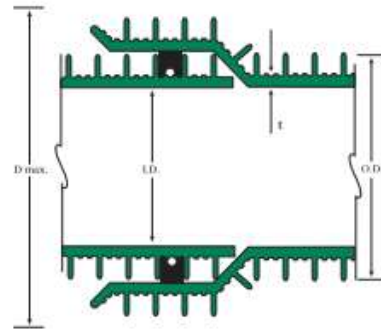
Note: Bell profiles are for information only.

Actual profiles may vary

**Enviro-Tite available in all DR28 sizes & DR35 from 100 - 375 mm.**

Pipe Size		O.D.		I.D.		t		Dmax		C	
mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
<b>DR28</b>											
100	* 4	107.1	4.22	99.0	3.90	3.8	0.15	135	5.31	71	2.8
125	* 5	143.3	5.64	132.5	5.22	5.1	0.20	173	6.81	72	2.8
150	* 6	159.4	6.28	147.3	5.80	5.7	0.22	191	7.52	89	3.5
<b>DR35</b>											
100	4	107.1	4.22	100.7	3.96	3.1	0.12	133	5.24	71	2.8
125	5	143.3	5.64	134.6	5.30	4.1	0.16	171	6.73	72	2.8
150	6	159.4	6.28	149.6	5.89	4.6	0.18	189	7.44	89	3.5
200	8	213.4	8.40	200.4	7.89	6.1	0.24	245	9.65	100	3.9
250	10	266.7	10.50	250.5	9.86	7.6	0.30	310	12.20	115	4.5
300	12	317.5	12.50	298.1	11.74	9.1	0.36	364	14.33	125	4.9
375	15	388.6	15.30	365.1	14.37	11.1	0.44	442	17.40	145	5.7
450	18	475.0	18.70	448.1	17.56	13.6	0.53	550	21.65	286	11.3
525	21	560.0	22.05	528.3	20.71	16.0	0.63	640	25.20	317	12.5
600	24	630.0	24.80	594.4	23.36	18.0	0.71	700	27.56	343	13.5
675	27	710.0	27.95	669.9	26.26	20.3	0.80	800	31.50	343	3.5
750	30	812.8	32.00	763.8	30.07	23.2	0.91	926	36.46	356	4.0
900	36	972.8	38.30	914.4	36.00	27.8	1.09	1108	43.62	406	6.0
1050	42	1130.3	44.50	1062.0	41.81	32.3	1.27	1265	49.80	406	16.0

### 2. Ultra-Rib



where, O.D. = average outside diameter of barrel  
 I.D. = average inside diameter  
 t = minimum waterway wall thickness  
 Dmax = approximate outside diameter of bell

Pipe Size		O.D.		I.D.		t		Dmax	
mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
200	8	224	8.8	200	7.87	2.20	0.09	248	9.8
250	10	280	11.0	251	9.88	2.30	0.09	311	12.2
300	12	333	13.1	298	11.73	2.60	0.10	371	14.6
375	15	408	16.1	365	14.37	2.80	0.11	453	17.8
450	18	497	19.6	448	17.64	3.30	0.13	556	21.9
525	21	584	23.0	527	20.75	4.06	0.16	665	26.2
600	24	660	26.0	597	23.50	4.58	0.18	724	28.5



## Ultra-Rib / Korflo (Storm) Pipe:

-Picker / Description Example: **600MM ULTRARIB PVC PIPE 4M**



Breakdown: 600MM is the size of the pipe (24"). Ultra-Rib PVC is the type of pipe. 4M is the length of each piece of pipe.

-This pipe is green in colour and is used for storm lines. It differs from SDR in that it has ridges along the entire body of the pipe, which give it a "ribbed" look. This allows for added strength, almost as strong as SDR35/DR35, but much lighter. It also has a gasket built on the outside of the spigot end. Norwood Waterworks stocks sizes from 12" – 21" diameters. 8"-24" are also available but are only brought in for special orders. IPEX Producer UltraRib, Westlake produces Korflo

### Korflo:



## Perforated Pipe:

-Picker / Description Example: **100MM SDR35 PVC PERF PIPE 4M**



Breakdown: 100MM is the size of the pipe (4"). SDR35 PVC is the type of pipe. PERF refers to pipe that has been perforated with holes. 4M is the length of each piece of pipe.

-Perforated pipe can be made from a variety of PVC pipe, but perforated SDR35/DR35 is the most common stocked at Norwood in 100mm and 150mm sizes. Larger sizes can be custom-made and are available to order if required by the customer. These pipes are typically used in drainage arrangements, where water is allowed to slowly move out of the pipe into surrounding drainage rock or gravel, etc. Perforated pipe is typically a solvent weld connection, but we do offer gasketed pipe if needed. The pipes have a bell and spigot that is held together using primer and solvent glue to keep it in place and sealed from water and debris.

-IPEX and Westlake both produce perforated pipe, and once again, Westlake comes in 4.27m lengths.

-Depending on the application, a "filter sock" is sometimes provided along with the perf pipe. This fabric tube fits over the perf pipe and prevents the back flow of ground sediment or dirt into the pipe. These socks are available in multiple sizes, and Norwood stocks 6" & 8" sock, with other sizes available.

## Westlake DR35 100mm Perf Pipe:



Westlake 150mm DR28 Perf Pipe:



## Ultra Duct / DB2 Conduit / Hydroduct :

-Picker / M3 Description Example: 4x20' PVC HYDRODUCT PIPE SBE



Breakdown: 4" is the size of the pipe, 20 is the length in feet. PVC is the type of pipe. Hydroduct Pipe SBE refers to the pipe being a conduit pipe for wire.

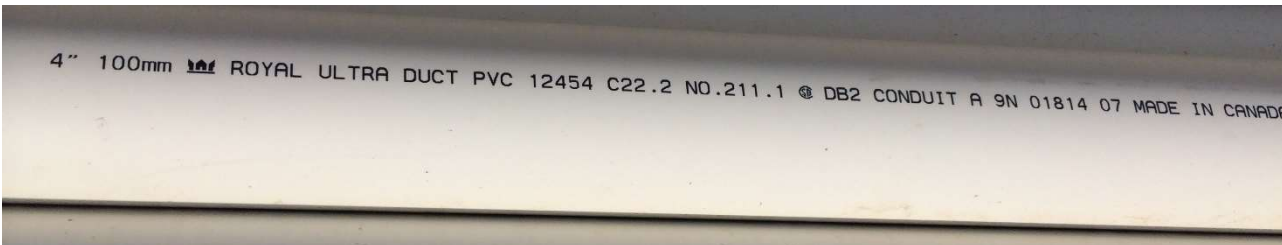
-Ultra Duct / DB2 / Hydroduct / is a conduit pipe sold in 10-foot and 20-foot lengths used to protect buried wires from water, dirt, and corrosion. Norwood Stocks 2", 3", 4" and 6" sizes. This conduit pipe does not have gaskets like standard SDR35 and C900. It is a bell and spigot push on style that uses primer and solvent glue to bond the pipe together.

-Ultra duct and DB2 comes in both white and grey, and has no difference in construction or usage, just colour.

Westlake 100mm DB2:



Westlake 100mm Ultra Duct:





## ABS Pipe:

-Acrylonitrile butadiene styrene (ABS) pipe is commonly used in drain-waste-vent pipe systems and sewer systems. It is also sometimes used as electrical insulation.

-Norwood stocks ABS pipe in 3" & 4" diameters. 12' lengths per pipe.

-ABS is easier to install compared to PVC pipes, but also more likely to deform when exposed to the sun. ABS pipe has a higher impact strength than PVC, especially at lower temperatures.

-ABS has a different cement than PVC and a specific "transition cement" to connect ABS to PVC.



## SDR, UltraRib and Korflo Fittings

This section will cover the various types of fittings we carry and show you how to differentiate between them. The example provided BELOW would tell us that the fitting we need is made to be put on a 250mm (10") sewer pipe (as the "SDR" indicates). It is also noted that it is a 45° elbow with each end being gasketed ("G-G"). If it had one gasket end and one spigot end it would read ("SPG-G"). The list that follows will show our most common types of fittings and any variations that need to be noted.

*-Picker / Description Example:* **250MM PVC SDR 45 ELL G-G**



Breakdown: 250MM is the size of the pipe. PVC SDR is the type of pipe (used for sewer fittings). 45 ELL means it is a 45° elbow joint. G-G means that both ends are gasket (Bell Ends), and they are slightly larger to receive pipe into them.

An Assortment of SDR fittings is show below. Note that all fittings contain a stamp that indicates the size, style, and manufacturer of the fitting.



- **Tee (Page 31):** Tee fittings look like longer couplings with a gasketed opening coming out of the middle at a 90° angle, resembling the letter “T” (surprise, surprise). These can connect pipes of the same size or connect different size pipes.



- **Wye (Page 32):** These are like Tee's only the pipe leading off the fitting will be angled and look like a lower case “y” (again... big surprise).



- **Elbow (Page 33):** These are like couplings, but they direct the pipe on an angle. The most common bends for elbows are 11.25°, 22.5°, 45°, and 90°.



- **Sweep (Page 34):** these are like elbows but differ in that they create a bend in the pipe in a smooth rounded bend rather than an angled bend.



- **Increaser (Page 35):** These go under several different names (reducer, bushing, adapter) they connect two pieces of pipe together like a coupling but allow someone to connect two different sizes.



- **Plug (Page 36):** These go into the gasket (bell) end of a pipe to plug the end of it.



- **Cap (Page 36):** Like a plug, however they fit over top of the end of pipe instead of going inside.





- **Cross:** These are like Tees only they have four ends which form an “X” shape. They can also connect two different size pipes or the same size.



- **Coupling (Page 37):** These are a straight fitting which join two pieces of pipe together.



- **Saddles / Inserta-tees (Page 43):** These are used to tap storm and sanitary gravity fed lines. Either by inserting it into the pipe, or by strapping a saddle tee to the outside of the pipe.



-  
**\*Note:** Some Ultra-Rib Wye's will end with “B-B-G” rather than “B-B-B” This means that the pipe coming off the wye is SDR sewer pipe rather than Ultra-Rib.

## **Tees:**

*-Picker / Description Example: **150MMX150MM PVC SDR TEE G-G-G***



Breakdown: 150MM is the size of the main run (6"). 150MM is the size of the run coming off the tee (6"). PVC SDR is a type of pipe. Tee is a type of fitting. G-G-G refers to all gasket or "bell" ends (B-B-B)

-Tees are available for all types of pipes (C900, SDR, and Ultra-Rib). Ductile iron (DI) tees are also stocked.

PVC SDR Tee (Storm/Sewer) G-G-G



## **Wyes:**

*-Picker / M3 Description Example: **150MMX150MM PVC SDR Y G-G-G***



Breakdown: 150MM is the size of the main run (6"). 150MM is the size of the run coming off the wye (6"). PVC SDR is the type of pipe. Y is the type of fitting. G-G-G refers to all gasket or "bell" ends.

-Wyes can have a smaller connection on the branch off the main pipe connection.

-Wyes are available for both SDR and Ultra-Rib (or a combination). **They are not available for C900 due to pressure limitations. Ductile Iron would be used.**

**150mm SDR Wye**



**Ultra-Rib Wye:**



Note how the ends bell outwards slightly. This is an indication that a fitting is Ultra-Rib rather than SDR. Also note that the branch off the wye is SDR by the look of the bell style.

**PVC SDR 22.5° long sweep (SPG-G)**



**PVC SDR Cap (like on a bottle)**



**Couplings: -Picker / Description Example: 100MM PVC SDR CPLG L/STP G-G**



Breakdown: 100MM is the size of the pipe. CPLG is the type of fitting. L/STP means the coupling has no stop built in the center. G-G refers to both ends being gasket (bell) ends.

-PVC couplings are available in both L/STP and W/STP form. Couplings with a stop have a built-in ring that prevents the pipe from moving more than halfway onto the coupling. They are typically used in new construction. Couplings without a stop are often called “repair couplings” or “slip couplings”. They can be slid all the way onto a pipe to reach the break and are useful for repairs.



SDR Coupling (L/STP)



SDR Coupling (W/STP)

-Inserta Tees can be used in both SDR and Ultra-rib applications. They come in a variety of sizes, and often can cover a range of different sizes of main pipe. Inserta tees are pushed into a cored hole in the main line and have a rubber seal to prevent leakage. The bell end is a gasket connection to stem pipe off a main line.

**SDR Inserta Tee 4"x8":**



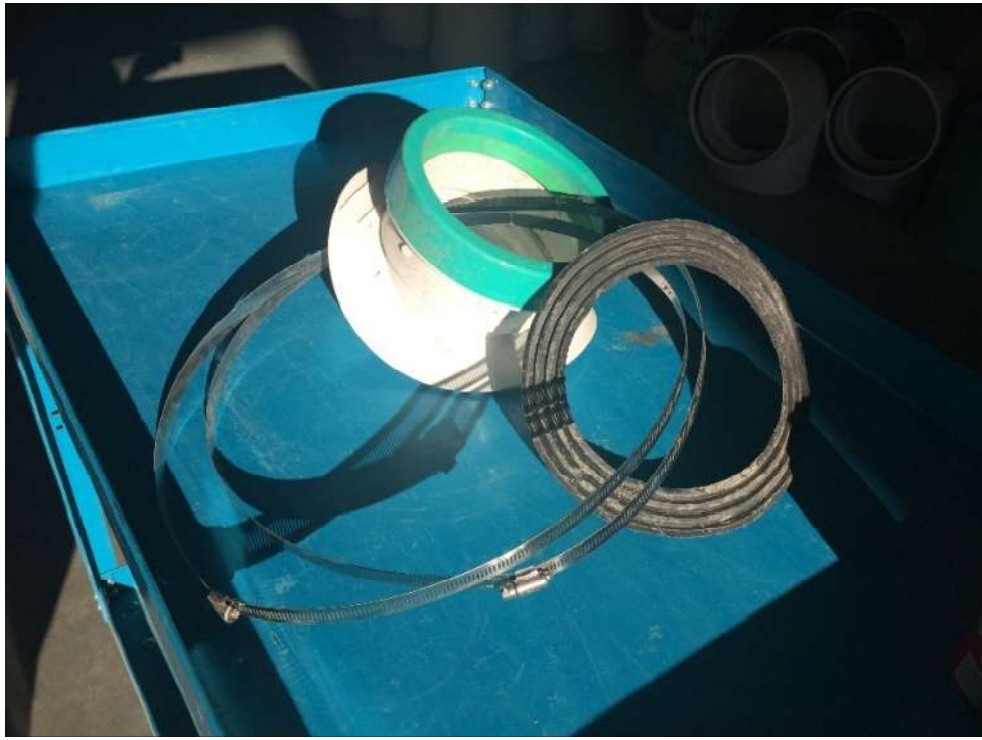
## Inserta-Tee and Saddles:

-Picker / Description Example: **600x100MM PVC SDR SDL TEE**



Breakdown: 600x100 is the size of saddle meaning it connects to a 600mm pipe and has a 100mm pipe bell to stem a pipe. PVC SDR SDL TEE describes that it is constructed from PVC material, SDR rating, and it is a saddle tee connection.

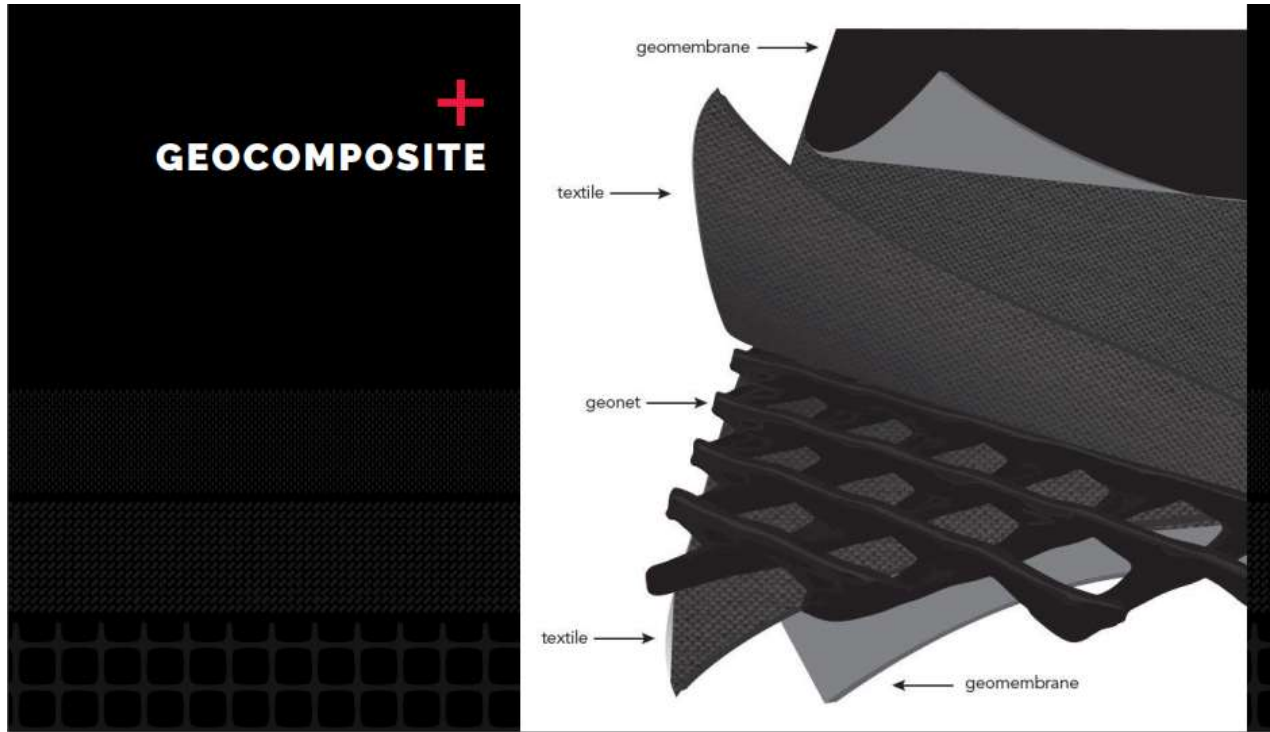
-Saddles are size specific and utilize a gasket and two straps to hold the saddle to the outside of the pipe. After a hole is cored into the existing pipe, the saddle is placed on the outside of the pipe and securely held by the tightening straps. Saddles come in a variety of sizes and cannot be used on Ultra-rib / Korflo pipe due to the ribs. The pipe must have a smooth outside surface to get a seal.





## Geo Liners and Membranes:

-Norwood is beginning to stock rolls of non-woven geo liners, and Geogrid (Quick-grid). Layfield is our preferred vendor and has provided plenty of training information on their product lines. Our customers use these rolls to line storm ponds, roadways, storm tanks and new developments to aid with separations, filtration, drainage, confinement, and ground reinforcement.



## Advantages of using liners and geo rolls:






























**+ ROADWAYS/PADS:**

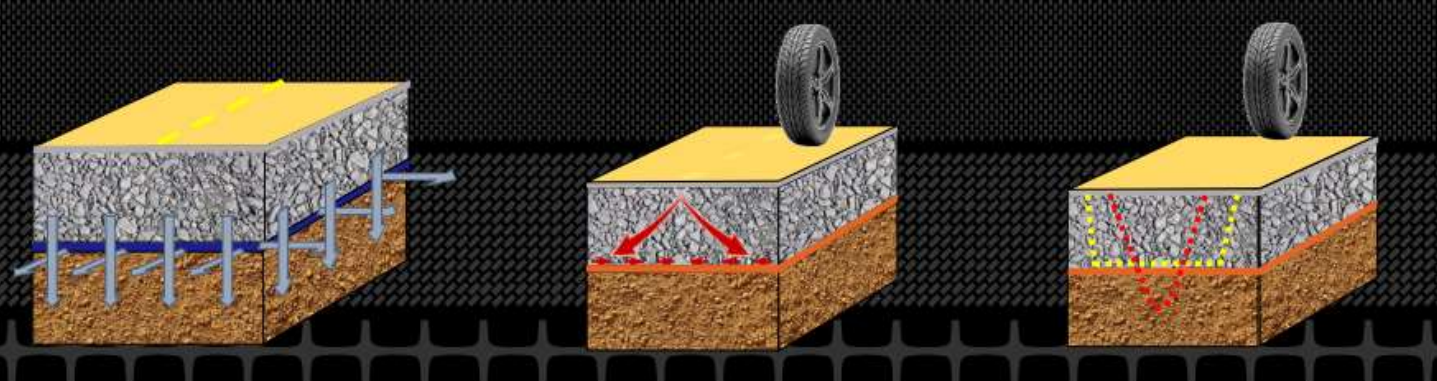
- **Cost Savings**
  - Installation/Labour Savings
  - Material Savings (gravel)
  - Logistics – Wear and tear on roads/ Fewer Trucks
- **Enhanced Performance**
  - Lower Maintenance
  - Longer Life

Value Proposition

The diagram compares two road construction methods. On the left, a 'CONVENTIONAL' method shows a thick layer of aggregate (gravel) being loaded by a truck. On the right, a 'Geosynthetics' method shows a thinner layer of aggregate reinforced with a 'High Strength Geotextile or Geogrid'. The geosynthetic layer is shown as a dark, grid-like material. The text 'REDUCED GRANULAR LAYER AND NO DECLINE IN SURFACE PERFORMANCE' is written above the geosynthetic layer. Below the diagram, it states: 'A geosynthetic allows for reduction of aggregate material cost and time'.

## Selecting Correct Product for Application:

MATCHING PRODUCT TO APPLICATION					
					
	Separation	Filtration	Drainage	Confinement	Reinforcement
Nonwoven					
Slit Film Woven					
Geogrid					
High Performance Woven		Variable			
Mirafi® RSi-Series					

## Non-Woven Geotextiles :

### Non-Woven Geotextiles

- ② Needle-Punched (Felt Like Texture)
- ② High Flow Rate, Fine Filtration, High Elongation, Flexible
- ② Cushion or Protection
- ② Described by Weight
- ② **(LP 3.5, 4, 4.5, 6, 7, 8, 10, 12, 16)**





## Woven Geotextiles :

### Woven Geotextiles (Slit-Tape)

- ⌚ Very Flat, Woven Very Tightly Together
- ⌚ Separation
- ⌚ Very Poor Drainage/Filtration Properties
- ⌚ Slippery, Limited Strength

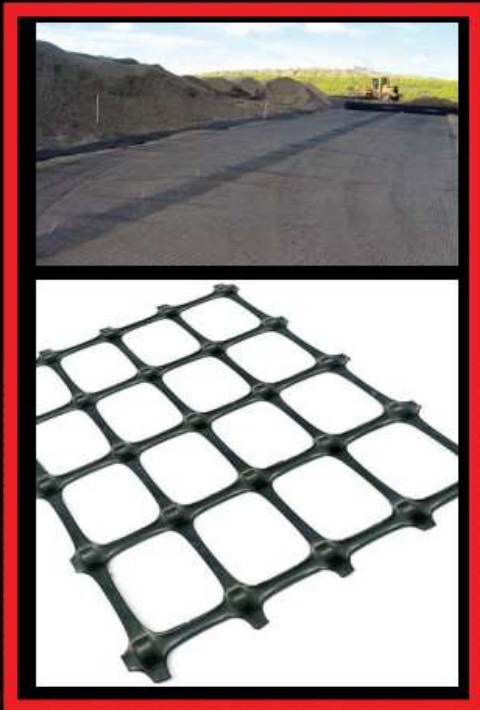


## Geogrid (Quick-Grid) :



### BI-AXIAL GEOGRID

- ⌚ Bi-Directional
  - ⌚ High Strengths @ Low Strains
  - ⌚ Confinement and Reinforcement for Soft Soils
  - ⌚ **Reduces aggregate thickness by up to 30%**
- Tensar BX1100,1200,LBX3030, 4040
  - QuikGrid 30 + 40



### Filter Sock:

-Picker / Description Example: **6 FLTR SOCK WHT**



Breakdown: 6 is the size of pipe it covers being 6". FLTR SOCK means that it is filter fabric and acts as a sock by sliding over the outside of the perforated pipe.

-Some customers will request filter sock when installing perforated pipe. It depends on the soil conditions, and engineer specifications for the job.

### Filter Sock:



## Pipe Lubricant:

-Picker / Description Example: **1KG PIPE LUBE F/GASKET P&F**



Breakdown: 1kg is the weight of the product. Pipe Lube is the type of product. F/Gasket P&F means it is used for gasket pipe and fittings.

-Pipe lubricant is used when joining two pieces of gasketed pipe together or joining pipe to a fitting. It is used for all types of stocked PVC pipe.

-As a general rule of thumb, **1kg of pipe lubricant** is included per each lift / crate of pipe. We stock both 1kg and 4kg containers of lube in IPEX and Westlake brands. Pipe lube is food grade and can be safely used on c900 potable water pipe. Pipe lube is given free to any customer that purchases PVC pipe from Norwood Waterworks. Pipe lube is also sold to customers that require additional lube beyond what is included with the pipe purchase and is sometimes ordered in large quantities if lots of PVC fittings are installed with the pipe.

1KG Westlake and 4KG IPEX Pipe Lube:





## High-Density Polyethylene (HDPE) CSA 200 Piping (municipal services)

-Picker / Description Example: **3/4x100 CSA 200 SERV TUBE**



Breakdown: 3/4 is the diameter of the tubing. 100 is the length of the roll in feet. CSA 200 SERV TUBE is the type of pipe.

-These tubes come in black coils of different lengths up to 1000 ft, most commonly in multiples of 100 ft. The size can be found printed along its length. They are available in 3/4", 1", 1 1/4", 1 1/2", and 2" diameters.

-HDPE is UV resistant and has no expiry date.

-Ser. 200 municipal tubing is used for water services in some rural areas/municipalities.



## Big-O / Drainage Tubing and Weeping Tile:

-Picker / Description Example: **4x100' PERF DRN TUBE W/FLTR**



Breakdown: 4" is the diameter of the tubing. 100 is the length of the roll in feet. Perf DRN Tube is the style of perforated tubing, W/FLTR means it comes with filter sock.

Used as storm water drainage tubing buried often around buildings to collect and channel run off water. Big-O drainage tubing is very similar to SDR perf pipe in application. It comes in coils and is stocked in 4" sizes. Norwood stocks only big-O that is wrapped with pipe sock.

-It is buried shallow in the ground and is surrounded by gravel to allow the water to enter the pipe and be channeled to an appropriate drainage spot.

### Big-O / Drainage Tubing





## PEX Water Service Tube:

-Picker / Description Example: **3/4X100 MUNICIPEX PIPE**



Breakdown: 3/4 is the diameter of the tubing. 100 is the length of the roll in feet. MUNICIPEX is the brand of pipe.

-These tubes come in blue coils. They come in 100 ft. and 300 ft. rolls, and 3/4", 1", 1.5" and 2" diameter sizes. Norwood Calgary does not stock 1.5" pex tubing.

-Pex tubing is connected by using brass fittings, or quick joint applications with stainless steel inserts. With quick joint connections, a stainless-steel insert is placed inside the pex tubing to prevent it from crushing or warping when the quick joint compresses around the outside of the pex tubing.

-Note: Pex tubing cannot be stored outside or in direct sunlight or it will lose its structural integrity quickly. See pex box for more details on how to safely store and unroll.

-PEX is typically shipped in boxes, so care should be taken to note the box label. The pex sizing and lengths can be found on the box label, and by reading the outside of the pex tubing.

-Norwood also stocks and sells ViperT by CB supplies. It looks like Municipex except it's white in colour.



## Cert K Soft Copper Tubing:

-Picker / M3 Description Example: **3/4 CERT K SOFT COP 66'CL**



Breakdown: 3/4 is the diameter of the tubing. Cert K Soft Cop is the type of tubing. 66 is the length of the roll in feet. CL denotes it is coming as a coil.

-Cert K soft copper comes in both coil and linear lengths. Norwood Waterworks stocks soft copper tubing. Due to a low amount of demand, we currently stock 3/4" coil in 66' lengths, 1" coils in 100' lengths, 1 1/2", and 2" in 20' lengths. They are available in 3/4", 1", 1 1/4", 1 1/2", and 2" diameters by order for our customers.

-Soft copper tubing was traditionally used for water services but has recently been replaced by pex tubing due to price, ease of installation, and durability.

-Cert K soft copper is typically shipped in boxes, so care should also be taken to note the box label. 66 ft roll boxes will often have two, sometimes 3 rolls of copper in a box.



### **Transition couplings:**

-There are a wide variety of transition couplings available from our vendors for different OD pipe sizes, and styles.

-Norwood Waterworks stocks three styles of mechanical couplings. Each is used in different situations and has different customer preferences, engineering approval, and different sizing availability.

### **Smith Blair 421 W/ cathodic clip:**



### **Robar SS 1696:**



### **Romac Alpha fully restrained:**





### **Service Saddles:**

-A service saddle is a clamp that allows you to branch off a service line from a main line.

-Norwood Waterworks stocks three styles of service saddles used in various application and specifications.

### **Cambridge Teck 403 SS saddle:**



### **Robar 2786 Isolation saddle:**



### **Robar 2706 brass double strap saddle (Not approved for CGY):**



## Abandon sleeves:

-Picker / Description Example:     **6x3x8 6636BB ABNDN SLV 680-720**  
  **6x3x8 8600 TECK TERM SLV 650-730**  
  **6 FACC ABNDN SLV 690-730**

Breakdown: 6" is the diameter of pipe it wraps around. 3" is the size of the nipple that encases the abandoned main stop up to 1.5". 8" is the width of the sleeve. 6636BB, 8600 TECK, FACC are the models. ABNDN SLV identifies that it is an abandon sleeve that has a working range of ie: 6.80"-7.20" pipe OD diameter.

-Abandon sleeves are used when abandoning a service that is tied into a water main. They seal around the water main and cover the main stop attached to it to ensure no leakage in the future. It is a safety precaution instead of relying on the main stop which could be damaged during back fill. This abandon sleeve can go over top of a 1.5" main stop or smaller.



### **Repair Clamps:**

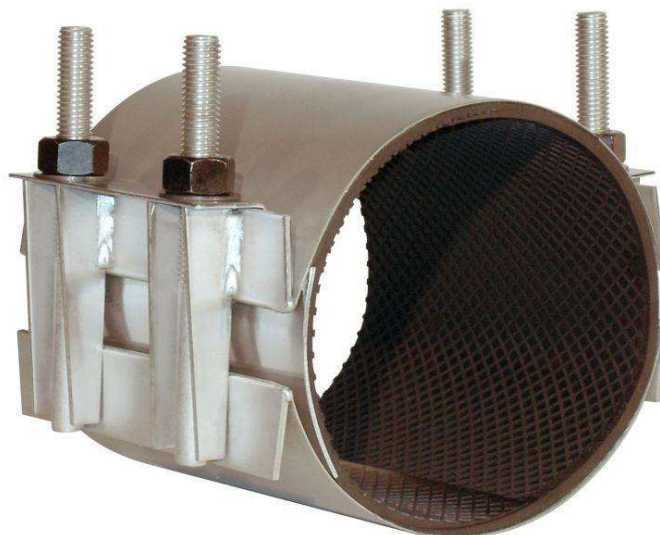
-A repair clamp offers a temporary solution to a leaking watermain when there is, for example, a small hole punctured in the pipe.

-Norwood Waterworks stocks a few different styles of repair clamp.

### **Cambridge Teck 425 single piece clamp:**



### **Cambridge Teck 825 2-piece clamp:**



## Cathodic Protection:

-Cathodic protection helps the longevity of products buried in the ground, and particularly when working in corrosive soils. Cathodic protection is applied to any buried iron products, ex. Valves, DI fittings, hydrants, steel pipe, brass fittings etc.

-There are a variety of methods to achieve cathodic protection, and different specs for different products, and soil types.

-The next several pages will discuss the different cathodic protection products, and the applications for each product.

## Anodes:

*-Picker / Description Example:* **5LB ZINC ANODE PKG ZN5**

Breakdown: 5LB is the size of the anode. Zinc is the material of the anode.

5 lb. zinc anode



12 lb. zinc anode



32lb. magnesium anode



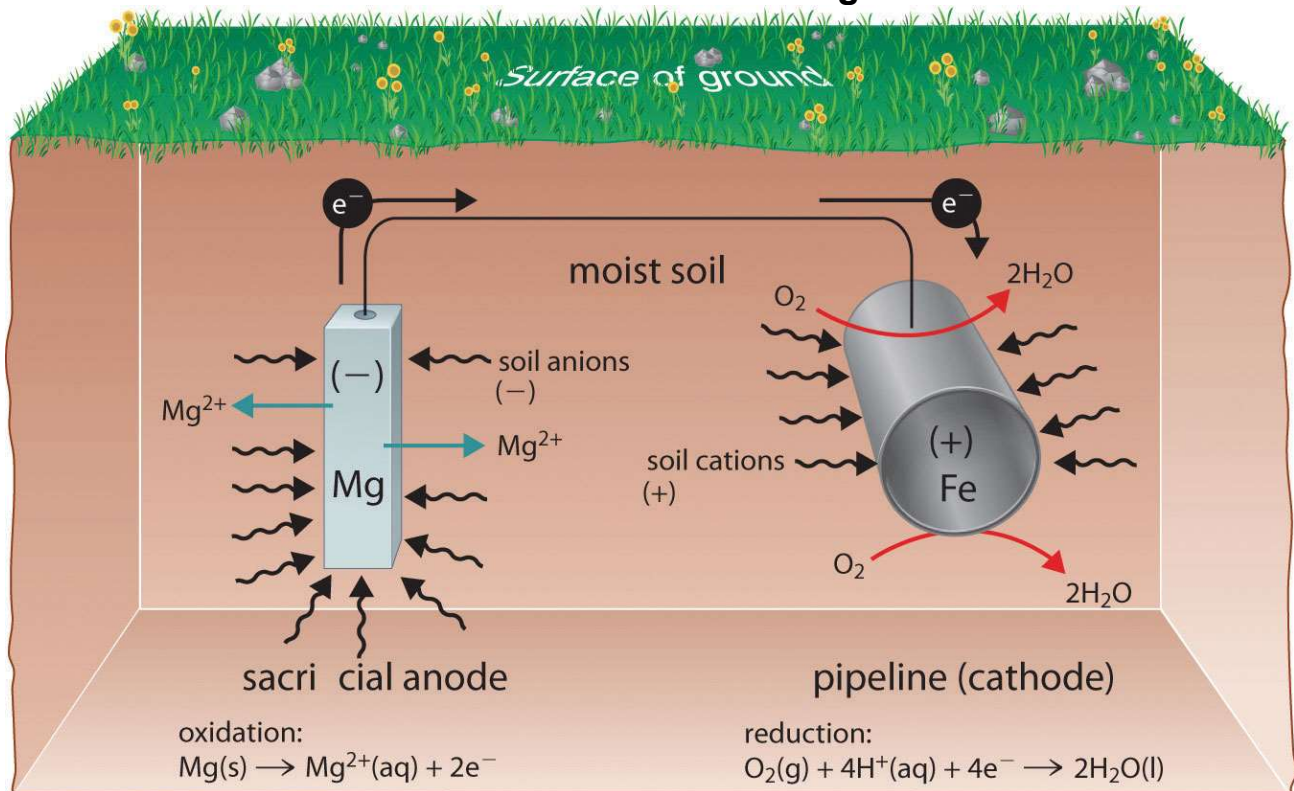
-Anodes come in a few materials and sizes. Zinc is the most common in 5/12lb - 32lb anodes are magnesium. Anodes have a built-in piece of wire that is fastened to the iron, brass, or copper product either by a clamp, or by being cadwelded (welded) to the metal product to ensure a proper connection with continuity.

-The important thing to remember about anodes is they cannot get wet! Always store them inside in a dry area. Wet anodes release hydrogen gas and present a severe fire hazard.

Note: Always wear gloves when handling anodes and avoid inhalation of the Anode Dust.

-5lb anodes typically used for valves and small ductile fittings in Calgary, 12lb anodes are used for fire hydrants, and 32lb magnesium anodes are used for ductile iron spools in riser entries, and steel encasement pipes.

## How an Anode Works Underground



### Denso Tape, Petro wrap, Polyken:

-Denso tape, Petro wrap, and primer are used to completely coat the outside of a metal product that is buried in the ground. Often used in combination with each other, it effectively keeps water and soil from touching any of the buried metal and increases the longevity of the product.



-Mastic is a cold applied filler which profiles areas to be tape wrapped by easing contours on pipe joints, flanges, bolts, and other irregular shapes to be wrapped with Petro wrap Anti-Corrosion Tape. Norwood stocks mastic in 1.8kg blocks.



### **Ultra-Rib / Korflo Gaskets:**

-All Ultra-Rib / Korflo fittings require gaskets on all ends. They are available in a variety of sizes from 8" to 42".



## Service Boxes

Service boxes are used to turn curb stops which supply water to individual homes from the main line of water on or off. Norwood Waterworks carries two sizes of service boxes depending on the size of the curb stop, and at several different lengths:

### Large boot Service Box:

-Picker / Description Example: **CCSB2 8-10' CGY SERV BOX W/8'**



Breakdown: CCSB2 means it is a large boot Service Box for 2" valves city of Calgary. 8-10' means the box length can range from 8-10 feet, SERV BOX means it is the access box to the curb stop W/SS Rod means that it comes with a stainless-steel rod.

-As the name suggests, these service boxes have a larger boot to accommodate 1½" - 2" curb stops.

-The close-up picture below illustrates that the boot is a CCSB2, the "2" means it is a large boot capable of operating a 2" curb stop.

-CCSB2's come with a thicker rod than all other service boxes. It is important to ship this type of rod instead of the thinner standard SS rod. The rod is thicker because it operates a larger curb stop.

-Large boot service box boots will be stamped CCSB2



### Small Boot Service Box:

-Picker / M3 Description Example: **CCSB1 9-11' CGY SERV BOX W/9'**



Breakdown: CCSB1 means it is a small boot Service Box for up to 1.5" valves. 9-11' means it has a length range of 9-11 feet when buried. CGY SERV BOX means it is a Calgary spec access box to the curb stop, and W/9' SS RD means that it comes with a 9' stainless steel rod.

-These service boxes have a galvanized metal shaft the same as the large boot service boxes. Like the CCSB2 boxes, the sliding tops, and bottom boot also have screws to set the appropriate bury length.

-Small boots have CCSB1 stamped on the boot – used for  $\frac{3}{4}$ "- 1" curb stops.



### **Cotter Pins:**

All Service boxes require a cotter pin for each service box supplied to connect to the curb stop.



## Service Box Nipples:

-Picker / Description Example: **1-1/4x12 STD GALV NIP**



Breakdown: 1-1/4x12 indicates a diameter of 1.25" and 12" long. STD GALV NIP means that it is made of standard galvanized steel, and the style is a threaded nipple.



## Curb Stop Blocks:

-Picker / Description Example: **1.5x7x8 PLST CURB STPBLOCK**



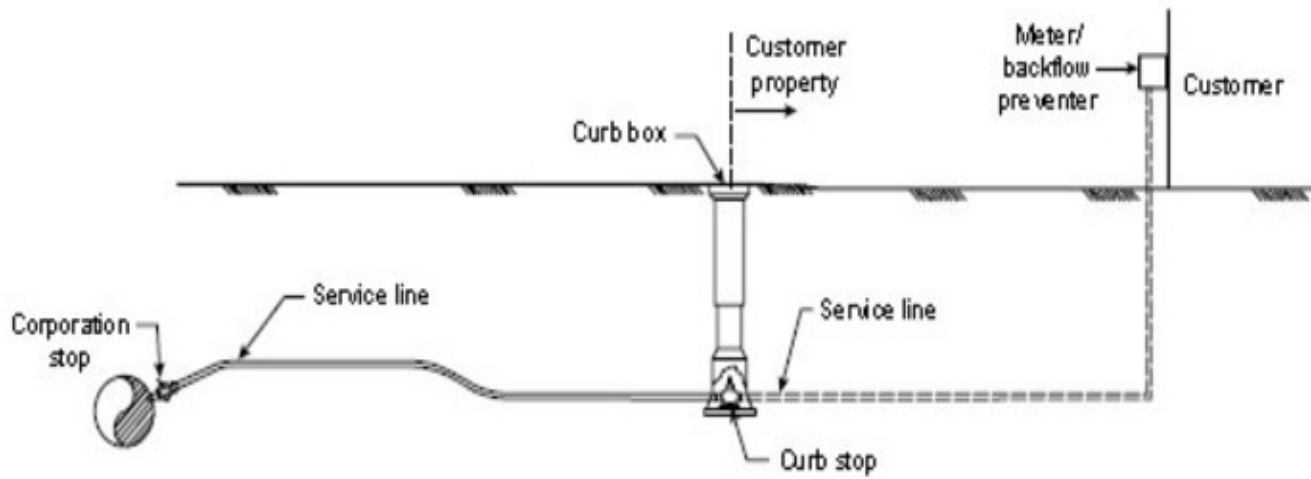
Breakdown: PLST identifies that the construction is plastic, CURB STOP BLOCK means that it is a block that the curb stop / ball valve can sit on to prevent settling over time.

-The curb stop block sits underneath the curb stop valve, and acts as a chair for the bottom boot of the service box to sit on, keeping everything in place.



A typical water service to a residence. Flow from the water main to the house.

### Service Connections



Typical Customer Service Connection



## Valve Boxes

Valve boxes are put overtop a gate valve to encase a valve box rod, which is used to turn the valve open or closed. There are three types of valve boxes, Type A, Type B, and Type C. Norwood Calgary only stocks Type C valve boxes to meet Calgary city specifications. Norwood Calgary can special order type A or B valve boxes, but they are not commonly sold. All valve boxes are the same approximate shape and design but feature different parts.

### Type C Valve Box:

-Type C valve boxes are used in the Calgary region. They are green or blue in colour from an epoxy coating. The top, casing, lid, guide plate and bottom boot, are all sold separately, and the contractor assembles to their specification. Type C valve boxes do not use the same rods as type A and B. These rods come with a top nut already bolted on.

The main parts of a Type C valve box are:

1. Valve box top section.
2. Valve box casing – stocked in a variety of sizes and can be cut to the exact length required.
3. Valve box bottom boot – large or small.
4. Valve box rod with top nut – country rods are square; city rods are round.
5. Lid (type C lid)
6. Plastic valve guide plate – small and large valve guide plates for small and large boots
7. Debris cover when required.

#### 1. Valve box top section:

-Valve box top sections have 2 set screws to connect to the casing at the desired location. They have a female hub connection at the top for the valve box to hold the valve box lid in place. Norwood Calgary Stocks 24" top sections, with epoxy coating to protect from corrosion.



## 2. Valve box casing:

-Valve box casings are the middle section of the Type C valve box. They are a straight metal pipe that is epoxy coated, and is stocked in sizes 7', 8', and 9' foot lengths.

-The Casing has the top section, and bottom boot connected and held in place by set screws. The top and bottom sections can slide up and down on the casing to achieve the desired length required for the valve box. The rod is enclosed in the casing to keep a clear access path to the valve.



## 3. Valve Box Boots:

-Valve box boots are epoxy coated and are sold in 2 sizes, large and small. Small boots (CVB1) are used for valves from 4" to 8" valves, and large boots (CVB2) are used for valves 10" and larger.

-All valve boots are labeled with either "CVB1" denoting small boot, or "CVB2" denoting large boot. It is important to supply the right valve box boot for specific sized valve.

**Large Valve Box boots (CVB2)**



**Small Valve Box Boots (CVB1)**

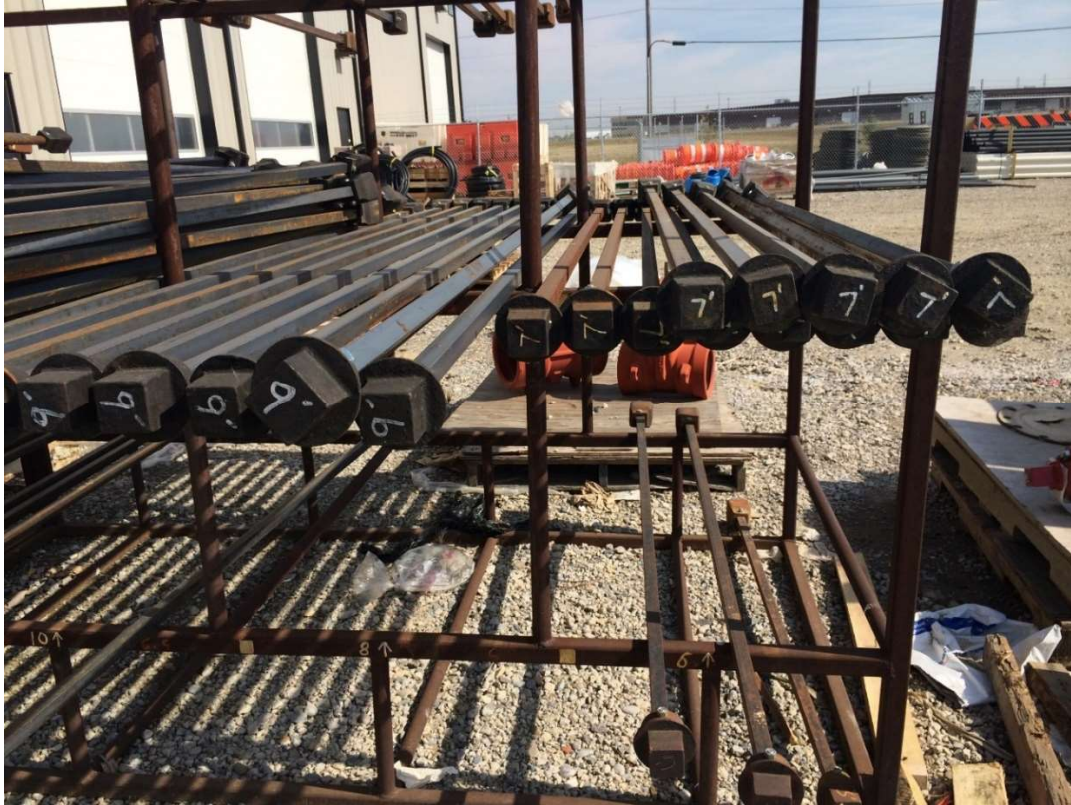




#### 4. Valve Box Rod:

- Valve Box rods are stocked in country and city specifications, and at a variety of different lengths. Country valve box rods are square rods as illustrated below, and have a larger operating nut mounted to the top of the rod (2"). City valve box rods are round and have a smaller operating nut (1-5/8") mounted to the top of the rod.

##### Country Valve Rods



Country Valve Box Rods

City Valve Box Rods





## 5. Valve box lids and plastic guide plates:

- Valve box lids are made of ductile iron giving access to the valve box rod.
- The plastic valve guide plates are placed over the operating nut on the valve to help guide the rod into place. Small plastic valve guide plates are used for small boots (CVB1), large plastic valve guide plates are used for large sized boots (CVB2).



## Coated Valve Box Extensions:

-*Picker / Description Example:* CVB 12 VLV BOX CTR EXTEN CTD



Breakdown: CVB means type C valve box, 12 is the size of extension 12". VLV BOX CTR EXTEN CTD means it is a valve box center extension that is coated with epoxy.

-Norwood stocks a variety of valve box extension sizes from 6" to 48". The size is marked on the outside of the valve box extension.

-Valve box extensions attach to the top of the casing, and to the bottom of the valve box top section.





## Manhole & Concrete Pipe Patching:

-20KG bags of concrete are stocked for the needs of our customers during installation.

-Contractors will use concrete for a variety of applications when installing underground product, typically for patching around manholes, and patching around holes cored into basements when running new water and sewer services.



## Insulation:

-Picker / M3 Description Example: 2x2x8 HI40 STYROFOAM INS



Breakdown: 2x2x8 is the size of the insulation (2" by 2' by 8') HI40 is the style High Load 40, and STYROFOAM INS means it is Styrofoam insulation.

-HI40 is used for shallow burry water and sewer lines to prevents the pipe from freezing.



## Frames & Covers

Manhole Frames & Covers come in many different designs which are used for different municipality specifications.

-Picker / Description Example: **F39 MH CVR DIP**



Breakdown: F39 stands for the style of cover, and DIP stands for the cover being dipped with a coating. When looking for grates, simply substitute “CVR” with “GRT”. Frames are represented by “FRM.”

### F39

-The F39 comes with a 22” diameter, both dipped and undipped, with a grate top or cover.

**F39 Frame Dipped**



**F39 Frame and cover dipped**



**F39 Grates undipped**





## F50 Frames, Grates, and Covers

-Picker / Description Example: **F50 CVR STORM UNZIP**



Breakdown: F50 stands for the style of cover. CVR is Cover it is for Storm and it is undipped.

-F50 frames, grates, and covers come in 24" diameter.

-Frames can be sold in different heights:

- Low Profile = 3.5", Standard (shallow) = 6", or Deep = 10". This allows for appropriate height specification to meet finalized grade of the road, or for specialty applications (check valve manholes).

-F50's are used primarily in the City of Calgary

### F50 Calgary Wastewater



### F50 Calgary Storm



### F50 Calgary Water



-All F50 City of Calgary covers are stamped with an image designed specifically for the City of Calgary, other cities will have their own image stamped on the cover.

## K1 Frame and Grates:

-Picker / Description Example: **K1F TYPE K-1 FRAME**



Breakdown: K1F stands for the style of frame. TYPE K-1 FRAME means it is a rectangular frame, meaning the frame that holds the grate. These frames are 18" x 24".

-K1 frame and grates are rectangular and used for storm runoff water.

K1 Catch Basin (frame & grate)



## K-1 Side Inlet frame and insert:

-Picker / Description Example: **K-1 CB SIDE INLET FRM UNDIP**



Breakdown: K-1 is the style of frame. CB SIDE INLET FRM UNDIP means it is used as a catch basin for storm water runoff. Side Inlet means the water enters through the side of the frame, and UNDIP means that it has not been coated.

-Side inlet frame and inserts are sold as two-piece assemblies. The two-piece side inlet has a removable insert, which is handy because if the insert becomes damaged, it can be replaced separately from the frame. This avoids the entire side inlet frame having to be removed from the curb to replace the insert. On a two-piece side inlet, the contractor can quickly remove the damaged frame, and replace it with a new frame. Most commonly the insert becomes damaged from snowplows, and the frame remains intact.



### K-1 Side Inlet (frame & insert)



### K-2 frame and grate:

-Picker / Description Example: **SGL or DBL K2F or K2g**



Breakdown: K-2 is the style of the catch basin. SGL CB means that it is a single grate catch basin.

-K-2 catch basins are rectangular and slope down. The S and D in the name's standard for Single and Double and can be differentiated by either having space for one frame (K5) or two frames(K-2)

-K-5's are not approved for the City of Calgary.

-K-2's have a 30mm higher rise than a K-7 setup.

**K-2 Frame (double grate)**



**K-5 Frame and Grate (single grate)**





## Manhole adapters:

-Picker / Description Example: CMA10 10 CONC MH ADPT GSKT



Breakdown: CMA10 means it is a concrete manhole adapter for 10" pipe. 10 CONC MH ADPT GSKT means that it is a 10" concrete manhole adapter and that it is in the form of a rubber gasket.

-Norwood stocks Manhole adaptors, PSX direct drive gaskets, and KWIK seals

-Manhole adapters are sold in a variety of sizes and are used when inserting a storm sewer pipe into a catch basin. The catch basin is made of concrete, and has a hole cored into the side for the storm pipe to enter the catch basin. The manhole adapter is a rubber seal that holds the storm pipe in the appropriate place and prevents the sharp edges of the concrete from damaging the pipe.

### Manhole Adaptor (PCX) Gaskets



### KWIK Seal



### PSX Direct Drive





## Link Seal:

-Picker / Description Example: LS300C LINK SEAL



Breakdown: LS300C represents the size of the link seal.

Link seal has a similar application as manhole adapters. The difference is that the link seal provides a watertight seal around the pipe.



SDR-35 Gravity Sewer Pipe					
PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	HOLE I.D.	LINK-SEAL* SIZE	LINKS PER SEAL	
4	4.22	6.000	LS-315-***	10	
6	6.28	8.000	LS-315-***	15	
8	8.40	12.000	LS-475-***	12	
10	10.50	14.000	LS-475-***	14	
12	12.50	16.000	LS-475-***	17	
15	15.30	18.000	LS-360-***	24	
18	18.70	22.000	LS-475-***	24	
21	22.05	26.000	LS-575-***	24	
24	24.80	28.000	LS-475-***	31	
27	27.95	32.000	LS-575-***	30	
30	32.00	36.000	LS-575-***	34	

Steel and Plastic Pipe HDPE with Same Outside Diameter (IPS)					
PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	HOLE I.D.	LINK-SEAL* SIZE	LINKS PER SEAL	
1/2	0.840	2.000	LS-200-***	4	
3/4	1.050	3.000	LS-315-***	4	
1	1.315	3.000	LS-300-***	4	
1-1/4	1.660	3.000	LS-275-***	8	
1-1/2	1.900	4.000	LS-315-***	6	
2	2.375	4.000	LS-300-***	6	
2-1/2	2.875	4.000	LS-200-***	9	
3	3.500	5.000	LS-300-***	8	
3-1/2	4.000	6.000	LS-315-***	10	
4	4.500	6.000	LS-300-***	10	
5	5.563	8.000	LS-340-***	13	
6	6.625	10.000	LS-475-***	10	
8	8.625	12.000	LS-475-***	12	
10	10.750	14.000	LS-475-***	14	
12	12.750	16.000	LS-475-***	17	
14	14.000	18.000	LS-575-***	16	
16	16.000	20.000	LS-575-***	18	
18	18.000	22.000	LS-575-***	20	
20	20.000	24.000	LS-475-***	26	
22	22.000	26.000	LS-575-***	24	
24	24.000	28.000	LS-475-***	31	
26	26.000	30.000	LS-575-***	28	
28	28.000	32.000	LS-575-***	30	
30	30.000	34.000	LS-575-***	32	
32	32.000	36.000	LS-575-***	34	
34	34.000	38.000	LS-575-***	36	
36	36.000	40.000	LS-575-***	38	
42	42.000	46.000	LS-575-***	44	
48	48.000	52.000	LS-575-***	50	

Ductile Iron Pipe (DIPS, AWWA-C900, AWWA-C905, PVC Water Pipe)					
PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	HOLE I.D.	LINK-SEAL* SIZE	LINKS PER SEAL	
2	2.500	4.000	LS-300-***	6	
2-1/4	2.750	4.000	LS-200-***	9	
3	3.960	6.000	LS-315-***	10	
4	4.800	8.000	LS-410-***	7	
6	6.900	10.000	LS-410-***	10	
8	9.050	12.000	LS-400-***	9	
10	11.100	14.000	LS-400-***	10	
12	13.200	16.000	LS-360-***	21	
14	15.300	18.000	LS-360-***	24	
16	17.400	20.000	LS-360-***	27	
18	19.500	24.000	LS-525-***	17	
20	21.600	26.000	LS-525-***	19	
24	25.800	28.000	LS-425-***	23	
30	32.000	36.000	LS-575-***	34	
36	38.300	42.000	LS-575-***	40	
42	44.500	50.000	LS-500-***	38	
48	50.800	56.000	LS-500-***	43	

Copper Tubing					
PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	HOLE I.D.	LINK-SEAL* SIZE	LINKS PER SEAL	
1/2	0.625	2.000	LS-275-***	4	
3/4	0.875	2.000	LS-200-***	4	
1	1.125	3.000	LS-315-***	4	
1-1/4	1.375	3.000	LS-300-***	4	
1-1/2	1.625	3.000	LS-275-***	8	
2	2.125	4.000	LS-315-***	6	
2-1/2	2.625	4.000	LS-275-***	11	
3	3.125	5.000	LS-315-***	8	
4	4.125	6.000	LS-315-***	10	
6	6.125	8.000	LS-315-***	15	
8	8.125	12.000	LS-575-***	10	
10	10.125	14.000	LS-575-***	12	
12	12.125	16.000	LS-575-***	14	

NOTES:  
\*\*\* = Specify LS Model C, S-316, L...etc when ordering  
(Example LS-475-C-17).  
Technically there is no limit to the pipe size that can be sealed using Link-Seal® modular seals. Please contact factory for sizes not listed and for CS model plastic sleeves for walls less than 8" thick.

## ICD's:

-Picker / Description Example: **R50 CURVED ICD L/BRKTS**



Breakdown: R50 represents the size of the hole in the ICD. Curved ICD means it is a curved style ICD, and L/BRKTS means that it does not come with brackets to hold it in place in the catch basin.

-ICD stands for Inlet Control Device. ICD's are mounted to the inside of the catch basin and are held to the concrete using ICD brackets. ICD's come curved, or flat "R30" denotes the size of the hole in the ICD. Depending on engineer specification, the hole size will vary. ICDs restrict the amount of flow into the catch basin and is not required for every catch basin installation.



## Risers / Spools:

-Picker / Description Example: **8" RISER KIT**



-Risers are made from ductile iron components and other materials to form a kit. A riser is used to bring the water from the underground waterline into the Mechanical Room of a building. When the waterline is run underground, a riser brings it up through the foundation of the building, or horizontally through a wall. Spools can be cut in the riser to the appropriate size to meet their specifications.

-Norwood Calgary stocks a variety of sizes from 4" to 10" diameters in either 12' or 15' lengths.

-Always supplied with piping, threaded rod, nuts, washers, bolts, bolt packs, and an OS&Y valve.





## Ductile Iron Fittings:

Ductile iron fittings are sold in a variety of different sizes and styles.

-Ductile fittings are used in the same application as PVC C900 fittings. Ductile iron fittings are commonly used for waterlines and coated with epoxy to prevent corrosion when paired with an anode. Ductile iron fittings require restrainers or concrete thrust blocks to hold them in place. **All ductile iron fittings require gaskets**, the same gaskets that are used for valves (Tyton gaskets).

-Below you will find an assortment of different styles of ductile iron fittings, and how to appropriately identify the fitting.

## Example of a DI fitting Description

-Picker / Description Example: 8 DI FLG-TYT ADPT CTD



Breakdown: 8 indicates the size (8") DI means it is constructed from ductile iron. FLG TYT ADPT CTD means it is a flange by Tyton adapter, and CTD means that it is coated. Otherwise known as a hub by flange adapter.

**Hub by Flange adapter** – attached to the spigot of a pipe to allow for a flanged end to bolt on a valve, or other fitting.



**Reducers:** The "DPR106" indicates that the reducer is used for 10" C900 to 6" C900. This is a two-lug fitting, meaning it can be held on using a restrainer with threaded rod by the two lug ears on the outside.





Ductile Iron Cross: used to create a 4-pipe connection. The DI fitting below connects two -12" pipes to two - 6" pipes.



**DI Tees:** Are like DI cross, however it connects 1 pipe to the water main line.





**DI Bends:** DI bends are sold in a variety of different degree variations. The DI bend below “DPB1011” means it is a 10” connection, and an 11-degree bend.



**DI Bend:** “DPB1245” is used for 12” c900 pipe and is a 45-degree bend.



**DI Bend:** The DI bend below “DPB1090” is used for 10” c900 and is a 90-degree bend.



**Ductile Iron Plugs:** DI plugs are inserted into the C900 pipe at a dead end on the water main and are restrained by a restrainer or a concrete thrust block. Plugs can only be inserted in the bell end of the pipe.





**DI Caps: Ductile** iron caps use a gasket and slide over the spigot end of the pipe. Caps are more commonly sold than plugs because the pipe can be cut to any length and have a cap slid over the pipe at any part except for the bell end. This allows for much more versatile fitting compared with using a plug.



### **Brass Corporation Fittings:**

-The brass fittings we carry range from 1/2 inch to 2 inches. They are normally used for services and are usually couplings, service saddles, curb stops, or main stops. There are several different connections for the brass fittings, such as compression, MIP (male iron pipe), FIP (female iron pipe), and AWWA.

-Norwood Waterworks supplies both Cambridge Brass and Ford brass fittings. Usage is dependent on customer preference and engineer approval.

-As per city of Calgary spec, all brass fittings are now built without the use of lead (NL).

-A variety of brass fittings can be specially ordered, and some are stocked with unique sizing, connections, and applications.

-Picker / Description Example: **1 B44-444Q-NL BV QJ**



Breakdown: 1 B44-44Q means it is a 1" and B44-444Q is the model. See the following Cambridge Brass pages for more information on Cambridge style descriptions. NL means it contains no lead. BV means it is a ball valve and QJ stands for quick joint connection.

**Curb Stop Quick Joint (QJ) (ball valves) or CB compression.**



**Main Stop (QJ by MIP) (CB x MIP)**





## QJ Coupling/ CB compression.



## CB compression QJ 90° Elbow



Connection Type	Picture
<p>Compression (commonly called Quick Joint)</p>	
<p>Kitec (Commonly used in Edmonton, Not used in the City of Calgary)</p>	
<p>MIP (Male Iron Pipe)</p>	

AWWA



## Part description breakdown for brass fittings:

### B44-444-NL: Ford Metering Company

- **B** = Curb stop
- **44** = Quick Joint X Quick Joint
- **444** = 1" X 1"
- **NL** = No Lead

### 202 NL – H4H4: Cambridge Brass

- **202** = Curb stop
- **NL** = No lead
- **H** = Quick joint
- **4** = 1"

### Stainless Steel Inserts:

*Picker / M3 Description Example: 3/4 504281 SS LINER F/PE*



Breakdown: 3/4 is the size of diameter of tubing the insert is for. 504281 is the style. SS means it is made of stainless steel.

-Stainless steel inserts are used in the ends of copper tubing / pex tubing that are joining into fittings or services. This prevents the tubing from crushing or misshaping in the connection when using a compression fitting (Quick Joint).

-Inserts come in 3/4", 1", 1 1/4", 1 1/2", and 2" sizes to compliment the sizes of tubing

-All quick joint connections connecting to Pex service tubing require stainless steel inserts.





### **Electrical Nut/Thaw Nut:**

-The picture below illustrates an electrical/thaw nut to be used on the same brand of brass fittings (Ford with Ford, Cambridge with Cambridge). The set screw with the hole allows for an anode wire to be inserted into the hole and held tightly in place by the screw. This creates a continuity connection between the fitting and the anode used to prevent corrosion when buried underground.



### **Assorted Brass Fittings:**

-Below you will see a brass coupling, brass nipple, brass plug, and a brass bushing. These fittings are used to connect multiple fittings, or to downsize a fitting or pipe. Often when a unique fitting is required, you will combine the below fittings with several other brass fittings to meet any installation need.



THIS TEMPLATE PROVIDES INFORMATION ON HOW THE CAMBRIDGE BRASS PRODUCT NUMBERS ARE CREATED. PLEASE CONTACT YOUR REPRESENTATIVE OR CALL US AT 800-265-6638 (CANADA) OR 800-724-3906 (USA) FOR MORE INFORMATION.



## SERVICE LINE FITTINGS

EXAMPLE: 119-H4H4 = 1" CB x CB FULL BORE COUPLING

Series Number		Inlet Connection	Inlet Size	Outlet Connection	Outlet Size
105	ELL Coupling	H CB Compression	1 1/2"	H CB Compression	1 1/2"
111	Insulated Couplings	B Camlock	2 1/2"	B Camlock	2 1/2"
117	Adaptor	J Haystack	3 1/2"	J Haystack	3 1/2"
118	Coupling	C Copper Flare	4 1"	C Copper Flare	4 1"
118	Full Bore Coupling	K K&L Compression	5 1 1/4"	K K&L Compression	5 1 1/4"
120	2 Part Coupling	F Female Iron Pipe	6 1 1/2"	F Female Iron Pipe	6 1 1/2"
130	Service Tee Compression	M Male Iron Pipe	7 2"	M Male Iron Pipe	7 2"
151	Service Tee Compression x FIP	G CI Compression		G CI Compression	
152	Wye Branch	Z HUP Compression		D Female Compression Thread	
171	U-Branch Vertical Inlet x Horizontal Outlet	PV PVC Compression		P Female Copper Flare Thread	
172	U Branch Fitting			Z HUP Compression	
				PV PVC Compression	



## CHECK VALVES – Dual and Single Style

EXAMPLE: 502-T3F3 = METER SWIVEL NUT X FIP ANGLE DUAL CHECK VALVE

Series Number		Inlet Connection	Inlet Size	Outlet Connection	Outlet Size
500	Angle Dual Check Valve with Test Port	T Meter Swivel Nut	3 3/4"	F Female Iron Pipe	3 3/4"
502	Angle Dual Check Valve with Test Port (Horizontal inlet x outlet)				
510	In-Line Dual Check (accessible) with Test Port				
520	In-Line Dual Check (non-accessible)				
590	Angle Single Check Valve with Test Port				



## SERVICE SADDLES

EXAMPLE: 810-0750-A7 = DOUBLE STRAP SADDLE FOR 7.50 O.D. PIPE WITH AWWA 2" TAP

Series Number		O. D. Size or top saddle Range	Tap Style	Tap Size
800	Hinge Saddle for C900 Pipe and IPS		A AWWA	3 3/4"
810	Double Strap Brass Saddle		F Female Iron Pipe	4 1"
811	Brass Saddle with Single Stainless Steel Strap Saddle			5 1 1/4"
812	Brass Saddle with Double Stainless Steel Strap Saddle			6 1 1/2"
8402	All Stainless Steel Single bolt			7 2"
8403	All Stainless Steel Double bolt			

**NOTE: NO LEAD IS NOT AVAILABLE FOR ALL SERIES NUMBERS. PLEASE CONTACT CAMBRIDGE BRASS FOR MORE INFORMATION.**



## METER ACCESSORIES

**EXAMPLE: 417-T6M6 = 2" METER SWIVEL NUT x MIP STRAIGHT METER COUPLING**

Series Number		Inlet Connection	Inlet Size	Outlet Connection	Outlet Size
405	Angle Meter Coupling	F	Female Iron Pipe	M	Male Iron Pipe
406	22 1/2° Degree Meter Coupling	T	Meter Swivel Nut	S	Solder
412	Internal Hex Body Design	N	Male Meter Thread	H	CB Compression
416	Straight Meter Coupling	MF	Meter Flange	B	Campak
417	Straight Meter Coupling			J	Haystite
421	Brass Meter Flange			R	Female Meter Thread
422	Ductile Iron Meter Flanges			F	Female Iron Pipe
423	Solder Meter Flanges			Z	PEP Compression
440	Meter Increasing Bushing			PV	PVC Compression
				K	Kitec



## CURB STOPS/METER VALVES – Ball Style

**EXAMPLE: 202-H4H4 = 1" CB x CB BALL CURB STOP**

Series Number		Inlet Connection	Inlet Size	Outlet Connection	Outlet Size
202	Curb Stop	H	CB Compression	H	CB Compression
203	Curb Stop with Drain	B	Campak	B	Campak
204	Reduced Port Curb Stop	J	Haystite	J	Haystite
210	Full Port Angle Meter Valves	C	Copper Flare	C	Copper Flare
212	Full Port Straight Meter Valves	K	Kitec Compression	K	Kitec Compression
214	Reduced Port Angle Meter Valve	F	Female Iron Pipe	F	Female Iron Pipe
224	Reduced Port Straight Meter Valve	Z	PEP Compression	T	Meter Swivel Nut
234	Double Angle Curb Stop	PV	PVC Compression	HE	CB Compression Electrical Tail Nut
252	Open Right			CE	Copper Flare Electrical Tail Nut
253	Open Right with Drain			MF	Meter Flange
262	Minneapolis Pattern			Z	PEP Compression
263	Minneapolis Pattern with Drain			PV	PVC Compression
272	Double Curb Stop				
273	Double Curb Stop with Drain				
274	Reduced Port Double Curb Stop				

**360° rotation — add R to end of part number**

**Handle — add H to end of part number**



## Service Saddles

-Picker / Description Example: **8x3/4CC 2706 DS SDL 980**



Breakdown: 8 refers to the size of pipe the saddle will go around. 3/4 refers to the size of main stop it will accept. CC refers to the type of threading for the main stop. 2706 DS SDL 980 refers to the manufacturer series of the saddle, and the DS means it has two straps to secure to the pipe.

-Saddles are used to strap around a piece of pipe to hold a main stop valve connecting to the pipe in place and provide a strong hold. They come in a variety of sizes to wrap around pipe, and to accommodate main stops from 3/4" to 2".

-There are two types of threading for the main stop CC and IP. Both will look very similar; this should be labeled by the manufacturer. CC threads are tapered, IP threads are straight.

The image below shows a single strap saddle lined with rubber, and a dual strap stainless steel saddle. Both are CC thread, one is 3/4" and the other has a 1" outlet for the main stop.



# Hydrants

- M67** (also known as a brigadier hydrant) are manufactured by Clow Canada.
- All hydrants come with a 1' extension – meaning if you require a 9' hydrant you really need an 8'+1'.
- Norwood Calgary only stocks the Clow M67 McAvity hydrants.
- 3 main types of hose connections on hydrants, Standard/City of Calgary (WD Seagrave), 4" Storz, and 5" Storz, and 4" WCUS (country spec).
- Hydrants come in a variety of burial depths from 6' - 12' but are not limited to these sizes.
- There are also OL (open left) and OR (open right) hydrants. This is in reference to the direction the top nut turns to open the hydrant. The majority of Alberta use OL.
- Hydrants can also come with Tyton or flanged bottom connectors.
- All specs and styles of hydrants differ by municipality, so it is important to check the style with spec books or the appropriate public works office.**

-*Picker / M3 Description Example: M67 8'6 OL HYD 2H 1P*



Breakdown: M67 is the type of hydrant. 8'6 is the depth of bury. OL stands for open left which tells us which way to turn the top nut to open the hydrant up. 2H 1P means it has two hoses and one pumper.

- For hydrant depth measure from the breakaway flange to the center of the hydrant boot (90°)**





## Hydrant Extensions:

-Picker / Description Example: **12 M67 HYD EXT COMPL**



Breakdown: 12 is the length of the hydrant extension in inches. M67 is a type of hydrant. HYD ext. complete refers to this being an extension including a gasket and hardware.

-Hydrant extensions are used to bring a new hydrant up to the required grade, or to adapt to changes in grade for existing hydrants. They are bolted together with flanges to the existing hydrant (flanges and bolts are included). They are sold in 6" to 48" extension sizes. All Hydrant extensions come complete with a gasket and extra bolts for the installation.



**Concrete Hydrant Pads:** *Picker / Description Example:* **CONC HYD SLAB**

Concrete Hydrant pads are sold when a Hydrant is being installed. The base of the hydrant sits on the concrete pad in the trench. It acts as a support for the hydrant, and stops the hydrant from settling lower, and putting strain on the water pipe.

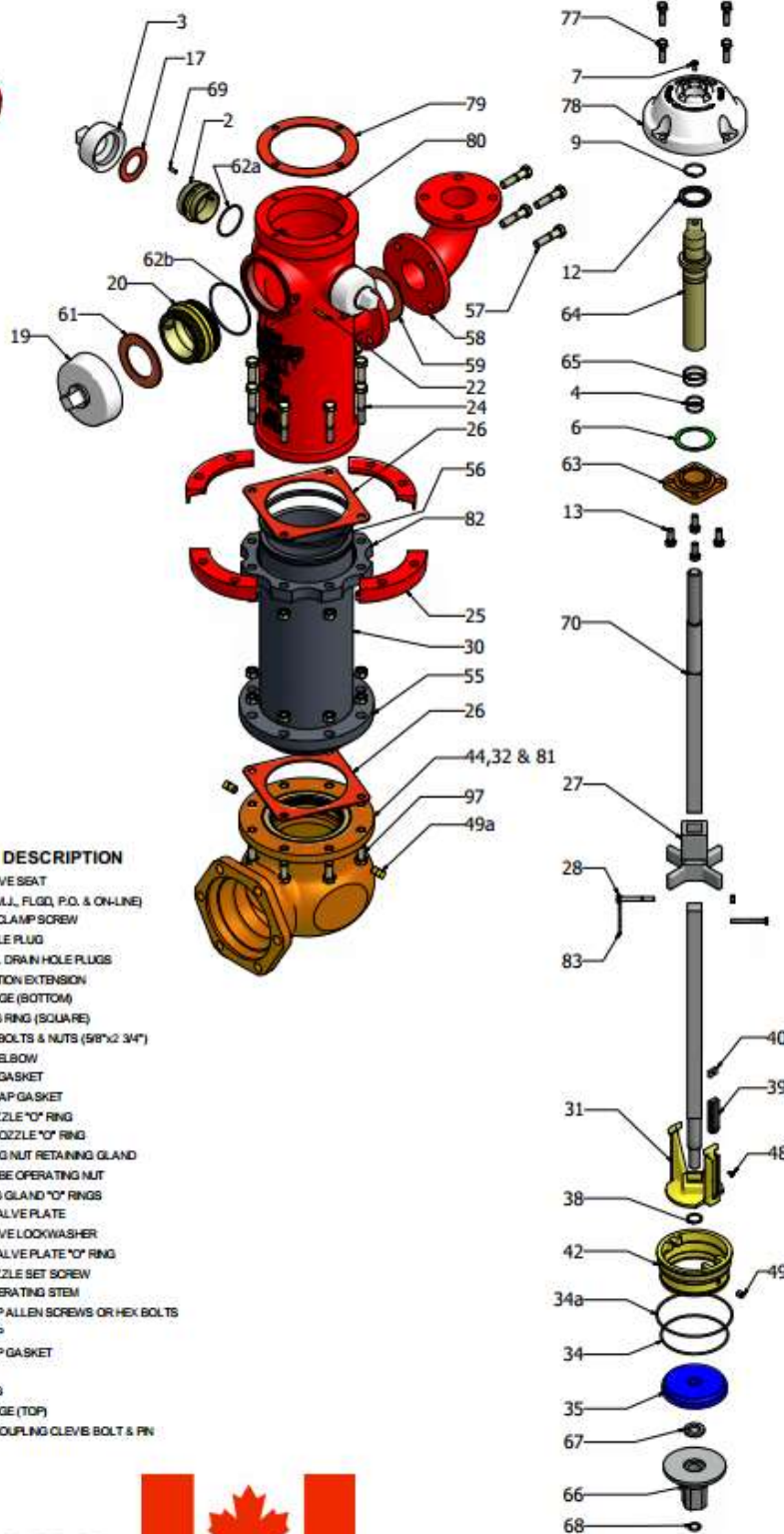
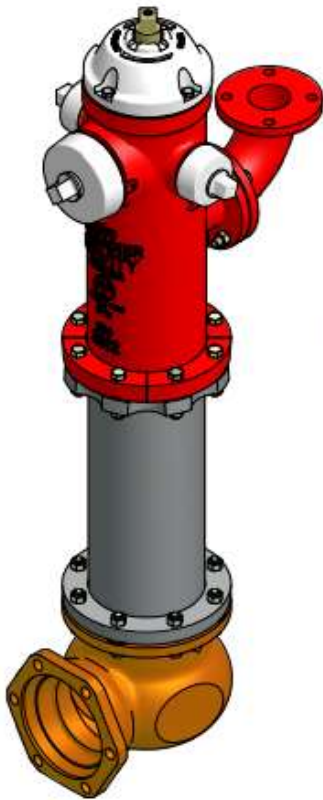


## Hydrant Parts:

-A full hydrant is made from many parts. Norwood Waterworks stocks many of these parts to use in repairs and maintenance. For details on these parts, refer to the following Clow pages. All parts can be found in section I of the warehouse. The numbers that identify the hydrant parts in the parts key can be used in the M3 look up for the part.







## DESCRIPTION

- 2 HOSE NOZZLE
- 3 HOSE NOZZLE CAP
- 4 HOUSING STEM "O" RINGS
- 5 HOSE CAP CHAIN & "S" HOOK
- 6 HOUSING JOINT GASKET
- 7 OIL HOLE SCREW
- 9 OPERATING NUT "O" RING
- 12 OPERATING NUT BEARING
- 13 CAP SCREW 1/2" x 1 1/4" (RET. GLD. BOLTS)
- 17 HOSE CAP GASKET
- 19 PUMPER CAP
- 20 PUMPER NOZZLE
- 21 PUMPER CAP CHAIN & S HOOK
- 22 PUMPER NOZZLE PIN
- 24 INTERSECTION BOLTS & NUTS
- 25 SAFETY FLANGE SEGMENTS
- 26 INTERSECTION GASKET
- 27 SAFETY COUPLING
- 28 SAFETY COUPLING BOLT & NUT (3/8"x3")
- 29 LOWER OPERATING STEM
- 30 INTERMEDIATE SECTION
- 31 DRIP VALVE
- 32" DRAIN HOLE LINING
- 34a MAIN VALVE SEAT "O" RING (UPPER)
- 34 MAIN VALVE SEAT "O" RING (LOWER)
- 35 MAIN VALVE DISC
- 38 MAIN VALVE "O" RING
- 39 DRIP VALVE RUBBER
- 40 HOLDING CLAMP

## DESCRIPTION

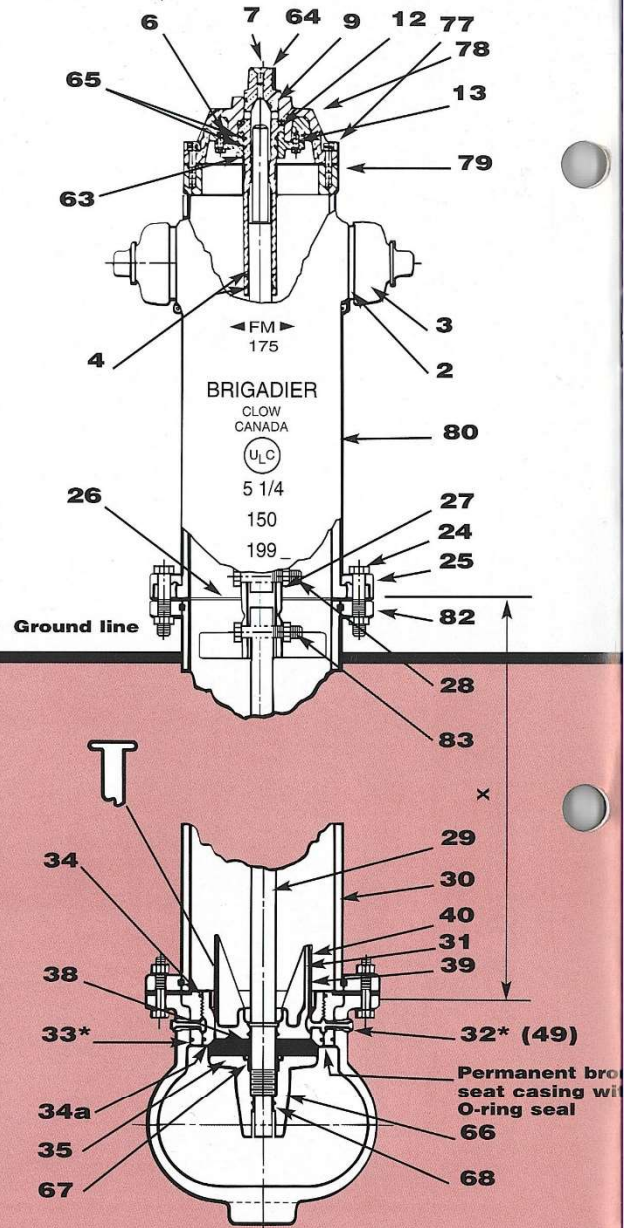
- 42 MAIN VALVE SEAT
- 44" ELBOW ( M.J., FLGD, P.O. & ON-LINE)
- 48 HOLDING CLAMP SCREW
- 49 DRAIN HOLE PLUG
- 49a EXTERNAL DRAIN HOLE PLUGS
- 50 INTERSECTION EXTENSION
- 55 PIPE FLANGE (BOTTOM)
- 56 RETAINING RING (SQUARE)
- 57 MONITOR BOLTS & NUTS (5/8"x2 3/4")
- 58 MONITOR ELBOW
- 59 MONITOR GASKET
- 61 PUMPER CAP GASKET
- 62a HOSE NOZZLE "O" RING
- 62b PUMPER NOZZLE "O" RING
- 63 OPERATING NUT RETAINING GLAND
- 64 HY DRALLUBE OPERATING NUT
- 65 RETAINING GLAND "O" RINGS
- 66 LOWER VALVE PLATE
- 67 MAIN VALVE LOCKWASHER
- 68 LOWER VALVE PLATE "O" RING
- 69 HOSE NOZZLE SET SCREW
- 70 UPPER OPERATING STEM
- 77 BODY CAP ALLEN SCREWS OR HEX BOLTS
- 78 BODY CAP
- 79 BODY CAP GASKET
- 80 BODY
- 81" SEAT RING
- 82 PIPE FLANGE (TOP)
- 83 SAFETY COUPLING CLEVIS BOLT & PIN

**MADE IN CANADA**



[www.clowcanada.com](http://www.clowcanada.com)

NO.	DESCRIPTION	MATERIAL
2	HOSE NOZZLE	COPPER ALLOY
3	HOSE NOZZLE CAP	CAST IRON
4	HOUSING STEM "O" RING	BUNA N
5	HOSE CAP CHAIN & "S" HOOK	STEEL ZINC PLATED
6	HOUSING JOINT GASKET	COMPRESSED NON ASBESTOS
7	OIL HOLE SCREW	BRASS
9	OPERATING NUT "O" RING	BUNA N
12	OPERATING NUT BEARING	DELTRIN
13	CAP SCREW (RETAINING GLAND)	STEEL Z.P.
17	HOSE CAP GASKET	RED RUBBER
18	PUMPER CAP "O" RING STORZ 100	BUNA N
19	PUMPER NOZZLE CAP	CAST IRON
20	PUMPER NOZZLE	COPPER ALLOY
21	PUMPER CAP CHAIN & "S" HOOK	STEEL Z.P.
24	INTERSECTION BOLTS & NUTS	STEEL Z.P.
25	SAFETY FLANGE (SEGMENTS)	CAST IRON
26	INTERSECTION GASKET	RED RUBBER
27	SAFETY COUPLING	CAST IRON
28	SAFETY COUPLING BOLT & NUT	STEEL Z.P.
29	OPERATING STEM LOWER	STEEL
30	INTERMEDIATE SECTION	DUCTILE
31	DRIP VALVE	COPPER ALLOY
*32	DRAIN HOLE LINING	BRASS
34	SEAT "O" RING TOP	BUNA N
34 A	SEAT "O" RING BOTTOM	BUNA N
35	MAIN VALVE DISC	RUBBER
38	MAIN VALVE "O" RING	BUNA N
39	DRIP VALVE FACING	RUBBER
40	HOLDING CLAMP	PLASTIC
42	MAIN VALVE SEAT	COPPER ALLOY
*44	ELBOW (STATE INLET REQUIRED)	CAST IRON
**45†	GUIDE PLATE ASSEMBLY	STEEL
**46†	INTERIOR WRENCH	STEEL
47†	HOLDING NUT	COPPER ALLOY
48	HOLDING CLAMP SCREW	BRASS
49	DRAIN HOLE PLUG	BRASS
50	INTERSECTION EXTENSION	DUCTILE IRON
51	INTER-EXTENSION STEM	STEEL
52	ALIGNMENT COUPLING	CAST IRON
53	EXTENSION STEM BOLT & NUT	STEEL Z.P.
55	PIPE FLANGE (BOTTOM)	CAST IRON
56	RETAINING RING (SQUARE)	STEEL Z.P.
57	MONITOR BOLT & NUT	STEEL Z.P.
58	MONITOR ELBOW	CAST IRON
59	MONITOR GASKET	RED RUBBER
61	PUMPER CAP GASKET	RED RUBBER
62 A	HOSE NOZZLE "O" RING	BUNA N
62 B	PUMPER NOZZLE "O" RING	BUNA N
63	OPERATING NUT RETAINING GLAND	CAST IRON
64	OPERATING NUT	COPPER ALLOY
65	OPERATING NUT "O" RING	BUNA N
66	LOWER VALVE PLATE	CAST IRON
67	LOCKWASHER	STAINLESS STEEL
68	LOWER VALVE PLATE "O" RING	BUNA N
69	H. NOZ. SET SCREW, PUMP. NOZ. PIN	ST. STL., BRASS
70	OPERATING STEM UPPER	STAINLESS STEEL
71	STORZ 100 PUMPER NOZZLE	STAINLESS STEEL
72	STORZ 65 HOSE NOZZLE	COPPER ALLOY
73	STORZ 65 HOSE CAP "O" RING	BUNA N
74	STORZ 65 HOSE CAP	CAST IRON
75	STORZ 100 PUMPER NOZZLE	COPPER ALLOY
76	STORZ 100 PUMPER CAP	CAST IRON

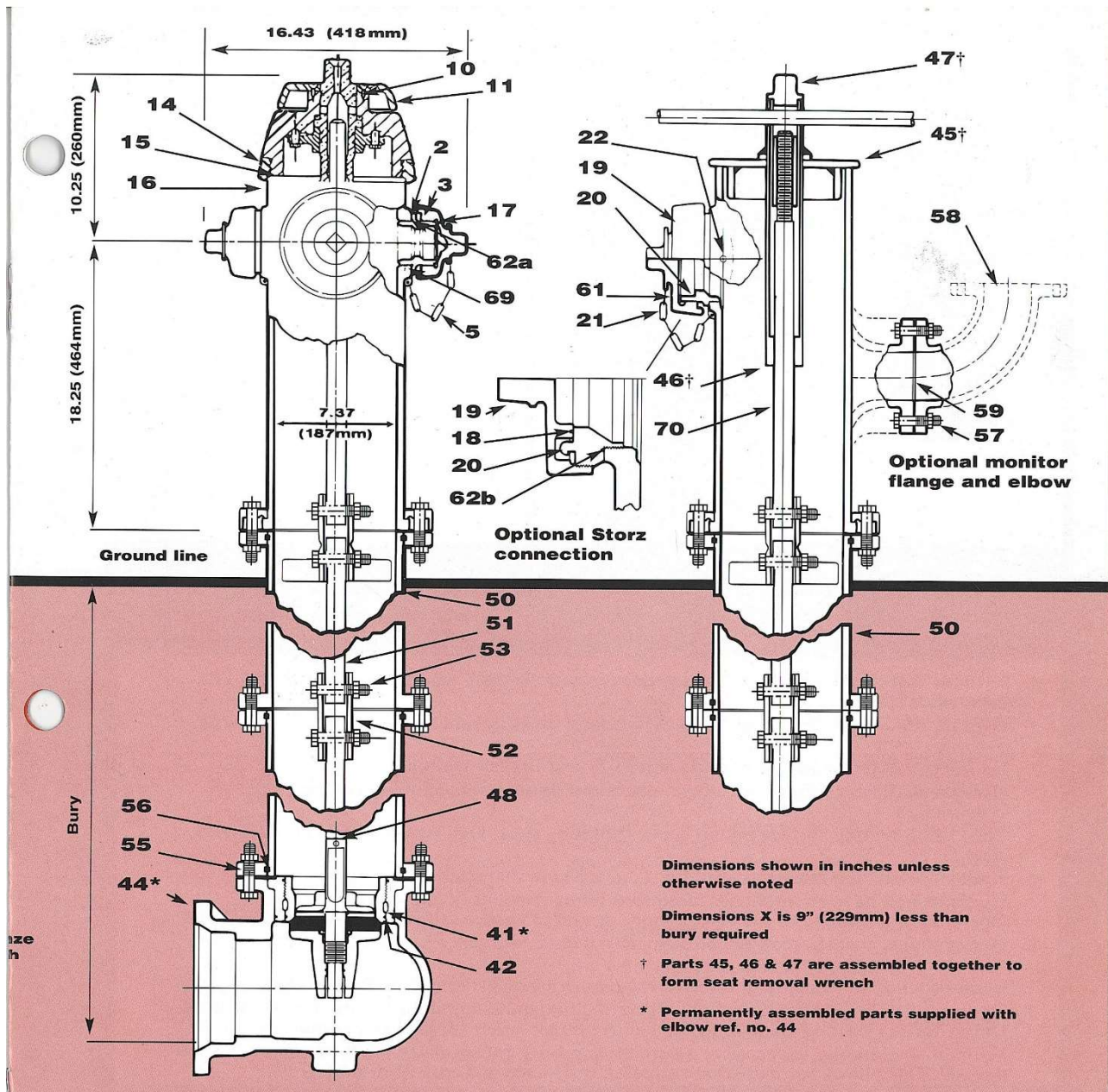


NO.	DESCRIPTION	MATERIAL
77	BODY CAP BOLTS	STAINLESS STEEL
78	BODY CAP	CAST IRON
79	BODY CAP GASKET	RED RUBBER
80	BODY	CAST IRON
*81	SEAT RING	COPPER ALLOY
82	PIPE FLANGE (TOP)	CAST IRON
83	SAFETY COUPLING CLEVIS BOLT & PIN	STEEL Z.P.

## PARTS LIST

• BOLT DOWN: 77/78/79/80  
† SCREW DOWN: 10/14/15/16

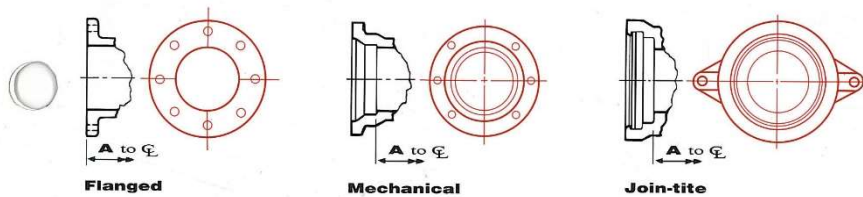




## BRIGADIER M

## DESIGN DETAILS

### Hydrant end joints



	4"	6"	8"
<b>Flanged</b>	8.25"	8.75"	
<b>Mechanical</b>	5.50"	6.00"	7.50"
<b>Join-tite</b>		4.62"	

DIMENSION A



## Gate Valves

-Our most common gate valves range from 4" – 16" they will either have a Tyton (also known as "push on") or Flanged connection. Gate valves can also have a Tyton by flange, or flange by flange connection. Available in both open right and open left configurations.

Open Right (Red Nut – City of Calgary) Open Left (Black Nut – Outside C.O.C)



### Hub x Hub:

-Picker / Description Example: **6 TYT F6112 GATE VLV OL**



Breakdown: 6 is the size of pipe the valve is built for. TYT references that this is a Tyton valve. F6112 Gate valve refers to the style. OL means this is an open-left model.

Tyton by Tyton – commonly referred to as push on, requires two Tyton gaskets.



Flange by Flange gate valve:

-Picker / Description Example: **6 FLG F6102 GATE VLV OR W/NUT**



Breakdown: 6 is the size of pipe the valve is built for. FLG means it has flanged connections on both sides of the valve. Gate VLV means it is a valve. OR W/NUT means it opens by turning the operating nut right and comes with an operating nut installed.

-All internals are identical to a Tyton-by-Tyton gate valve, the only difference is the flanged connections. Below you will see an open left (OL) and open right (OR) valve.



## Push-on – FLG Gate Valve (Tapping Valves):

-Picker / Description Example: **8 TYT F6115 TAP VLV OR 316**



Breakdown: 8 is the size of pipe the valve is built for. TYT references that the non-flanged side of the valve is Tyton. F6112 Tap Vlv refers to the style. OR means this is an open-right model.

- Push-on – FLG (Tapping) valves differ slightly from standard gate valves. They will have one Tyton side and one flanged end. They are sold with both the Tyton gasket, as well as a flanged gasket and bolt pack.

-These valves can be used for hot taps but also have other applications.

Video of Hot Tap: <https://www.youtube.com/watch?v=CXBHVqOJSNA>

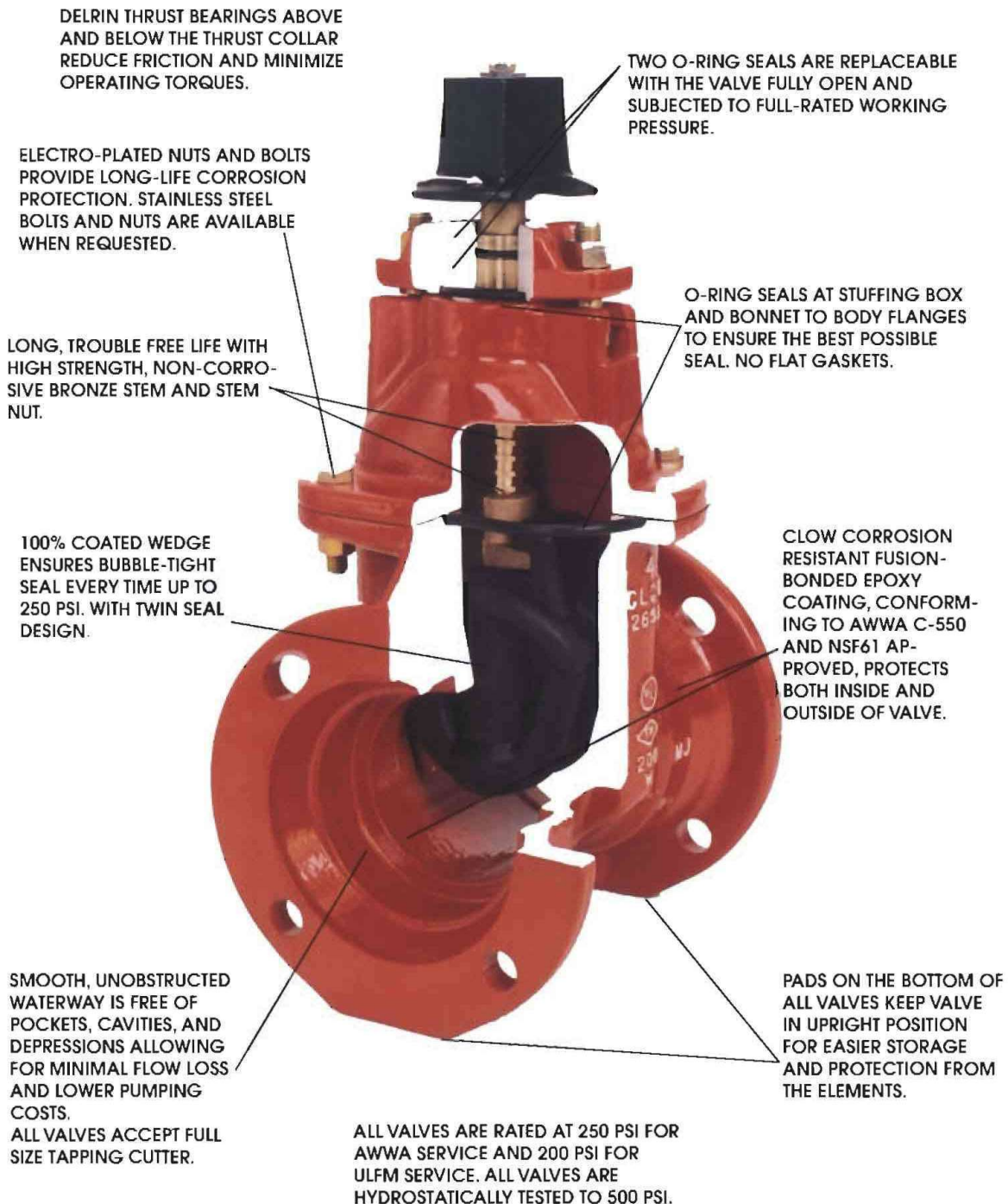
## Push-on – FLG Gate Valve (Tapping Valves)





# CLOW ULFM - AWWA R/W VALVE

## Features and Benefits



## OS&Y (Open Stem & Yoke) Valves:

-Picker / Description Example: **6 10269 FLG OS&Y UL/FM**



Breakdown: 6 is the size in inches. FLG means it has a flanged connection on both sides of the valve. OS&Y is the style of the valve, meaning open stem and yoke.

-OS&Y valves are used inside a building and are often called master control valve. They have a flange-by-flange connection and are used to connect to the riser, and act as an emergency shutoff at the entrance of the water into the building. All OS&Y valves require bolt packs with gaskets to connect to flange ends, or flange adapters placed on the pipes. These valves do not require a valve box as they are operated by hand using the wheel as opposed to an operating nut.





## Tyton Gaskets:

Tyton gaskets are supplied with all valves (except flange by flange) and all ductile iron fittings. Norwood Calgary stocks sizes from 4"-16" inch. If you are unsure of the gasket size, the size is marked on the outside edge of all gaskets.



Below are Tyton Nitrile gaskets – used when engineer spec requires gaskets resistant to corrosive/hot soils and petroleum. Nitrile gaskets, and Nitrile pipe gaskets are becoming more popular in the city of Calgary.





## Uniflange or Sigma Restrainers

### 1300 Joint Restrainer:

-Picker / Description Example: 12 UFR1300C JOINT RESTRNR IMP



Breakdown: 12 is the size of the pipe it fits on. UFR stands for Uniflange Restrainer. 1300C is the model number.

-Joint Restrainers are used to restrain two pieces of pipe (or fittings) together if they are under pressure.

-Restrainers can be used instead of pouring a concrete thrust block and are required when installing a Tyton-Tyton gate valve, and other pressurized fittings.



-Norwood stocks a variety of different sized restrainers. Restrainers shown below are:

-Top shelf are 1300 series restrainers they are a single 2-piece grip ring with hardware, (PWM), (pipe x fitting).

-The restrainers on the bottom shelf are 1360's (PWF). They come with 1 grip ring, 1 smooth ring and hardware. Two restrainer brackets are included in the box.

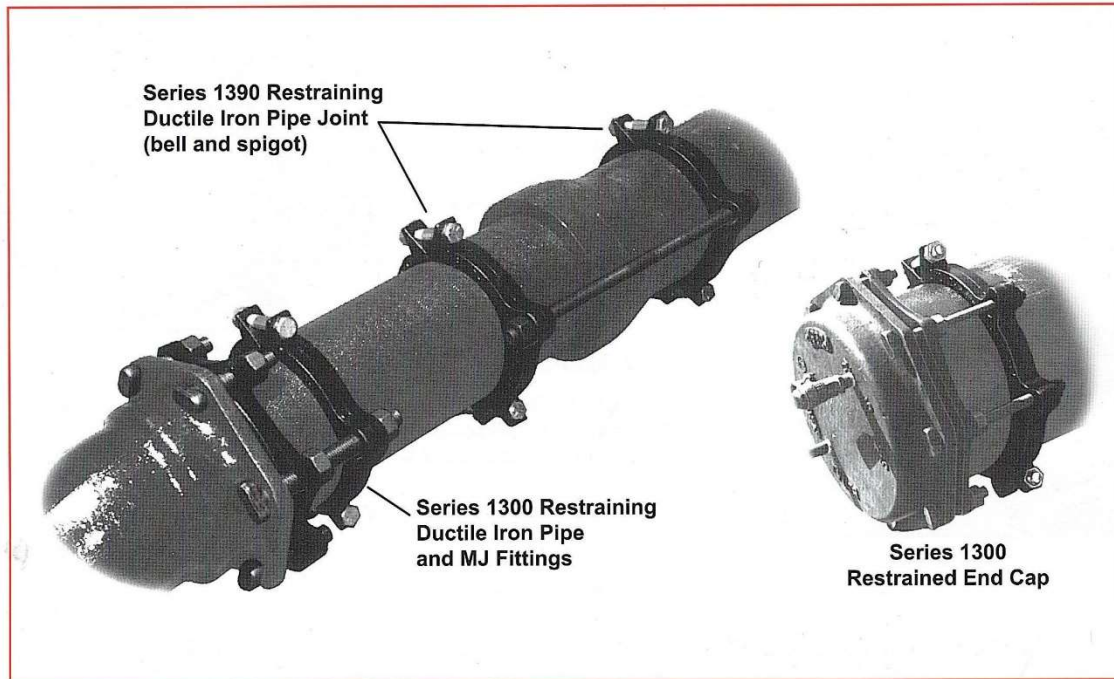
-1390 = PWP (pipe x pipe) comes with 2 grip rings (not in photo)





# Uni-Flange® Series 1300, 1390 And Casing Spacers For Use On Ductile Iron Pipe

Both the 1300 and 1390 offer full circumferential contact and support of the pipe wall. This is recommended by many pipe manufacturers and is **especially important when thinner walled pipes are used, such as AWWA C-151, Class 50 or the "Pressure Class" Ductile Iron Pipe**. There are no set screws or wedges that may distort / point load the pipe or damage the cement mortar lining. (In fact, the Series 1300 / 1390 combination is very similar to certain "factory restrained joint pipe" with easier installation, faster availability, and a lower overall cost.)



## Pressure Ratings, Ductile Iron Applications

Series 1300-C and 1390-C for Ductile Iron Pipe			
*NOMINAL PIPE SIZE	PIPE STANDARD	TYPE AND SIZE	*PRESSURE RATING (PSI)
4" - 16"	ANSI / A21.51 AWWA C-151	Ductile 4" - 8"	250
		Ductile 10" - 12"	200
		Ductile 14"	150
		Ductile 16"	100

**Note:** Not recommended for use on machined end pipe or fittings.

\* For higher pressure requirements or larger size bell and spigot restraint, see Series 1450.  
Installation requires maximum torque values stated in installation instructions.

To Order: See 4" - 16" 1300-C, 1390-C and Casing Spacer product listings within this catalog.



## Ready Rod:

-Picker / Description Example: **3/4x12' ALL THRD ROD 304SS**



Breakdown: 3/4 is the size of nut and washer that thread onto it. 12' is the length of rod. ALL THRD ROD is standard ready rod, and 304SS is the style in stainless steel.



-Picker / Description Example: **3/4 304SS UNC HEX NUT**



Breakdown: 3/4 is the size of nut threading. 304SS is the style.

-Picker / Description Example: **3/4 304SS FLAT WSHR**



Breakdown: 3/4 is the size of nut threading. 304SS is the style.

-Ready Rod can be paired with joint restrainers, and risers. It is sold in 12' lengths, and comes in 5/8", 3/4" and 7/8" thicknesses.

-Norwood also stocks coupling nuts these are used to join two pieces of ready rod together to extend past 12.'

Ready rod washers, coupling nuts and regular nuts are illustrated below. All nuts, couplings, and washers are stainless steel and stocked in 5/8" 3/4" and 7/8" sizes.



## Bolt Pack:

-Picker / Description Example: **8 BLT PK 1/8FFRR-304 ClxCI**



Breakdown: 8 is the size of flange the bolts are made to work with. 1/8FFRR is a reference to the type of gasket in the pack. 304 is the series. ClxCI refers to cast iron by cast iron, meaning the pack is designed for two flanges.

-With any flanged fitting, or flanged valve, we often sell a bolt pack for the customer to use in the connection of the fittings and valves.



## Misc. Warehouse Products

### Fernco Coupling :

-Picker / Description Example : **56-88 8x8 CI/PL-CI/PL CPLG**



Breakdown: 56 is the type of connection (in this case 56 means that it connects Cast iron or Plastic pipe to the same type of pipe. The second number will tell you what size pipe it connects to (in this case 8" to 8"). The remainder of the product's description will give a written explanation of the numbers (in this example CI/PL stands for Cast Iron/Plastic).

-Fernco couplings are flexible connections between two pipes. They can connect similar pipes together or different types of pipes (sizes or material).

-They can work with metal, plastic, clay pipe and concrete.

56- Means it connects PVC - PVC

06- Means it connects CONCRETE - PVC

02- Means it connects CLAY - PVC





## Casing Spacers:

*Picker / Description Example:* **G41 RACI CASING SPACER**



Breakdown: G41 is the style of the spacer. CASING SPACER means that it is used to keep a carrier pipe in place when installed in a larger diameter casing pipe.

-Casing spacers are used to hold a smaller diameter pipe in-center of a larger diameter pipe. Often used when coring under a building, the carrier pipe will be placed inside a larger diameter casing pipe. The casing spacers ensure the carrier pipe is held in the center of the protecting casing pipe, and the distance between casing spacers is denoted by the engineer.



## Repair Clamps:

*Picker / Description Example:* **12x12 5626 REP CLAMP 1370-1450**



Breakdown: 12x12 is the size of the pipe for the repair. 5626 is the style. And the 13.70" to 14.50" is the OD size range for the repair clamp.

-Repair clamps are used to fix small leaks that may occur in a pipe. They are made of stainless-steel metal or epoxy coating and typically have a rubberized interior to provide a gasketed seal.

-They can come in 1-piece and 2-piece repair clamps.

- Robar: 5616 = (1-piece)    5626 = (2-piece)
- Cambridge: 425 = (1-piece)    825 = (2-piece)





# 5606

## STAINLESS STEEL REPAIR CLAMP



### APPLICATIONS:

ROBAR 5606 Single Section Repair Clamps are used to repair small holes or breaks in water mains. The 5606 has a full wrap gasket.

### MATERIAL SPECIFICATIONS:

Shell: T304 Stainless Steel, fully passivated\*.  
 Sidebar: T304 Stainless Steel, fully passivated\*.  
 Armor: T304 Stainless Steel, fully passivated\*.  
 Gasket: SBR (Buna S) Rubber.  
 Fasteners: 1/2" NC T304 Stainless steel.  
 Nuts coated with anti-galling compound.  
 Torque is 45 ft. lbs.

### HOW TO ORDER:

Determine the product number (5606), high limit of range (see table below) and length of clamp and then order by using appropriate ordering code as shown in the following example.

For a 12" long clamp on a pipe with an OD of between (6.85" - 7.10"), the ordering code is:

5606      7.10"      x      12"  
 product   high limit of   clamp  
 number   range   width

i.e. 5606 - 7.10 x 12

**5606 REPAIR CLAMP CHART**

NOMI- NAL PIPE SIZE	WORKING RANGE		APPROXIMATE SHIPPING WEIGHT (LBS.)			
			LENGTH OF CLAMP (Common Sizes)			
	LOW	HIGH	4"	6"	8"	12"
2	2.12	2.37	1.0	1.8	2.0	3.1
	2.25	2.50				
	2.37	2.62				
	2.63	2.88				
	2.87	3.12				
3	3.25	3.50	1.5	2.5	3.0	4.5
	3.50	3.75				
	3.74	3.99				
4	4.45	4.70	1.8	3.0	4.5	5.3
	4.75	5.00				
6	6.58	6.83	2.5	3.8	5.0	7.5
	6.85	7.10				
8	8.58	8.83	2.8	4.5	5.5	8.3
	9.00	9.25				

All dimensions are in inches.

Note: \* Refers to chemically treating Stainless Steel after welding ("Pickled/Passivated") to return it to its original appearance.  
 - Prices for special designs, lengths or diameters may be obtained from the factory on request.

### ROBAR INDUSTRIES LTD.

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 Phone: 1-800-663-6553

Boucherville, Quebec  
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## Tapping Sleeves:

*Picker / Description Example: 10x8 FTS420 SSFE TAP SLV*



Breakdown: 10 is the size of the “mother pipe” in inches. 8 is the size of the tap in inches. FTS420 is the type of tapping sleeve.

-Tapping sleeves are used as part of a hot tap on a pipe. The sleeve is clamped over an active “mother” pipe or water main, a tapping valve is bolted to the tapping sleeve, and then a tapping machine is used to cut a hole into the pipe and secure a tap by going through the hole in the sleeve. This allows for uninterrupted water service, in comparison to putting on a standard tee fitting. The valve is in the open position and allows the tapping machine to core the hole, the tapping machine keeps a watertight seal. Once the hole has been cored the tapping machine retracts to allow the tapping valve to be closed. Once the Tapping valve has been closed, the tapping machine can be removed, and the pipe can be installed without any water leakage. Once the pipe is in place the valve is opened and the new water pipe is pressurized.

**-Smith Blair 622 coated**

**-Smith Blair 665 Stainless Steel – Used for size on size in City of Calgary**

-An interesting fact, all hot taps require a submittal of the coupon (cored piece of water main) to the city for inspection to ensure the tap was performed without any errors.



## Counter Area



-Norwood Waterworks stocks a variety of valuable tools and small products at our front counter such as:

- Wiping rags
- OD tapes
- Adjustable Hydrant Wrenches
- Hydrant setter w/spreader bars
- Up-Down Paint
- Florescent Ribbon
- Quick Dry Cement
- Hand and hole saws
- Electric & Teflon tape
- Universal Valve Lifter
- Chlorine Kits