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Large Size Electrofusion Saddle Branch Installation Manual with Smart Joint Clamping System

Applicable for full electrofusion saddle branch size

160mm-630mm, main pipe size up to 1600mm.





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1.Full Electrofusion Saddle Branch Introduction

Full electrofusion saddle branch is an idea branch solution for the large size main pipes. The bottom curved part of full electrofusion saddle which contact with the main pipe and the branch part are both coiled with electrofusion wire.

Full electrofusion saddle branch has the followed advantages:

A、 There is no need to consider in advance about the location of branches in main PE pipe construction, without concerns on the branch location, the design of main pipe is free from restriction . Full electrofusion saddle branch can be placed and installed easily where the branch is needed after the completion of the main pipe installation.

B、 The branches part also can adopt electrofusion , which works as an electrofusion coupler and is more convenient than butt fusion and saves time, no need to move the heavy butt fusion machine everywhere.

C. It helps to reduce the cost for both fittings and construction. Compare to traditional fabricated tee, or injected reducing tee with reducers fabricated, smart joint full electrofusion saddle solution is easier and much cheaper.

2. Installation Requirement

2.1 Trained Operator

The operator must be trained before the installation, he must master all the steps of the large size full electrofusion saddle branch and the know how to



use the electrofusion machine. Smart Joint can provide such training if there is requirement.

2.2 Climate Requirement

2.2.1 Avoid the installation in rainy days.

2.2.2 When environmental temperature is above 20°C, measurement should be taken to protect the area where the saddle contact with the pipe from direct sun sight which may cause temperature increase or temperature unbalance. It may lead to failed fusion joint.

2.3 Fusion assistive tools/auxiliaries and fusion machine

Fusion Machine

Electrofusion equipment should comply with ISO 12176-2:2008 standard with barcode reading function.

Assistive tools/auxiliaries

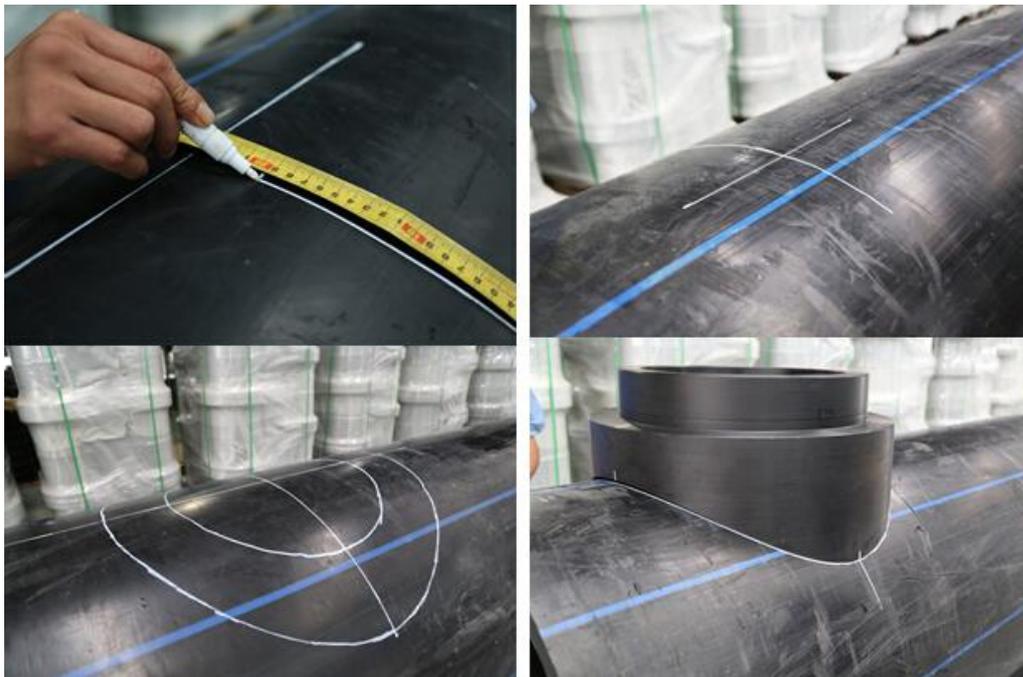
- 1) Bonding Strap Cap
- 2) Bonding Strap with at least 5t load
- 3) Chain blocks with at least 2 t load
- 4) Force calculator
- 5) Hook
- 6)Hole Opening Tool
- 7)Scrapping Tool



Complete clamping system is a must and it's a guarantee for a successful joint.

3.Full Electrofusion Saddle Installation Procedures

3.1 Mark the fusion location of saddle branch as showed on followed pictures.



3.2 Hole Opening

Special hole open cutter (Fig 1) is suitable for hole opening after fusion completion. It will require lifting devices or other supportive devices depending if the hole is cut from the top or the side.

When there is no special hole open cutter(Fig 1), or it's not convenient to adopt the special hole open cutter, the operator can use the electric drill and electric jigsaw (Fig 2&3) for hole opening manually before the fusion with followed steps.



Fig2&3

Fig 1

Hole Open before the fusion by electric drill and jigsaw

- (1) Drill holes with the electric drill along the internal circle mark. Make the holes as many as possible and in balanced distance when the pipe is very thick.



- (2) After drilling, use the jigsaw to open the hole, finally use the drill or jigsaw to make the edge nicely.



3.3 Scrap the fusion zone marked (The whole saddle bottom part area)

The scrapped depth must be within 0.2 to 0.3mm, then clean the fusion zone.

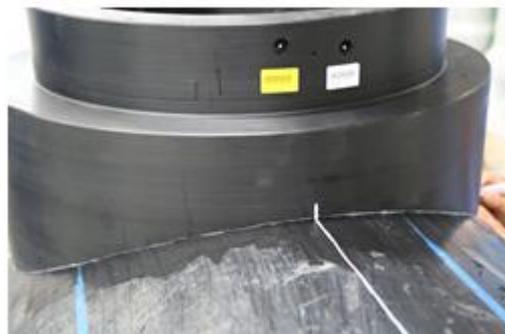


*** We suggest scrapping the fusion zone by electric planer to remove the oxidized surface, this is very important.**

3.4 Use the alcohol wipes to clean the curved bottom part of the saddle.



3.5 Mark the intersection lines of the inside and outside again on scrapped zone. Amount the saddle on the same location and remark the location as before.



3.6 Clamp the full electrofusion saddle according to followed procedures.

(1) Put the bonding strap cap on the top of the branch with the hooks locked.

(2) Connect the chain blocks with the hooks.

(3) Adjust the bonding strap in the proper length, connect it with the force calculator as the picture (3) showed.

(4) Turn on the force calculator, pull the block chains at two sides at the same time with balanced force to tighten the clamping system till the gap between the saddle and pipe is less than 2.0mm.

(5) Observe the digits on the force calculator, followed table is the min. pulling force requirement for different branches, no matter if there is gap between the saddle and pipes or not, the mini pulling force should be reached.



(1)



(2)



(3)



(4)



(5)

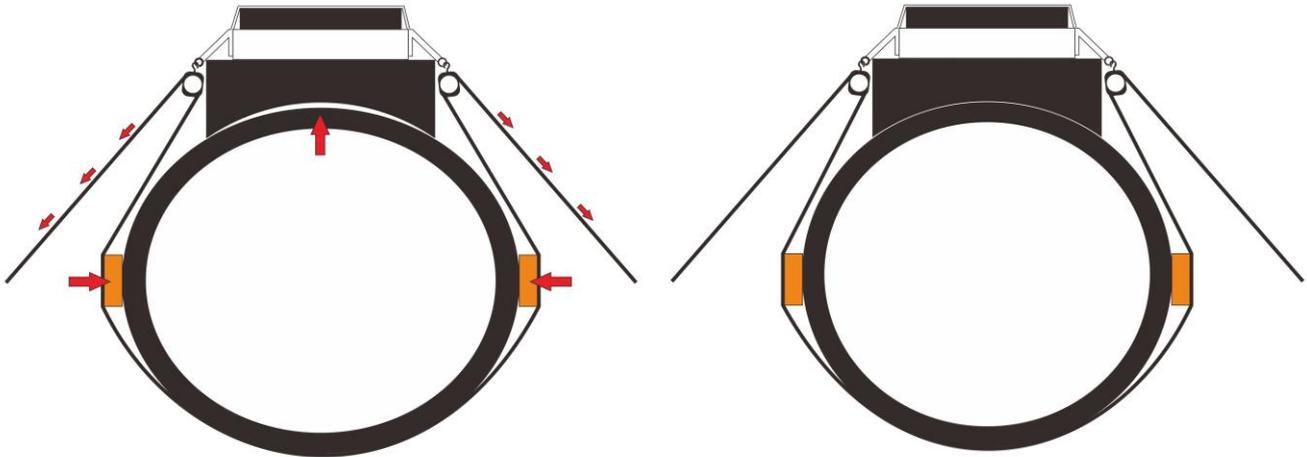
Mini Pulling Force Table

Branch Size(mm)	Min Pulling Force (KG)
160	1100
180	1300
200	1500
225	1700
250	1800
280	1900
315	2200
355	2300
400	2400
450	2500
500	2800
560	3000
630	3000

***No matter if there is gap between the saddle and pipes or not, the mini pulling force should be reached, otherwise it may lead to failed joint.**

Special attention: The main pipe sometimes has obvious ovality problem, no matter how to pull, the gap between the saddle and pipe is hard to be eliminated, under this circumstances, pls take followed measurement as the

picture showed.



Put two wooden blocks between the chain and the main pipe on two size, when pull the chain blocks, the chains will push the wooden block to adjust the ovality of the main pipe.

3.7 Bottom Saddle Part Fusion

3.7.1 Start the fusion machine, contact the fusion machine with the electrofusion saddle adaptors.

3.7.2 Branch size from 160mm-280mm saddle part require one time fusion, branch size from 315mm-630mm saddle part require two times fusion, preheat barcode in yellow, fusion barcode in white.

Read or input the barcode in yellow pre-heat parameter, when branch size is between 315mm-630mm, start the fusion.

3.7.3 After pre-heat fusion, wait for at least 3-5 minis to start the 2nd fusion, read or input parameter on white barcode. When the main pipe is larger than

900mm, the size code may not show correctly on the electrofusion machine, however, the fusion parameter is correct, just follow the fusion parameter and do the fusion.

3.7.4 Cooling

Keep the clamping system on, wait for at least 3 hours for cooling, then remove the clamping system.



(1)



(2) For branch from 315-630mm



(3)



(4)

3.7.5 Electrofuse the branch part with the pipe, branch part is coiled with electrofusion wire, it will work as an electrofusion coupler.