PIPE PILES: SPIRALWELD

PIPE PILE TABLE

SPIRALWELD PIPE

MADE IN USA

HDM STEEL PIPE

OD in (mm)	Wall Thickness in (mm)															
	0.2813	0.3125	0.3438	0.3750	0.4063	0.4375	0.4688	0.5000	0.5625	0.6250	0.6875	0.7500	0.8125	0.8750	0.9375	1.0000
	7.144	7.938	8.731	9.525	10.319	11.113	11.906	12.700	14.288	15.875	14.463	19.050	20.638	22.225	23.813	25.400
16	**47.27**	**52.41**	**57.54**	**62.64**	**67.73**	**72.78**	**77.83**	**82.85**								
406.4	70.45	78.13	85.76	93.37	100.95	108.50	116.01	123.50								
18	**53.28**	**59.09**	**64.89**	**70.65**	**76.42**	**82.14**	**87.86**	**93.54**								
457.2	79.29	87.94	96.57	105.14	113.73	122.24	130.75	139.21								
20	**59.30**	**65.77**	**72.24**	**78.67**	**85.10**	**91.49**	**97.88**	**104.23**	**116.88**	**129.45**						
508.0	88.38	98.05	107.67	117.27	126.85	136.39	145.89	155.37	174.24	192.97						
24	**71.32**	**79.13**	**86.94**	**94.71**	**102.48**	**110.20**	**117.93**	**125.61**	**140.93**	**156.17**	**171.33**	**186.41**				
609.6	106.31	117.97	129.58	141.18	152.74	164.28	175.77	187.24	210.09	232.81	212.60	277.87				
30	**89.37**	**99.17**	**108.99**	**118.76**	**128.54**	**138.26**	**147.99**	**157.68**	**177.01**	**196.26**	**215.43**	**234.51**	**253.51**	**272.43**	**291.26**	**310.01**
762.0	133.20	147.85	162.45	177.03	191.59	206.11	220.59	235.05	263.88	292.56	267.05	349.58	377.92	406.11	434.19	462.13
36		**119.22**	**131.04**	**142.81**	**154.60**	**166.32**	**178.06**	**189.75**	**213.09**	**236.35**	**259.52**	**282.62**	**305.63**	**328.55**	**351.39**	**374.15**
914.4		177.73	195.31	212.89	230.43	247.94	265.40	282.85	317.66	352.32	321.49	421.29	455.60	489.77	523.83	557.74
42			**153.10**	**166.86**	**180.66**	**194.38**	**208.13**	**221.82**	**249.17**	**276.44**	**303.62**	**330.72**	**357.74**	**384.67**	**411.52**	**438.29**
1,066.8			228.18	248.74	269.28	289.78	310.22	330.66	371.45	412.08	375.93	493.00	533.29	573.43	613.47	653.35
48				**190.92**	**206.72**	**222.44**	**238.20**	**253.89**	**285.25**	**316.52**	**347.72**	**378.83**	**409.85**	**440.80**	**471.65**	**502.43**
1,219.2				284.60	308.12	331.61	355.04	378.47	425.23	471.84	430.38	564.71	610.98	657.09	703.10	748.97
54					**232.78**	**250.51**	**268.27**	**285.96**	**321.33**	**356.61**	**391.81**	**426.93**	**461.97**	**496.92**	**531.79**	**566.57**
1,371.6					346.96	373.44	399.86	426.27	479.01	531.60	484.82	636.42	688.66	740.75	792.74	844.58
60						**278.57**	**298.34**	**318.03**	**357.41**	**396.70**	**435.91**	**475.04**	**514.08**	**553.04**	**591.92**	**630.71**
1,524.0						415.27	444.67	474.08	532.80	591.35	539.26	708.13	766.35	824.41	882.38	940.19
66								**350.10**	**393.48**	**436.79**	**480.01**	**523.14**	**566.19**	**609.16**	**652.05**	**694.85**
1,676.4								521.89	586.58	651.11	593.70	779.84	844.04	908.07	972.02	1,035.80
72									**429.56**	**476.87**	**524.10**	**571.25**	**618.31**	**665.29**	**712.18**	**758.99**
1,828.8									640.37	710.87	648.15	851.55	921.73	991.73	1,061.66	1,131.42
78										**516.96**	**568.20**	**619.35**	**670.42**	**721.41**	**772.31**	**823.13**
1,981.2										770.63	702.59	923.26	999.41	1,075.39	1,151.30	1,227.03
84											**612.29**	**667.46**	**722.54**	**777.53**	**832.44**	**887.27**
2,133.6											757.03	994.97	1,077.10	1,159.06	1,240.94	1,322.64
90												**715.56**	**774.65**	**833.65**	**892.57**	**951.41**
2,286.0												1,066.68	1,154.79	1,242.72	1,330.58	1,418.26
96													**826.76**	**889.78**	**952.70**	**1,015.55**
2,438.4													1,232.47	1,326.38	1,420.21	1,513.87
100													**861.51**	**927.19**	**992.79**	**1,058.31**
2,540.0													1,284.27	1,382.15	1,479.97	1,577.61

Unit weight of pipe in **lbs/ft** and kg/m.

Intermediate, custom diameter sections are avaiable upon request subject to minimum tonnage requirements.
Please inquire with your JDF HDM sales representative for details.

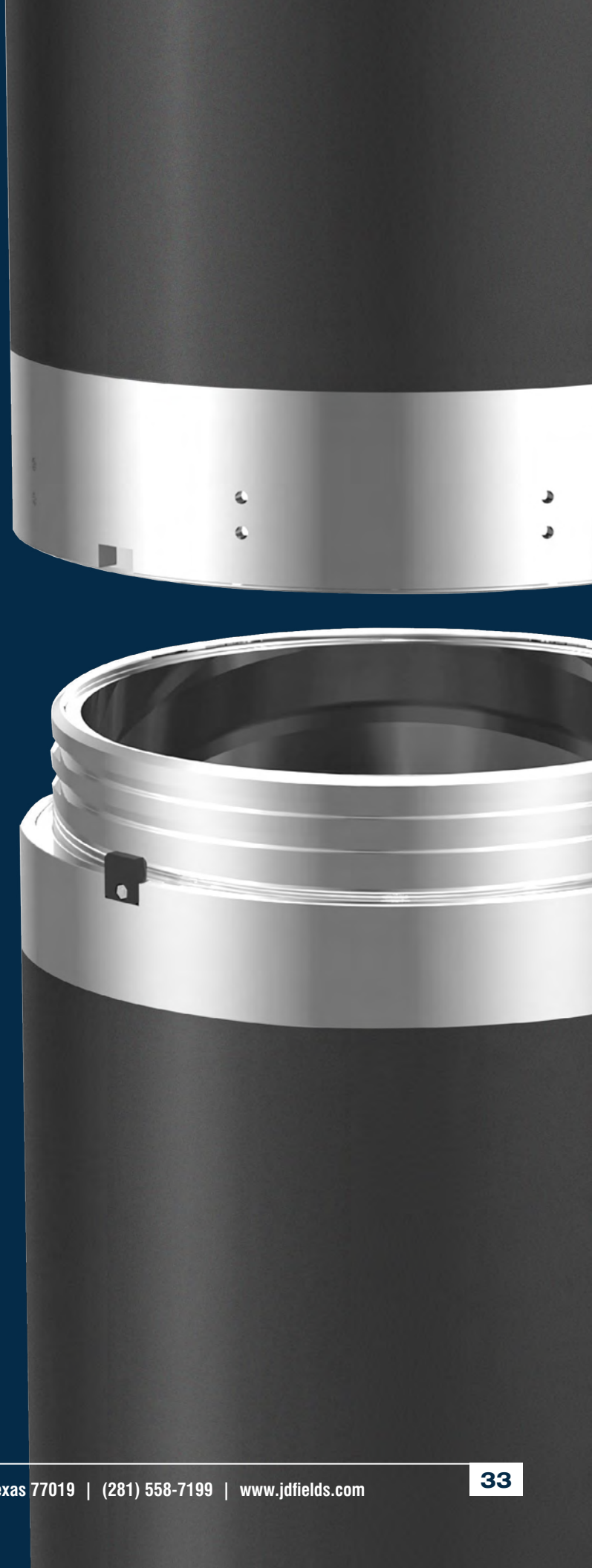
AMPP QP 3 SHOP PAINTING SSPC ACCREDITED CONTRACTOR

High Capacity

Mechanical Joint

for Steel Pipe Pile

Laqnican Joint

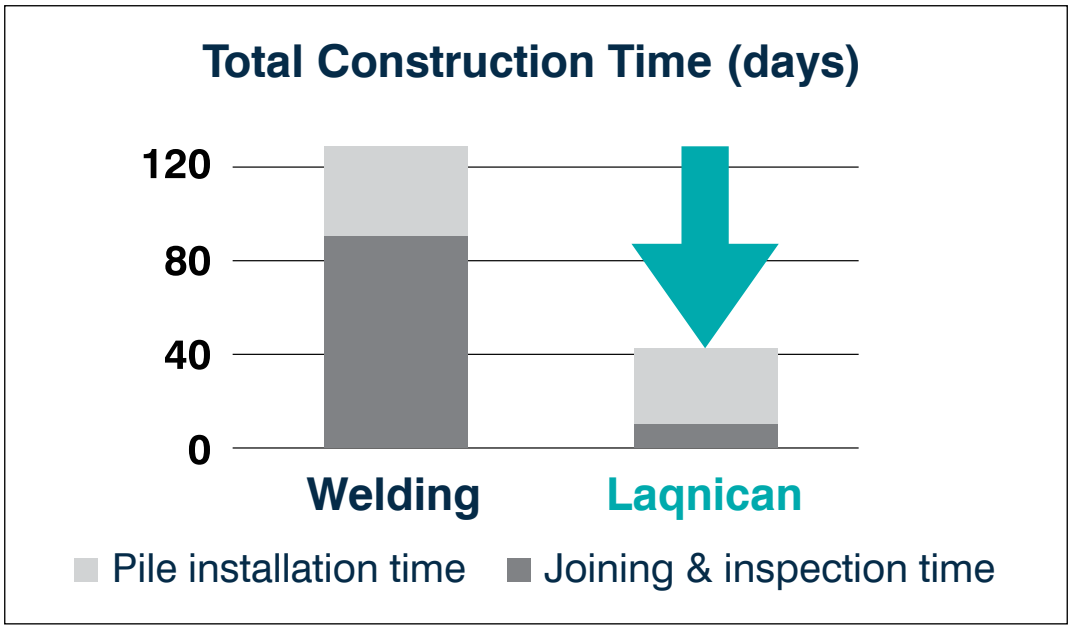


MECHANICAL SPLICE JOINT

Mechanism

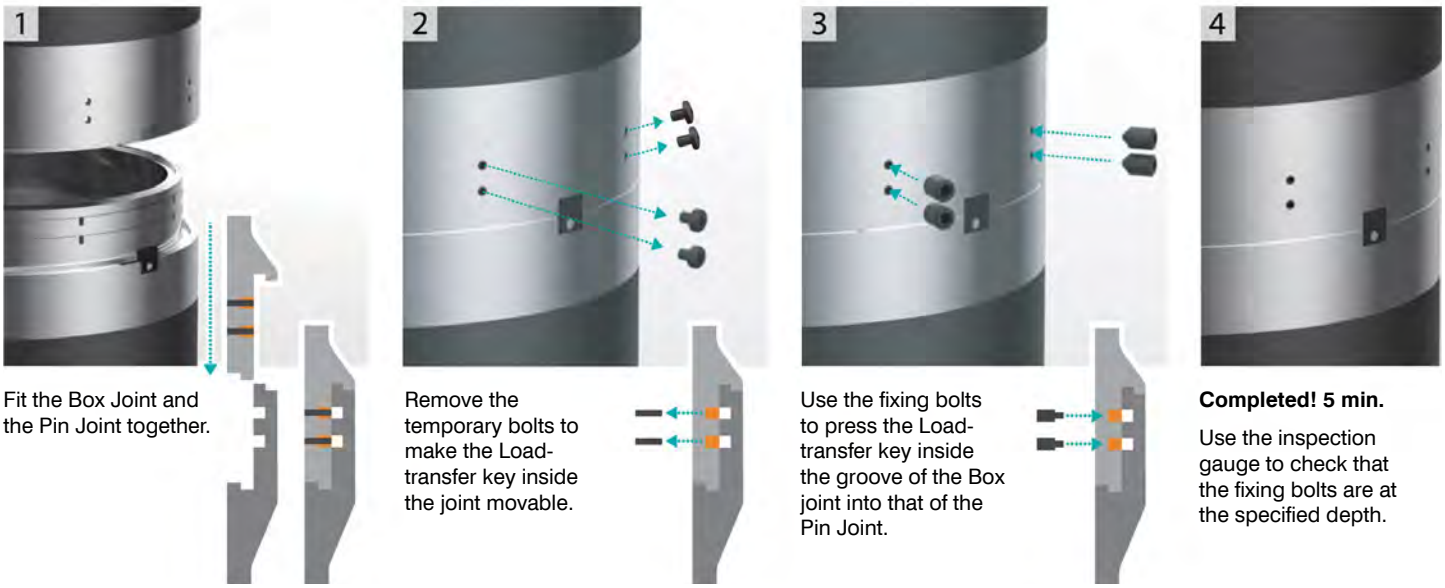
Laqnican Joint is a mechanical splice developed as an alternative to on-site welding of steel pipe piles. This assembly eliminates on-site welding and testing of spliced pipe piles, ensuring material quality, while reducing labor and equipment downtime.

Construction time can be reduced by 33%!



JOINING PROCEDURE

Laqnican Joint is joined as follows and takes about 5 minutes.



Fit the Box Joint and the Pin Joint together.

Remove the temporary bolts to make the Load-transfer key inside the joint movable.

Use the fixing bolts to press the Load-transfer key inside the groove of the Box joint into that of the Pin Joint.

Completed! 5 min.

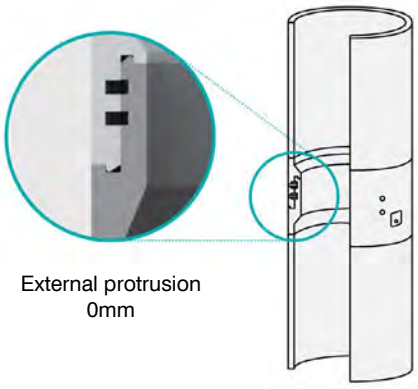
Use the inspection gauge to check that the fixing bolts are at the specified depth.

JD Fields & Company, Inc. | 2727 Allen Parkway, Suite 2000 | Houston, Texas 77019 | (281) 558-7199 | www.jdfields.com

MECHANICAL SPLICE JOINT

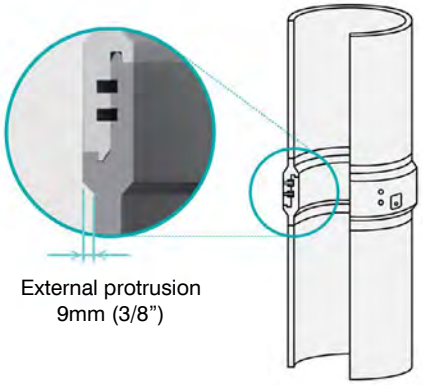
Mechanism

Flat type



External protrusion
0mm

Step type

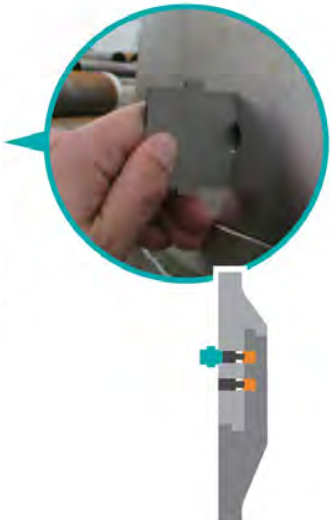


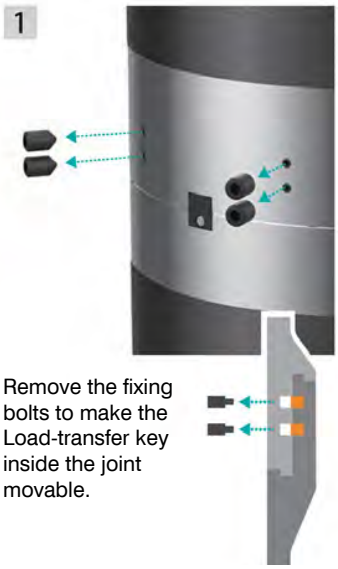
External protrusion
9mm (3/8")

REMOVAL PROCEDURE

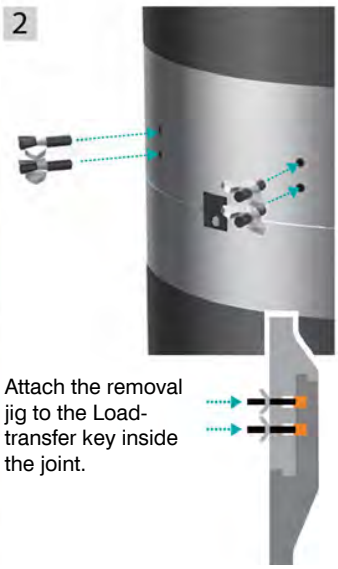
Remove the joint in the reverse order of the joining method.

Inspection





1 Remove the fixing bolts to make the Load-transfer key inside the joint movable.



2 Attach the removal jig to the Load-transfer key inside the joint.

3 Utilize the removal jig to draw the Load-transfer key inside the joint into the groove of the Box Joint. The joint will then be ready for extraction.

MECHANICAL SPLICE JOINT

Specifications

Chemical Composition (%)

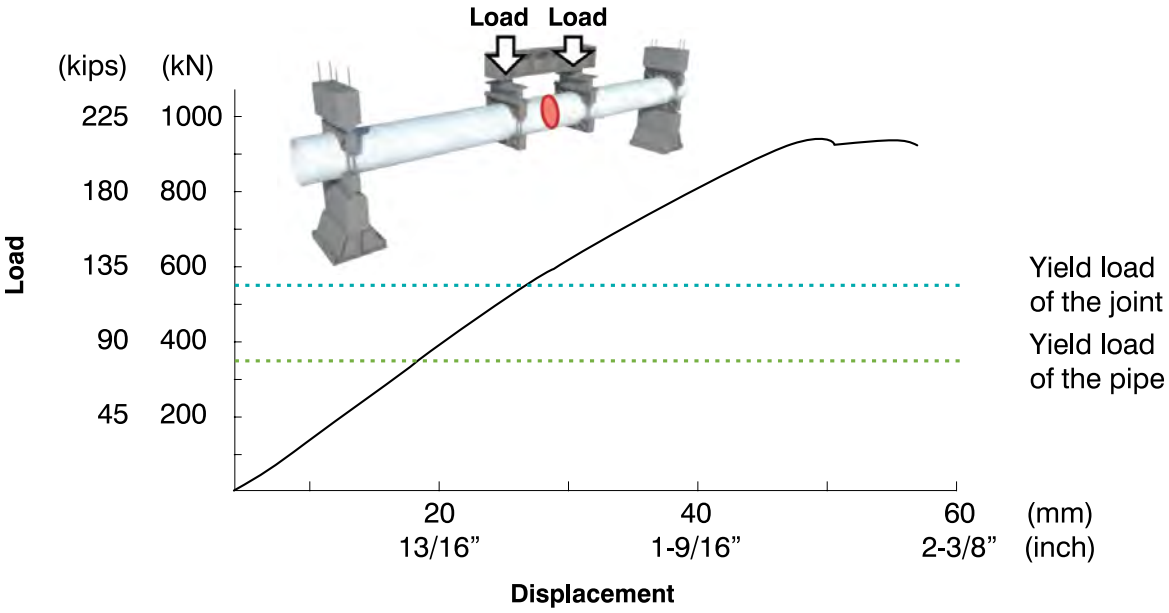
C	Si	Mn	P	S	Cr	Mo
≤0.48	0.15 - 0.35	0.30 - 0.85	≤0.03	≤0.03	0.90 - 1.50	0.15 - 0.35

Mechanical Properties

Component	Yield point	Tensile strength	Elongation
Pin joint Box joint	≥705MPa ≥102ksi	880 - 1030MPa 128 - 149ksi	≥ 13%
Load-transfer key	≥755MPa ≥109ksi	980 - 1030MPa 142 - 164ksi	≥ 11%

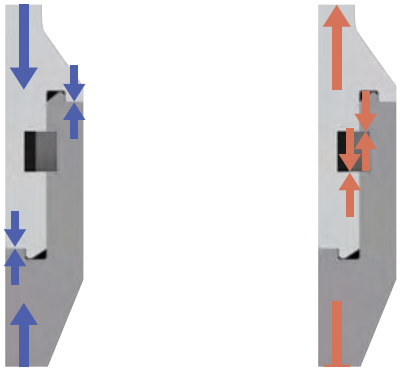
Four-Point Bending Test Data

Joint size: 00400mm x t14mm (OD16” x t0.5”)

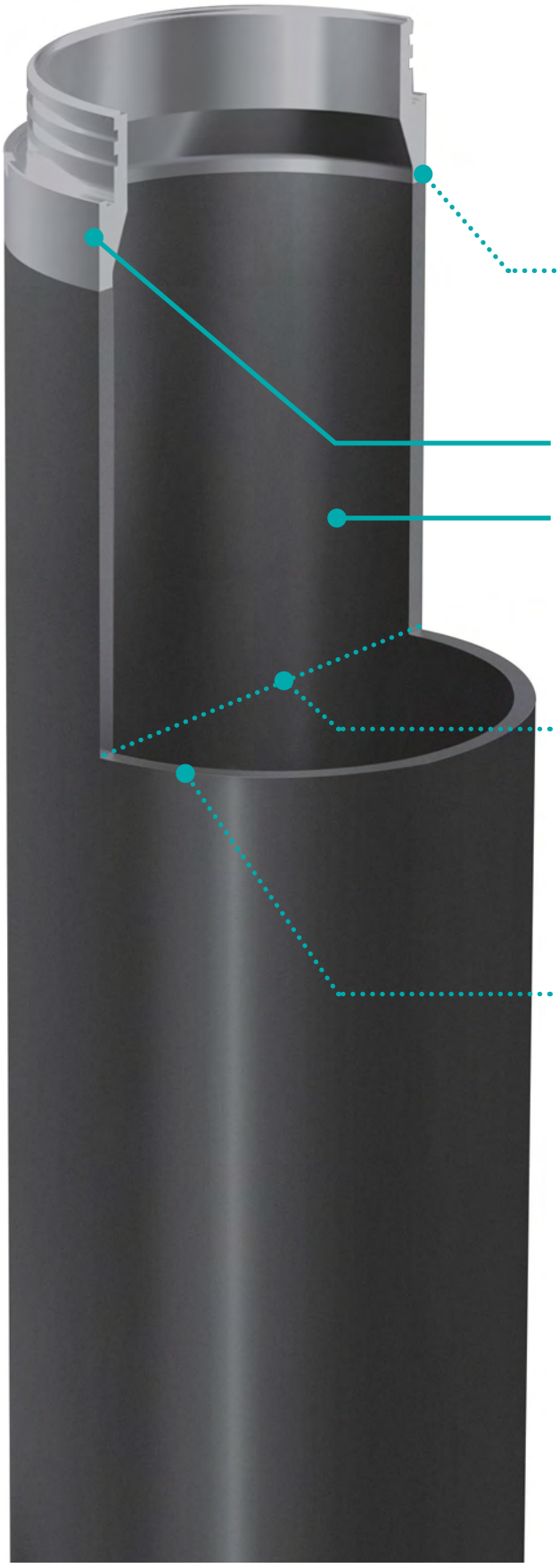


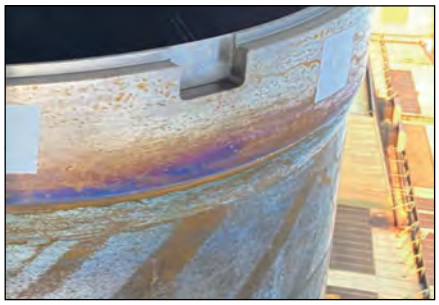
Load-Transfer Mechanism

compression force tension force



MECHANICAL SPLICE JOINT





Shop Welding

Laqnican Joint is a robotically welded to steel pipe piles at factory for quality control.

Laqnican Joint

Steel Pipe

The following tables show the standards, sizes, and strengths of steel pipes to which Laqnican Joint can be applied.

Applicable outer diameter and thickness of steel pipe for each type of Laqnican Joint

Outer Diameter

	mm in
Flat type	**400 -1600** 16 - 64
Step type	**400 -1500** 16 - 60

	EN10025			ASTM A252		
	S235	S275	S355	Grade 2	Grade 3	
					45 ksi	50 ksi
	mm in	mm in	mm in	mm in	mm in	mm in
Flat type	**42** 1.625	**35** 1.375	**27** 1.0625	**41** 1.5625	**31** 1.25	**28** 1.125
Step type	**33** 1.3125	**28** 1.125	**22** 0.875	**32** 1.25	**25** 1.0	**22** 0.875

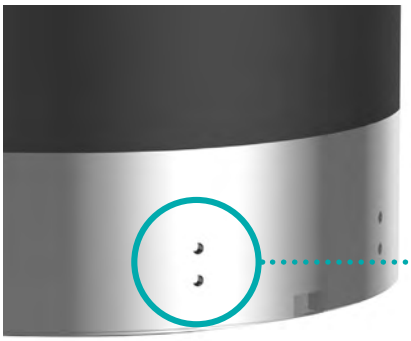
*Smaller diameter sizes may have a reduced applicable plate thickness, so please make an inquiry.

Protective Cap

The protective cap is available as an optional part to protect the pile head from direct hammer impact when driving piles with a impact or vibro hammer.

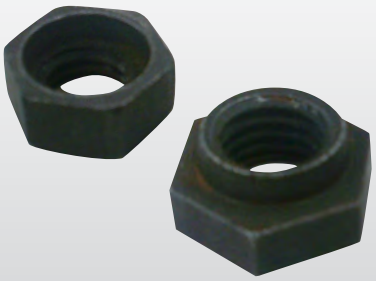
Key Loosening Prevention

Optional parts are also available to prevent keys from loosening or falling off due to impact from blows or vibrations when driving piles.



Optional parts to prevent loosening of Load-transfer key

Optional parts to prevent loosening of Rotation-suppression key



Comparison

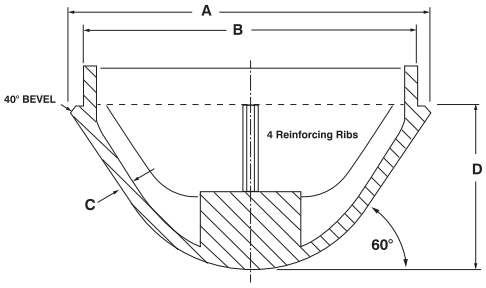
The joining time of Laqnican Joint is approximately 5 minutes, regardless of the OD and thickness of the steel pipe pile. By replacing on-site welding, cost reductions can be expected due to shorter construction time.

Item to Compare	Laqnican Joint	Welding
Influence by weather condition	Operational regardless of weather	No operation during rain and snow Shutting-cut device is required if the wind velocity is higher than 10m/s.
Main tools applied	Hexagonal wrench	Welding machine, Generator
Joining time 1000mm x t22 (40” t7/8”)	5 minutes	105 minutes
Level of difficulty in joining operation	No requirement for expert skill	Requirement for expert skill (Skill test/ qualification)
QC methods	Control of fastening depth of fixing bolts by the use of depth gauge	RT inspection / UT inspection / PT inspection / Visual inspection
Time required for quality control	3 to 5 minutes	RT: 88 min (entire welding line) UT: 35 min (entire welding line) PT: 22 min (entire welding line) 30 minutes additionally required Until lowering of welding heat. *OD 1000mmxt12 (40”xt1/2”)

Laqnican Joint Movie

INSIDE FLANGE CONICAL POINTS

Conical Points are the preferred end closure for pipe piles. The conical shape pushes the earth aside and preserves friction. The snub nose conical is an economical design which provides end protection in most soil conditions.



Size:

The snub nose conical point is available for 8-5/8”, 10-3/4”, 12”, 12-3/4”, 14”, 16”, & 18” O.D. pipe.

Benefits:

60 degree Conical Points with heavy internal ribs aid in penetration in most soils. On boulders or uneven rock, the point helps to distribute the load around the periphery of the pipe rather than concentration it on a quadrant - as occurs with plate closure.

Steel Grade:

High Strength Heat-Treated Cast Steel Grade ASTM A148 80/50 - other grades also available.

INSIDE-FIT CONICAL PIPE POINTS

Inside-fit conical points are manufactured with 60 degree slope for optimum ease in penetration and even distribution of load. The conical points are slip fit and can accommodate schedule 80 and thicker wall pipe. There is an option of a blunt nose if desired.

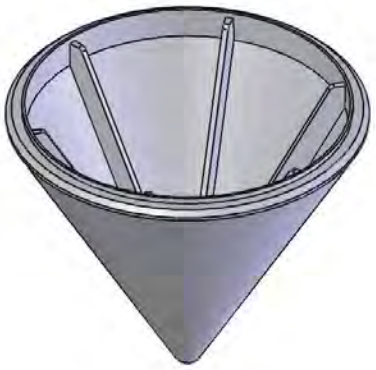
Our conical points are easy to install with a slip-on fit. The design places the cross-sectional area directly below the wall of the pipe for maximum support during penetration. They are a more heavy-duty construction than other brands.

The inside-fit conical point has a weld prep built into the shoe. These tips are designed with a weld chamfer built into the casting. Slip shoe inside pipe and using a 70xx series rod weld a 5/16” or larger weld all around.

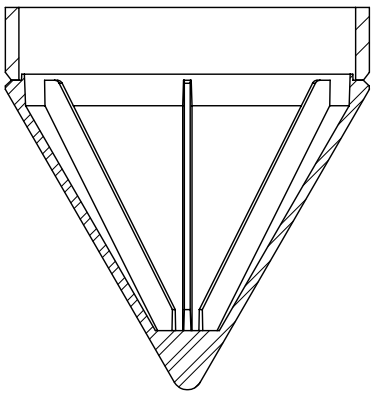
Weld Procedure

Welding for most sizes requires a simple 5/16” fillet weld using 70xx series rod all around the top of the flange.

Type Inside-Fit

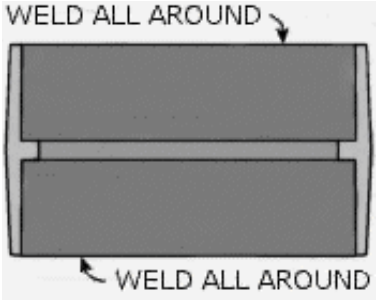


Conical Point and Pipe Cross-Section View



CAST STEEL PIPE SPLICERS

Cast steel splicers have the advantage of uniform sizing — there is no risk of improper fit, compared to fabricated splicers that are individually made. JDF Construction Products casts splicers in ASTM A 27, Grade 65/35, with ASTM A 148 grade 90-60 on request.



Weld Procedure

Pipe splicers are drive fit. Under proper conditions, the drive fit is water tight. If welding is desired, a simple 5/16” fillet using 70xx series rod at the top and bottom is all that is required.

Features

- Compression Fit
- Slip Fit

OPEN ENDED INSIDE-FIT CUTTING SHOES

Both of our cutting shoes are easy to install with a slip-on fit. The design places the cross-sectional area directly below the wall of the pipe for maximum support during penetration. They are a more heavy-duty construction than other brands. The inside-fit cutting shoe has a weld prep built into the shoe.

Inside-Fit

Weld Procedure

These tips are designed with a weld chamfer built into the casting. Slip shoe inside pipe and using a 70xx series rod weld a 5/16” weld all around.

Features

- Fits All Standard Pipe Sizes
- All Steel Alloy Grades

OPEN ENDED OUTSIDE-FIT CUTTING SHOES

Like our inside-fit shoe, this shoe has a slip-on fit, and the cross-sectional area lies below the wall of the pipe. The outside-fit cutting shoe has a natural fillet on top for easy welding.

Outside-Fit

Weld Procedure

These slip fit shoes are easily attached with a 5/16” fillet weld at the top of the flange. For best results, weld all around the shoe with a 70xx series rod.

Features

- Fits All Standard Pipe Sizes
- All Steel Alloy Grades

WELD/CHILL RINGS

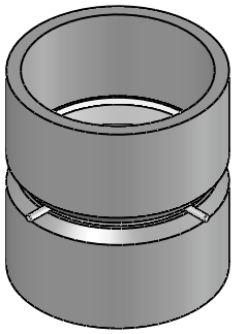
We manufacture weld rings to fit all sizes of pipe and wall thicknesses. The standard weld ring is 1/8” thick.

Features

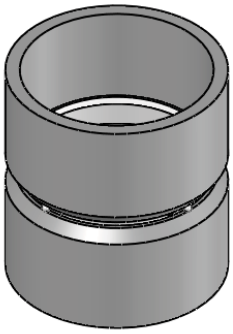
- Spherical Spacers
- Short or Long Pin Spacers
- Stainless and Carbon Steel

The inside diameter of a specific nominal pipe size will vary due to the difference in pipe wall thickness. The JDF Construction Products split commercial ring is designed to compensate for these variations. When inserted into the pipe, the ring can be closed at the split or have a gap, depending on the inside diameter of the pipe. These rings are also designed and manufactured with an opening at the split which permits the welder to compress the ring when it is inserted into the pipe. When released inside the pipe opening, the ring will spring back and make contact throughout the inside circumference of the pipe. The usual procedure followed when using our JDF Construction Products split commercial rings is to insert the ring into one end of the pipe, and then bring the other pipe over the opposite end of the ring, forcing both ends of both pipes against whatever root opening spacers are furnished on that ring.

Type LG
Type LG Ring Spacers are removed in the welding process



Type S
Type S Ring Spacers may be removed or melted into the weld



Type W
Type W Ring is furnished without spacers