UltraGrip®

DN900

Couplings & Flange Adaptors

GB – INSTALLATION INSTRUCTIONS

Helden®

Keeping Our World Connected

ULTRAGRIP COUPLINGS DN900

Pipe materials, insertion depths and bolt diameters for UltraGrip products

Table 1.

Nom Size	O.D. Range (mm)	Axial Fastener: Stud Size	Axial Fastener: Recommended Bolt Torque (Nm) for all materials	Radial Fastener: Bolt Size	Radial Fastener: Recommended Bolt Torque (Nm) for Ductile Iron	Radial Fastener: Recommended Bolt Torque (Nm) for PE	Radial Fastener: Recommended Bolt Torque (Nm) for Steel & Cast Iron*	Radial Fastener: Recommended Bolt Torque (Nm) for MOPVC	Setting Gap (mm): A (min)	Setting Gap (mm): B (max)	Insertion Depth (mm): X (min)	Insertion Depth (mm): M (max)	Pressure Rating for Water: Gripping Product	Pressure Rating for Water: Flex Product
DN900	892- 927	M20	190-210	M16	N/A	140-150	110-120	N/A	165	375	220	325	16 bar	
DN900	926 -961	M20	190-210	M16	190 -210	N/A	110-120	N/A	165	375	220	325	16 bar	
DN900	958 -993	M20	190-210	M16	N/A	N/A	110-120	N/A	165	375	220	325	16 bar	

WARNING: Not conforming to torque requirements for different pipe materials can result in pipe slippage and / or pipe damage.

Table 2.

Pipe Materials	Gripping	Non-Gripping	Support Liner Required
Steel	✓	✓	
Ductile Iron	✓	✓	
Cast Iron	✓	✓	
MOPVC	✗	✗	
PE100	✓	✓	✓
PE Barrier Pipe	✗	✗	
Asbestos Cement	✗	✓	

Fig. 1

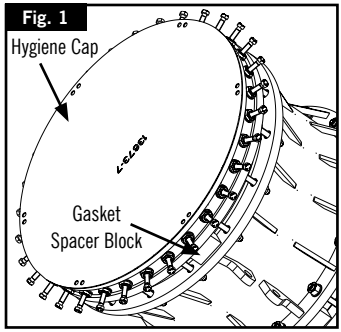


Fig. 2

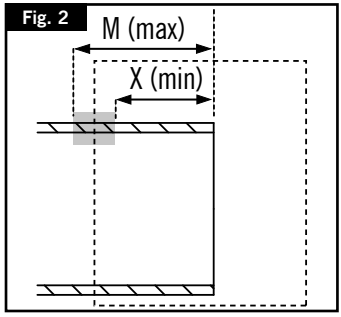
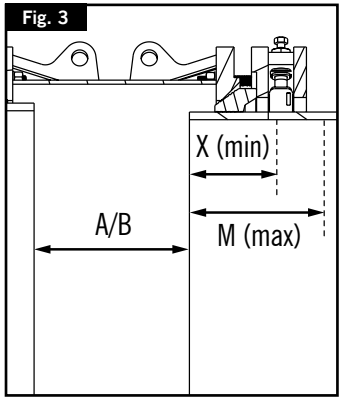


Fig. 3



NOTES

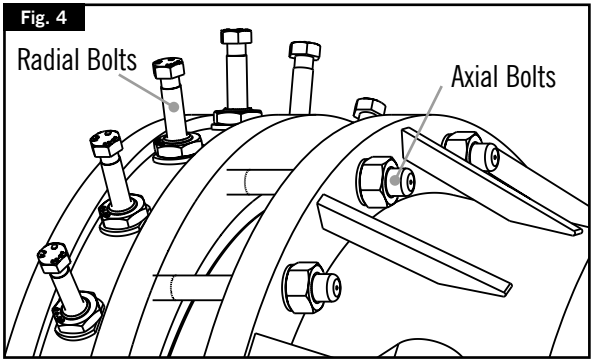
These instructions relate to the UltraGrip range of couplings for use on the pipe materials noted in the table. UltraGrip is supplied fully assembled for use as an end restraint (gripping) product and should not be dismantled prior to installation, unless it is to be used as a flexible (non gripping) product in which case the gripper bolts should not be torqued.

Site test pressure = 1.5 times working pressure
Thick pipe coatings and protective wrappings must always be removed.

Above ground exposed pipework is subject to both loads from the internal pressure and those from temperature changes / thermal expansion, which can be substantially higher than those from internal pressure and cannot always be safely determined. UltraGrip can be used in above ground applications, where it is not exposed to direct sunlight, and falls within the 40 degrees operating temperature range (between -20 and +60).

*110-120 torque rating for cast iron pipes assumes the cast iron has a wall thickness of 32mm and in a condition where the structural strength has not been compromised. For thinner wall cast iron pipes, please contact Helden for a recommended bolt torque.

Fig. 4



ULTRAGRIP COUPLINGS DN900

Installation Instructions

1. Check that pipe material and size are suitable for the UltraGrip Coupling. For PE always use a support liner. (See pages 8-9)

2. Examine pipe ends and ensure that pipe surfaces are clean and free from score marks, scale, rust or any loose debris or other surface defect that may affect fitting performance. Weld beads must be ground flush, maintaining correct surface profile. Thick pipe coatings or wrappings must always be removed. UltraGrip must sit either on to the bare pipe surface or on a thin paint film.

3. **Hazard Warning:** Lifting lugs, where provided, are designed/tested for lifting only the product to which they are attached. Failure to follow these instructions could result in serious personal injury or death, or property damage.

   Ensure that you are trained, competent and familiar with the lifting appliance and accessories to be used. Ensure that the correct equipment is used and is marked with its WLL (Working Load Limit) or tables are available to determine the WLL. Ensure that you visually inspect the lifting gear and accessories before proceeding with the lift, discarding defective equipment. Ensure work is within the WLL for the equipment. Do not use equipment that is faulty, or operate it beyond the WLL. It must be examined by a competent inspection engineer and re-certificated. Only undertake slinging and banksman's duties if you are competent and have been trained. This must be provided by a recognised training provider. Never walk underneath or slew a load over a person.

4. All UltraGrip couplings incorporate hygiene protective caps (which consist of bio-degradable tie-wraps and bio-degradable water resistant cardboard) to prevent contamination. This must be removed prior to fitment (Fig 1). Gasket spacer block (Fig 1) should NOT be removed at this point.

5. To ensure correct installation, mark the minimum and maximum pipe insertion depths obtained from Table 1 around the full circumference of both pipe ends as shown in Fig.2.

6. Align pipe to be laid with pipe already in position, taking care that pipe ends are concentric, adjusting support or trench bed as necessary.

7. Slide the mechanical coupling onto one of the pipe spigot ends. Once the coupling is slid over the pipe, reposition the coupling so the mechanical fitting is centrally placed over the gap between two pipes. Bring the pipes into position until the distance between X (min) and M (max) as shown in Fig 3 using depths obtained from Table 1. - adjust if necessary. Check that the two pipe ends and the coupling are on the same axis. Use supports if necessary.

8. All UltraGrip DN900 couplings incorporate gasket spacer blocks (Fig.1) which prevent the end rings from collapsing during transportation. This must be removed prior to fitment at this stage.

9. Tighten diametrically opposed nuts of the axial fasteners as per Fig 4, giving each nut one or two turns at a time to draw up the end ring evenly. All nuts are required to be tightened up as many times as necessary to achieve the required torque (Ref Table 1). On completion, there should be an even radial gap between pipe and end ring of the fitting, with all of the M (max) line being visible and none of the X (min) line visible.

10. Decide now what type of connection is required: GRIPPING or NON-GRIPPING:-

    a. GRIPPING - When used as a gripping type, tighten diametrically opposed bolts of the radial fasteners as per Fig 4, giving each nut one or two turns at a time to engage the grippers evenly. All nuts are required to be tightened up as many times as necessary to achieve the required torque (Ref Table 1).

    b. NON-GRIPPING - When used as a non-gripping type, the radial fasteners must not be torqued. When installed as a flexible (non-gripping) product UltraGrip does not prevent pipe pull-out and adequate external restrain has to be provided.

ULTRAGRIP FLANGE ADAPTORS PN16 DN900

Pipe materials, insertion depths and bolt diameters for UltraGrip products

Table 3.

Nom Size	O.D. Range (mm)	Flange Nom Size	Axial Fastener		Radial Fastener					Setting Gap (mm)		Insertion Depth (mm)		Pressure Rating for Water	
			Stud Size	Recommended Bolt Torque (Nm) for all materials	Bolt Size	Recommended Bolt Torque (Nm) for Ductile Iron	Recommended Bolt Torque (Nm) for PE	Recommended Bolt Torque (Nm) for Steel & Cast Iron*	Recommended Bolt Torque (Nm) for MOPVC	A (min)	B (max)	X (min)	M (max)	Gripping Product	Flex Product
DN900	892-927	800	M20	190-210	M16	N/A	140-150	110-120	N/A	540	565	220	245	16 bar	
DN900	892-927	900	M20	190-210	M16	N/A	140-150	110-120	N/A	300	325	220	245	16 bar	
DN900	926-961	900	M20	190-210	M16	190-210	N/A	110-120	N/A	500	525	220	245	16 bar	
DN900	958-993	900	M20	190-210	M16	N/A	N/A	110-120	N/A	500	525	220	245	16 bar	

WARNING: Not conforming to torque requirements for different pipe materials can result in pipe slippage and / or pipe damage.

Table 4.

Pipe Materials	Gripping	Non-Gripping	Support Liner Required
Steel	✓	✓	
Ductile Iron	✓	✓	
Cast Iron	✓	✓	
MOPVC	✗	✗	
PE100	✓	✓	✓
PE Barrier Pipe	✗	✗	
Asbestos Cement	✗	✓	

NOTES

These instructions relate to the UltraGrip range of Flange Adaptors for use on the pipe materials noted in the table. UltraGrip is supplied fully assembled for use as an end restraint (gripping) product and should not be dismantled prior to installation, unless it is to be used as a flexible (non gripping) product in which case the gripper bolts should not be torqued.

Site test pressure = 1.5 times working pressure
Thick pipe coatings and protective wrappings must always be removed.

Above ground exposed pipework is subject to both loads from the internal pressure and those from temperature changes / thermal expansion, which can be substantially higher than those from internal pressure and cannot always be safely determined. UltraGrip can be used in above ground applications, where it is not exposed to direct sunlight, and falls within the 40 degrees operating temperature range (between -20 and +60).

*110-120 torque rating for cast iron pipes assumes the cast iron has a wall thickness of 32mm and in a condition where the structural strength has not been compromised. For thinner wall cast iron pipes, please contact Helden for a recommended bolt torque.

Fig. 1

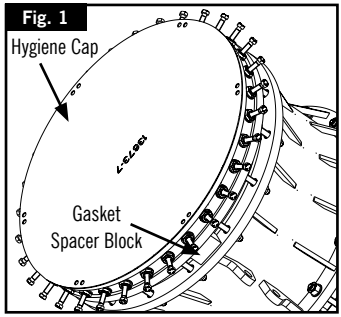


Fig. 2

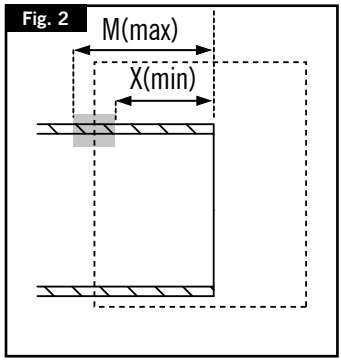


Fig. 4

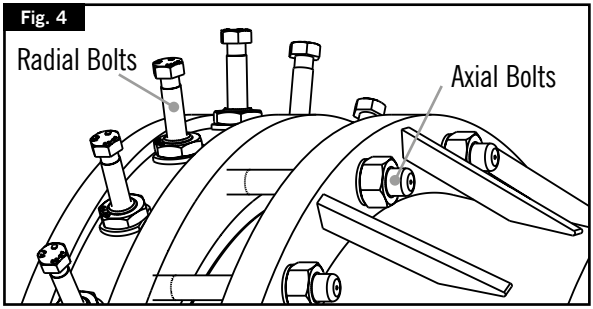
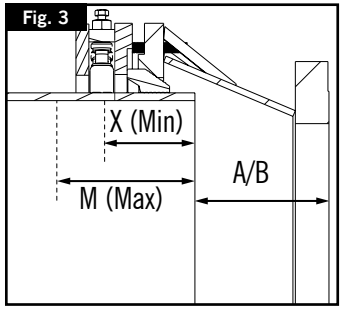


Fig. 3



ULTRAGRIP FLANGE ADAPTORS PN16 DN900

Installation Instructions

1. Check that pipe material and size are suitable for the UltraGrip Flange Adaptor. For PE always use a support liner. (See pages 8-9)

2. Examine pipe ends and ensure that pipe surfaces are clean and free from score marks, scale, rust or any loose debris or other surface defect that may affect fitting performance. Weld beads must be ground flush, maintaining correct surface profile. Thick pipe coatings or wrappings must always be removed. UltraGrip must sit either on to the bare pipe surface or on a thin paint film.

3. **Hazard Warning:** Lifting lugs, where provided, are designed/tested for lifting only the product to which they are attached. Failure to follow these instructions could result in serious personal injury or death, or property damage.

   Ensure that you are trained, competent and familiar with the lifting appliance and accessories to be used. Ensure that the correct equipment is used and is marked with its WLL (Working Load Limit) or tables are available to determine the WLL. Ensure that you visually inspect the lifting gear and accessories before proceeding with the lift, discarding defective equipment. Ensure work is within the WLL for the equipment. Do not use equipment that is faulty, or operate it beyond the WLL. It must be examined by a competent inspection engineer and re-certificated. Only undertake slinging and banksman's duties if you are competent and have been trained. This must be provided by a recognised training provider. Never walk underneath or slew a load over a person.

4. All UltraGrip Flange Adaptors incorporate hygiene protective caps (which consist of bio-degradable tie-wraps and bio-degradable water resistant cardboard) to prevent contamination. This must be removed prior to fitment (Fig 1). Gasket spacer block (Fig 1) should NOT be removed at this point.

5. To ensure correct installation, mark the minimum and maximum pipe insertion depths obtained from Table 3 around the full circumference of both pipe ends as shown in Fig.2.

6. Slide the UltraGrip Flange Adaptor onto pipe end. Align the pipe and UltraGrip Flange Adaptor with mating flange, fit flange connecting gasket (Helden recommend using an IBC gasket for optimum sealing) and flange connecting bolts. Ensure pipe is inserted to a depth between X (min) and M (max) as shown in Fig 3 using depths obtained from Table 3. – adjust if necessary. Tighten flange connecting bolts using standard procedures. If the mechanical fitting is being installed on plain ended pipe. The end of the product should sit between the minimum and maximum insertion depth X (min) and M (max) (Refer table 3).

7. All UltraGrip flange adaptors incorporate gasket spacer blocks (Fig.1) which prevent the end rings from collapsing during transportation. These must be removed prior to fitment at this stage.

8. Tighten diametrically opposed nuts of the axial fasteners as per Fig 4, giving each nut one or two turns at a time to draw up the end ring evenly. All nuts are required to be tightened up as many times as necessary to achieve the required torque (Ref Table 3). On completion, there should be an even radial gap between pipe and end ring of the fitting, with all of the M (max) line being visible and none of the X (min) line visible.

9. Decide now what type of connection is required: GRIPPING or NON-GRIPPING:-

   a. GRIPPING - When used as a gripping type, tighten diametrically opposed bolts of the radial fasteners as per Fig 4, giving each bolt one or two turns at a time to engage the grippers evenly. All bolts are required to be tightened up as many times as necessary to achieve the required torque (Ref Table 3).

   b. NON-GRIPPING - When used as a non-gripping type, the radial fasteners must not be torqued. When installed as a flexible (non-gripping) product UltraGrip does not prevent pipe pull-out and adequate external restrain has to be provided.

ULTRAGRIP FLANGE ADAPTORS PN10 DN900

Pipe materials, insertion depths and bolt diameters for UltraGrip products

Table 5.

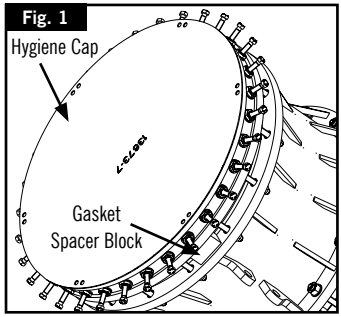
Nom Size	O.D. Range (mm)	Flange Nom Size	Axial Fastener		Radial Fastener					Setting Gap (mm)		Insertion Depth (mm)		Pressure Rating for Water	
			Stud Size	Recommended Bolt Torque (Nm) for all materials	Bolt Size	Recommended Bolt Torque (Nm) for Ductile Iron	Recommended Bolt Torque (Nm) for PE	Recommended Bolt Torque (Nm) for Steel & Cast Iron*	Recommended Bolt Torque (Nm) for MOPVC	A (min)	B (max)	X (min)	M (max)	Gripping Product	Flex Product
DN900	892-927	800	M20	190-210	M16	N/A	140-150	110-120	N/A	525	550	220	245	10 bar	
DN900	892-927	900	M20	190-210	M16	N/A	140-150	110-120	N/A	280	305	220	245	10 bar	
DN900	926-961	900	M20	190-210	M16	190-210	N/A	110-120	N/A	380	405	220	245	10 bar	
DN900	958-993	900	M20	190-210	M16	N/A	N/A	110-120	N/A	430	455	220	245	10 bar	

WARNING: Not conforming to torque requirements for different pipe materials can result in pipe slippage and / or pipe damage.

Table 6.

Pipe Materials	Gripping	Non-Gripping	Support Liner Required
Steel	✓	✓	
Ductile Iron	✓	✓	
Cast Iron	✓	✓	
MOPVC	✗	✗	
PE100	✓	✓	✓
PE Barrier Pipe	✗	✗	
Asbestos Cement	✗	✓	

Fig. 1



NOTES

These instructions relate to the UltraGrip range of Flange Adaptors for use on the pipe materials noted in the table. UltraGrip is supplied fully assembled for use as an end restraint (gripping) product and should not be dismantled prior to installation, unless it is to be used as a flexible (non gripping) product in which case the gripper bolts should not be torqued.

Site test pressure = 1.5 times working pressure
Thick pipe coatings and protective wrappings must always be removed.

Above ground exposed pipework is subject to both loads from the internal pressure and those from temperature changes / thermal expansion, which can be substantially higher than those from internal pressure and cannot always be safely determined. UltraGrip can be used in above ground applications, where it is not exposed to direct sunlight, and falls within the 40 degrees operating temperature range (between -20 and +60).

*110-120 torque rating for cast iron pipes assumes the cast iron has a wall thickness of 32mm and in a condition where the structural strength has not been compromised. For thinner wall cast iron pipes, please contact Helden for a recommended bolt torque.

Fig. 2

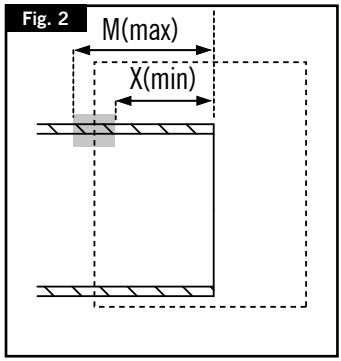


Fig. 4

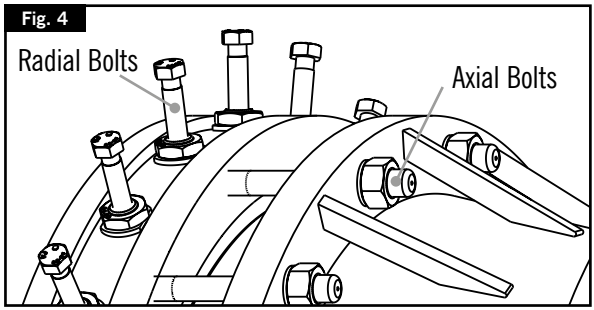
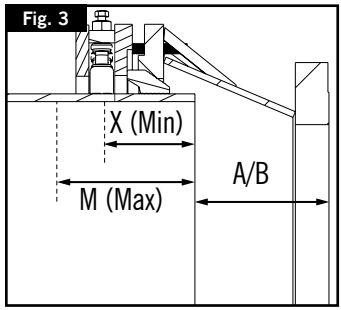


Fig. 3



ULTRAGRIP FLANGE ADAPTORS PN10 DN900

Installation Instructions

1. Check that pipe material and size are suitable for the UltraGrip Flange Adaptor. For PE always use a support liner. (See pages 8-9)

2. Examine pipe ends and ensure that pipe surfaces are clean and free from score marks, scale, rust or any loose debris or other surface defect that may affect fitting performance. Weld beads must be ground flush, maintaining correct surface profile. Thick pipe coatings or wrappings must always be removed. UltraGrip must sit either on to the bare pipe surface or on a thin paint film.

3. **Hazard Warning:** Lifting lugs, where provided, are designed/tested for lifting only the product to which they are attached. Failure to follow these instructions could result in serious personal injury or death, or property damage.

   Ensure that you are trained, competent and familiar with the lifting appliance and accessories to be used. Ensure that the correct equipment is used and is marked with its WLL (Working Load Limit) or tables are available to determine the WLL. Ensure that you visually inspect the lifting gear and accessories before proceeding with the lift, discarding defective equipment. Ensure work is within the WLL for the equipment. Do not use equipment that is faulty, or operate it beyond the WLL. It must be examined by a competent inspection engineer and re-certificated. Only undertake slinging and banksman's duties if you are competent and have been trained. This must be provided by a recognised training provider. Never walk underneath or slew a load over a person.

4. All UltraGrip Flange Adaptors incorporate hygiene protective caps (which consist of bio-degradable tie-wraps and bio-degradable water resistant cardboard) to prevent contamination. This must be removed prior to fitment (Fig 1). Gasket spacer block (Fig 1) should NOT be removed at this point.

5. To ensure correct installation, mark the minimum and maximum pipe insertion depths obtained from Table 5 around the full circumference of both pipe ends as shown in Fig.2.

6. Slide the UltraGrip Flange Adaptor onto pipe end. Align the pipe and UltraGrip Flange Adaptor with mating flange, fit flange connecting gasket (Helden recommend using an IBC gasket for optimum sealing) and flange connecting bolts. Ensure pipe is inserted to a depth between X(min) and M(max) as shown in Fig 3 using depths obtained from Table 5. – adjust if necessary. Tighten flange connecting bolts using standard procedures. If the mechanical fitting is being installed on plain ended pipe. The end of the product should sit between the minimum and maximum insertion depth X(min) and M(max) (Refer table 5).

7. All UltraGrip flange adaptors incorporate gasket spacer blocks (Fig.1) which prevent the end rings from collapsing during transportation. These must be removed prior to fitment at this stage.

8. Tighten diametrically opposed nuts of the axial fasteners as per Fig 4, giving each nut one or two turns at a time to draw up the end ring evenly. All nuts are required to be tightened up as many times as necessary to achieve the required torque (Ref Table 5). On completion, there should be an even radial gap between pipe and end ring of the fitting, with all of the M(max) line being visible and none of the X(min) line visible.

9. Decide now what type of connection is required: GRIPPING or NON-GRIPPING:-

   a. GRIPPING - When used as a gripping type, tighten diametrically opposed bolts of the radial fasteners as per Fig 4, giving each bolt one or two turns at a time to engage the grippers evenly. All bolts are required to be tightened up as many times as necessary to achieve the required torque (Ref Table 5).

   b. NON-GRIPPING - When used as a non-gripping type, the radial fasteners must not be torqued. When installed as a flexible (non-gripping) product UltraGrip does not prevent pipe pull-out and adequate external restrain has to be provided.

ULTRAGRIP RILSAN COATED MILD STEEL SUPPORT LINERS FOR PE PIPE - DN900

Fig. 1

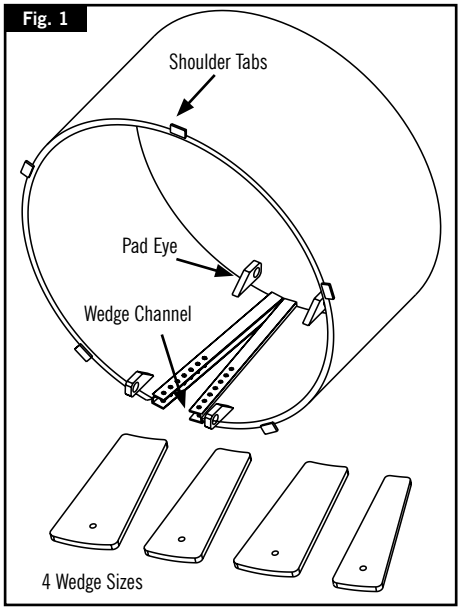


Fig. 2

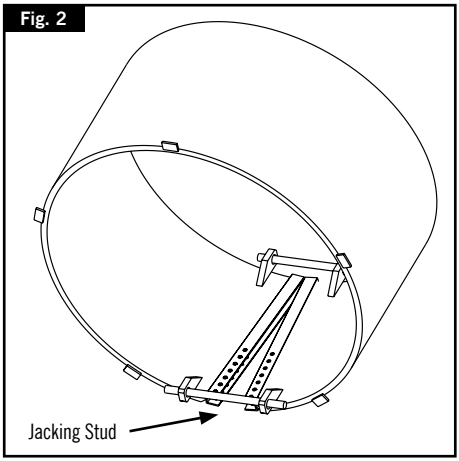


Fig. 3

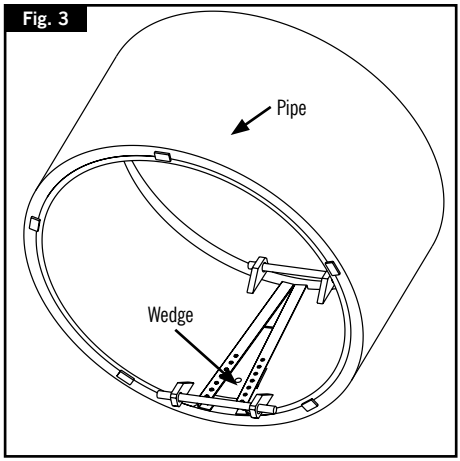
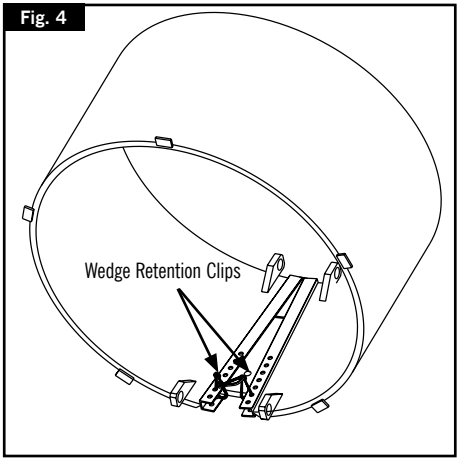


Fig. 4



ULTRAGRIP RILSAN COATED MILD STEEL SUPPORT LINERS FOR PE PIPE - DN900

Installation Instructions

1. Check that the support liner and wedges are suitable for pipe OD and wall thickness.
2. Measure bore of pipe and select correct wedge from the set of 4 supplied (See Table 7 for PE).
3. Insert the liner into the bore of the pipe until the shoulder tabs butt against the pipe end.
4. Fit the appropriate jacking stud through the pad eyes in the liner (Fig 2).
5. Using the nuts on the studs, expand the liner until it contacts the pipe bore.
6. Insert the appropriate wedge into the channel of the liner.
7. Tap wedge until liner is fully expanded against pipe bore.(Fig 3)
8. Clip the wedge retention clips in the channel holes closest to the end of the wedge to prevent wedge sliding out.
9. Once the two clips have been inserted, use a third clip to interlock all the clips together. (Fig 4)
10. Slacken off the nuts on the jacking studs and remove jacking studs and nuts.

WARNING: Damage to the wedge or liner coating will result into rusting of the product; utmost care must be taken when inserting the wedges in the liners to avoid damaging the coating.

Table 7.

Pipe code	Pipe size	Pipe OD		Pipe ID		Wedge 1				Wedge 2				Wedge 3				Wedge 4			
	(mm)	Min (mm)	Max (mm)	Min (mm)	Max (mm)	Min ID (mm)	Max ID (mm)	Short Edge (mm)	Long Edge (mm)	Min ID (mm)	Max ID (mm)	Short Edge (mm)	Long Edge (mm)	Min ID (mm)	Max ID (mm)	Short Edge (mm)	Long Edge (mm)	Min ID (mm)	Max ID (mm)	Short Edge (mm)	Long Edge (mm)
PE Support Liners																					
900-SDR17	900	900	908.1	783	802	773	782	50	100	783	792	82	132	788	797	98	148	793	802	114	164
900-SDR21	900	900	908.1	805	822	796	804	50	100	805	813	79	129	810	818	94	144	814	822	108	158

Notes:

Notes:

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

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