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The Complete Guide to HydroGrip™

TECHNICAL INFORMATION

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HydroGrip™ Product + Technical Overview

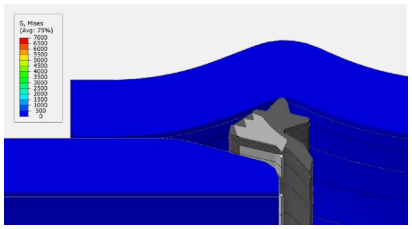
HydroGrip C900

HydroGrip C900

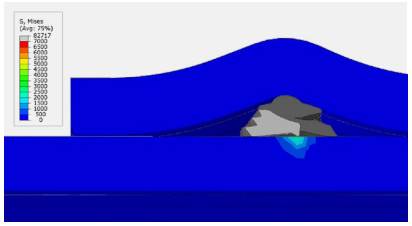
PRODUCT DESCRIPTION

HydroGrip gaskets are internal restraints designed for PVC (C900) applications. Engineered with metal teeth embedded in the rubber to lock the gasket in place, HydroGrip converts a conventional joint into an internal restraint joint, eliminating the need for bolt-on harness restraints, clamps, thrust blocks, or other external restraint technology on your PVC piping systems. Combined with the ease of installation, HydroGrip provides significant savings in installation time and material cost.

FEA PRE-ASSEMBLY



FEA POST-ASSEMBLY



INDUSTRY

Water, Waste Water, Irrigation, Fire Protection Reclaim

PIPE TYPE

Polyvinyl Chloride

APPLICATION

Internal Restraint Joint

STANDARD COMPOUND

SBR, EPDM, Inserts: Stainless Steel [SS]

AVAILABLE SIZES + CERTIFICATIONS

SIZING SYSTEM	SIZES [in]	SPECS			CERTIFICATIONS
CIOD	4, 6, 8, 10, 12, 16, 18, 20, 24	ASTM D395	D1149	D1566	NSF 61
IPS	4, 6, 8	D412	D1229	F477	
		D471	D1349	F913	
		D573	D1414		
		D883	D1415		

ADDITIONAL SIZES AND MATERIALS MAY BE AVAILABLE. PLEASE CONTACT CUSTOMER SERVICE TO DISCUSS YOUR PROJECT REQUIREMENTS.

HydroGrip C900

TECHNICAL DESCRIPTION

Pressure-rated PVC internal restraint for Rieber groove application.

APPLICATION Internal Restraint Joint

NOMINAL DIAMETER	MAX APPLIED PULLING FORCE			
AWWA C900	CIOD-DR 18 CLASS 235	CIOD-DR 14 CLASS 305	IPS-SDR 26 CLASS 160	IPS-SDR 21 CLASS 200
4"	4,300 LB	5,000 LB	2,500 LB	3,200 LB
6"	8,800 LB	11,000 LB	5,500 LB	6,900 LB
8"	15,000 LB	20,000 LB	9,400 LB	11,700 LB
10"	23,000 LB	30,000 LB		
12"	32,000 LB	42,000 LB		
16"	55,000 LB	72,000 LB		
18"	70,000 LB	91,000 LB		
20"	86,000 LB	101,000 LB		
24"	122,000 LB	159,000 LB		

PRESSURE CLASS

CIOD AWWA-C900		IPS AWWA-C900	
305 PSI	DR14	250 PSI	SDR 17
235 PSI	DR18	200 PSI	SDR 21
165 PSI	DR25	160 PSI	SDR 26

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HydroGrip™ Specifications

SUGGESTED SPECIFICATIONS FOR HYDROGRIP PVC PIPE AND FITTING JOINT RESTRAINT

Joint restraint for C900 PVC pipe and fitting systems shall be affected by an internal self-restraining system such as HydroGrip or the equivalent. Such a system shall be rated by the manufacturer to pressures that meet or exceed the rating of the C900 PVC pipe being restrained (e.g., DR 18 is rated for service at 235 psi). No degradation of the pipe's performance is allowed.

- Gasket material shall be SBR or approved equal.
- Restraint must be tested and approved by Factory Mutual.
- Pipe or Fittings shall be manufactured according to ANSI/AWWA C900 specifications and shall originally be fitted with a Rieber gasket.
- Installation shall be in accordance with ANSI/AWWA C605 and the restraint manufacturer's recommendations.

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HydroGrip™ Features & Benefits

FEATURES	BENEFITS
HydroGrip is an internal restraint available in SBR or EPDM with stainless steel locking segments	– Eliminates external corrosion issues on steel harness components – Eliminates poly and/or wax wrapping – Works on all C900 pipe and PVC pressure fittings that use the Rieber gasket
HydroGrip has the same installation procedure as the pipe made with the standard gasket	– Reduces chance of installation error vs other internal restraints
HydroGrip requires no change to the pipe manufacturing processes	– Less expensive to produce compared to other internal restraints – Allows for shorter lead times – Less chance of quality issues
HydroGrip requires no double inventory	– Inventory of internally restrained pipe in the market is increased because it's easier to inventory – Less inventory carrying cost for the distributor – Contractor reduces their hours of variable labor and replaces with it a low, fixed cost of material
HydroGrip saves significant labor over harnesses	– Easier to keep installation schedule – The contractor can get down the ditch a little farther every day – Saves money on total installed cost over all other restraints

FEATURES	BENEFITS
HydroGrip is the fastest and easiest way to restrain C900 PVC pipe to pipe	- Makes PVC Pipe easier to install - Trench safety is GREATLY improved - C900 is FM approved
The HydroGrip gasket can be installed outside of the ditch	- Opportunity for installation error reduced - Gasket can be installed while other pipes are being laid, which is not possible with harnesses - Faster and cleaner to install
HydroGrip is a proprietary product	- Quality control is more easily identifiable - Hultec is a proven and trusted company
HydroGrip has only two components in the manufacturing process vs four or more for harnesses	- Quality control ownership is more easily identifiable - Ownership in the manufacturing process is simplified
HydroGrip carries the full deflection of the pipe as defined by the pipe manufacturer	- Easier to install as it follows standard procedures - Can be used on casing pulls and HDD projects*
Rated at the pipe pressure rating with a 2:1 safety factor	- The restraint will perform as designed during unexpected surges in pressure. - Seismic tested

*HydroGrip may not be suitable for all HDD projects.
Please contact your sales representative to determine if HydroGrip is suitable for your application.

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HydroGrip™ Assembly Instructions

The installed gasket direction is critical to performance. Install the gasket with the painted face marked “INSTALL THIS FACE OUT” pointing out of the bell and facing the installer.

HydroGrip gaskets will be supplied loosely with the OEM’s joint system. Prior to shipping, the OEM will remove the Rieber gaskets to avoid potential damage to the Bell Raceway. This eliminates the risk of improper removal that could result in leaks during installation.

When installing HydroGrip gaskets, please refer to the OEMs joint system assembly instructions. The installation instructions provided here are supplemental to the OEMs provided assembly instructions. In the unlikely event there is a conflict in information provided, please refer to the OEMs instructions.

CLEAN THE BELL SOCKET AND GASKET GROOVE

Using a clean rag, remove all dirt and other foreign matter from the socket paying particular attention to the gasket groove.

FIG. 1

INSTALL THE HYDROGRIP GASKET

THE HYDROGRIP GASKET MUST BE INSTALLED IN A CLEAN AND DRY BELL SOCKET. DO NOT USE LUBRICANT TO INSTALL THE GASKET IN THE BELL RACEWAY.

Once the gasket groove is clean, install the HydroGrip gasket in the pipe's gasket groove by forming a loop in the gasket and inserting it in the groove. Larger gaskets may require two loops.

Gasket orientation is critical to performance. Install the gasket with the painted face marked "INSTALL THIS FACE OUT" pointing out of the bell and facing the installer.

After the gasket is expanded and seated in the groove, wiggle the gasket to make sure it is fully seated.

FIG. 2

APPLY ASSEMBLY (JOINT) LUBRICANT

Verify that the gasket, bell, and spigot are clean. Apply a light coating of assembly lubricant to the bevel of the spigot and approximately 1/2" onto the pipe barrel only.

DO NOT APPLY ASSEMBLY LUBRICANT TO THE HYDROGRIP GASKET OR THE INSIDE OF THE BELL AS THIS COULD CAUSE THE GASKET TO BE DISPLACED DURING JOINT ASSEMBLY.

FIG. 3

ASSEMBLE THE JOINT

Immediately prior to joint assembly, the gasket, socket, and spigot should be inspected for contamination. If necessary, the HydroGrip gasket should be removed, all components cleaned, and the gasket reinserted into the socket. The use of a bell hole, as shown in Figure 5, at each joint being assembled will aid in preventing foreign material accumulation. Foreign material present on the spigot will reduce the joint's sealing capabilities.

Align the bell and spigot to be mated, bell to spigot, and insert the spigot into the bell of the mating pipe until resistance is felt. Be careful to avoid contaminating the lubricant-covered spigot with dirt or other foreign matter as this may affect gasket sealing. Using a backhoe, chain come-a-long, or other suitable device, push the spigot into the bell until the assembly stripe is reached.

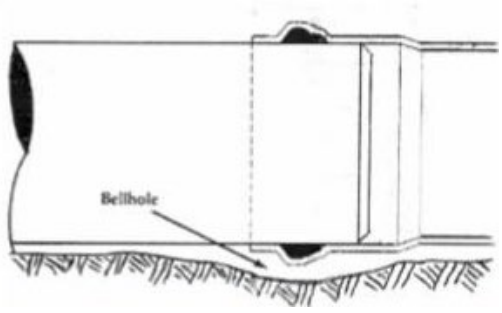
Do not over-insert the spigot as damage to the pipe may occur. The joint is now ready for use.

FIG. 4

To protect against over-insertion, Hultec offers **The Rig** (Resistant Insertion Grip) system as an easy-to-install solution.

Click here or contact your Hultec sales representative for additional information.

FIG. 5



JOINT DEFLECTION

After assembly, the joint may be deflected according to the pipe manufacturer's instructions and limits.

Do not exceed the joint deflection limits stated by the pipe or fitting manufacturer.

TEMPERATURE

HydroGrip gaskets should be installed at a temperature above 40° F. If the gaskets are below that temperature, they should be warmed prior to installation.

COLOR CODING

The colored gasket face notates gasket application and material.

FIG. 6

HYDROGRIP GASKET COLOR CODES

FOR RIEBER GASKET REPLACEMENT

C100, SBR	WHITE
C100, EPDM	ORANGE
IPS, SBR	PINK
EPDM	GREEN

FOR RIEBER GASKET REMOVAL

In the event field removal of the Rieber gasket is required, please follow these steps to ensure proper removal.

Working from the bell end of the pipe or fitting, use a medium-sized, flat blade screwdriver to remove the original Rieber gasket.

Slide the screwdriver between the Rieber gasket and the gasket groove in the bell and pry the Rieber gasket out. The Rieber gasket has a steel band reinforcement molded in.

The tip of the screwdriver must be inserted between this band and the socket to remove the Rieber gasket. This is best done by feel. Take caution not to use excessive force so as not to score or gouge the seating area.

FIG. 7

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HydroGrip™ Field Cut Instructions

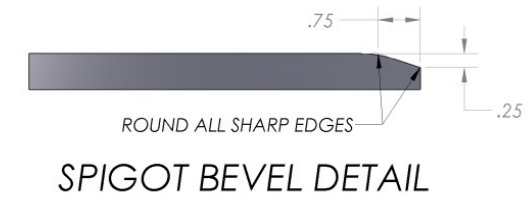
The installed gasket direction is critical to performance. Install the gasket with the painted face marked “INSTALL THIS FACE OUT” pointing out of the bell and facing the installer.

FIELD CUT PIPE AND BEVEL

If for any reason the factory bevel on the spigot end of the pipe is removed (e.g., the pipe is cut in the field to alter its length), a new bevel must be formed to aid assembly. This bevel may be formed by a variety of methods (e.g., a portable hand grinder) and need not be very substantial.

A bevel depth of at least 1/4-inch deep by 3/4-inch long is sufficient. Larger pipe sizes will require larger bevels.

FIG. 1



SPIGOT BEVEL DETAIL

MARK ASSEMBLY DEPTH

If the pipe does not have an assembly strip supplied by the manufacturer, measure from the lip of the bell to end of the socket. Subtract 1/2 inch from that. Place an assembly mark on the spigot this distance from the spigot end. This distance may vary by pipe manufacturer.

The joint may now be assembled according to the standard practices described in the HydroGrip assembly instructions.

FIG. 2

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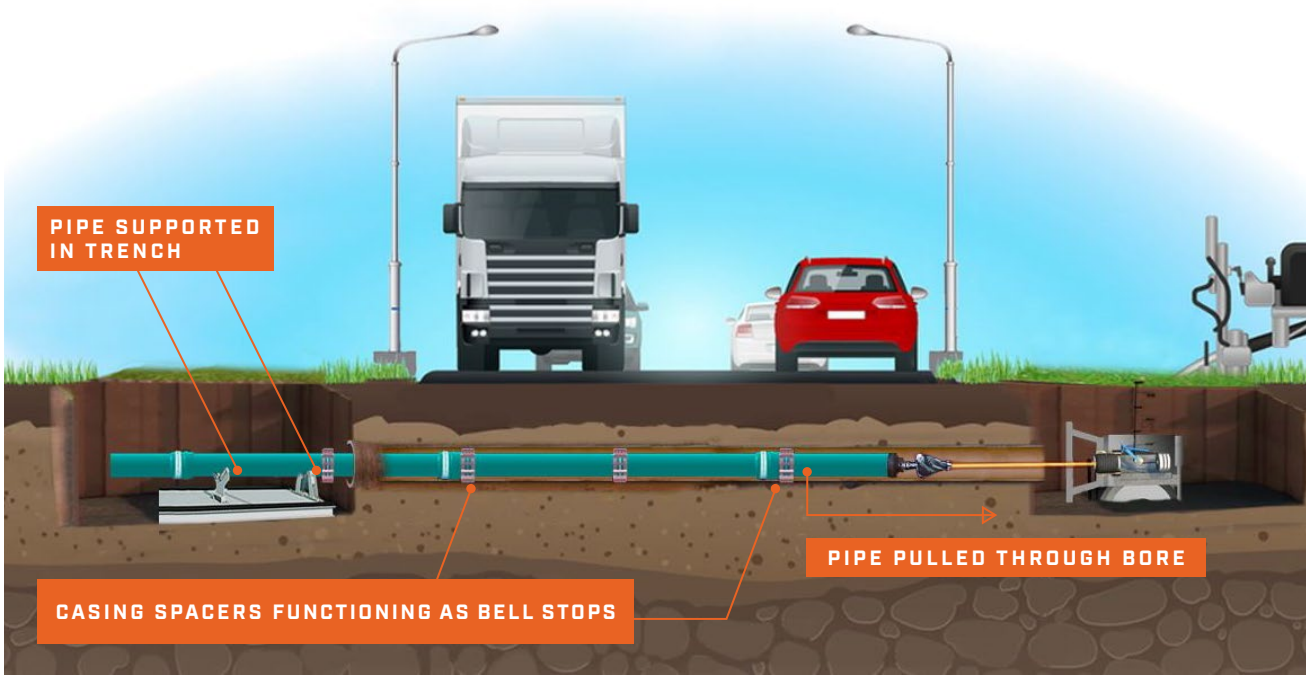
HydroGrip™ Casing Guidelines

JOBSITE CONSIDERATIONS

- The casing should be sized for adequate clearance between the ID of the casing and the largest OD of the pipe and/or the largest OD of the casing spacer(s), whichever is greater.
- The casing bore should be clean and free of debris or imperfections that might impede a smooth pull of the pipe through the casing.
- Pipe may be installed one joint at a time—that is the first pipe is pulled into the casing prior to the second pipe being mated with it—or as a completely assembled string of pipe.
  - In either case, care must be taken to ensure that the joint is not over-deflected during pipe joint assembly and pipe installation.
  - The joint cannot be over-belled (i.e., the spigot of the mating pipe being inserted into the bell beyond the manufacturer's assembly stripe). Doing so greatly limits the pipe joint's deflection capability and may lead to failure of the joint.
  - Over-insertion of one pipe into the next voids the HydroGrip and pipe manufacturer's warranties.
  - Using a casing spacer as a bell stop (assemble the spacer on the spigot end of the pipe so that the spacer edge closest to the spigot end aligns with the assembly stripe) greatly reduces the risk of over-insertion.
- On both the entrance and exit of the casing, the pipe must be supported.
- Casings are typically laid out in a straight line and allow an easy pull. If the casing contains bends or other offsets, the pipeline designer must ensure that the casing, pipe and associated spacers are sized and located such that there is no interference between any of these components when the pipe is installed in the casing.

FIG. 1



JOINT ASSEMBLY

It is critical that the gasket be installed with the painted face marked with "INSTALL THIS FACE OUT" pointing out of the bell and facing the installer. The gasket must be installed in a clean and dry bell socket.

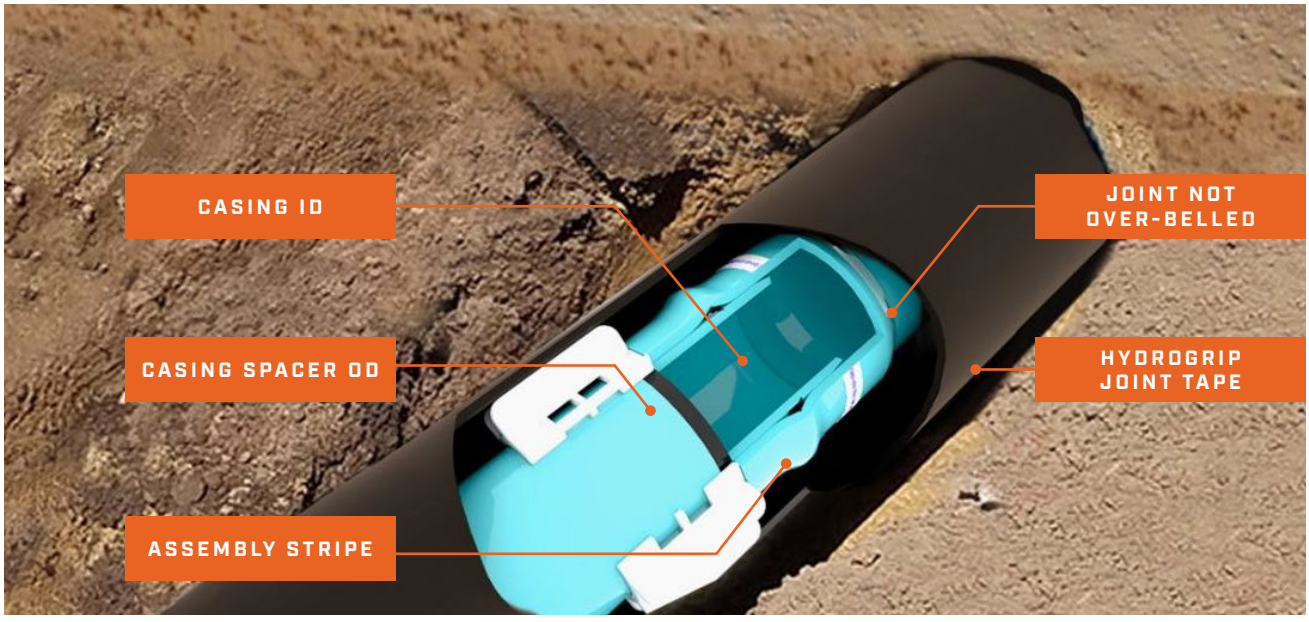
- Strict attention must be paid to the assembly of the joint.
  - Do not insert the spigot of the mating pipe into the bell beyond the manufacturer's joint assembly strip as this may reduce the maximum allowable joint deflection.
  - Over-insertion of the spigot (over-belling) voids both HydroGrip's and the pipe manufacturer's warranty.
- Pipe alignment during joint assembly is critical. Ensure that one pipe is aligned with the mating pipe prior to, and during, the joint assembly process.
- HydroGrip gaskets should be installed at a temperature above 40° F. If the gaskets are below that temperature, they should be warmed prior to installation.
  - Submersion of the gasket in warm water is one method

HydroGrip Joint Assembly Instructions and Field Cut Instructions may be found at Hultec.com/Solution/HydroGrip

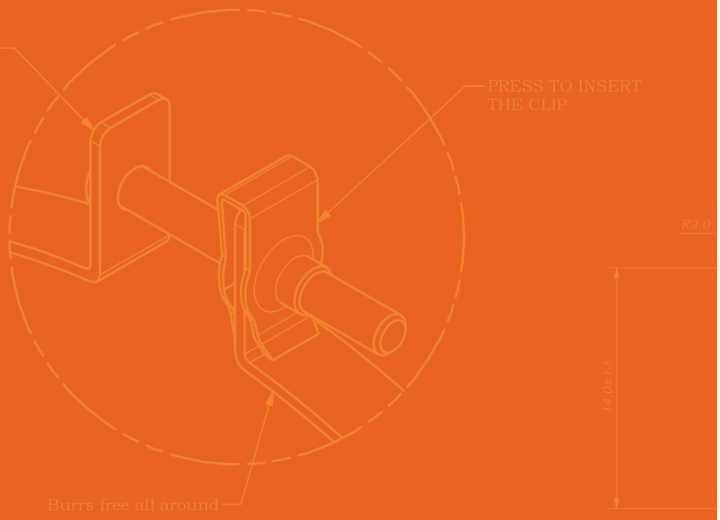
CASING SPACERS

- If casing spacers are used, their equivalent OD should be greater than the largest OD of the pipe (typically the bell OD).
- Casing spacers attached to the pipe are highly recommended but may not be absolutely necessary depending on the size and layout of the casing.
- Installing a casing spacer on the assembly stripe and using it as a bell stop can greatly reduce the chances of over-belling the joint either during joint assembly or if the pipe assembly is pushed through the casing; pushing is not recommended.
- At least two casing spacers per pipe are recommended, one at the assembly stripe on the spigot and one mid-pipe.
  - Best results are obtained with a third spacer located immediately behind the bell chime to fully support the pipe joint.
  - Depending on pipe size and class, more spacers may be required to ensure the pipe is fully supported in the casing.

FIG. 2



For more information on
HydroGrip™ and other Hultec products,
contact **Sales@Hultec.com**
or call **+1.817.923.3344**



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