

Viking Johnson UltraGrip NG

Launch Pack

Section 09 – Frequently Asked Questions

Section 09 FREQUENTLY ASKED QUESTIONS

What is Viking Johnson's Design Life Expectancy for the UltraGrip Product Range?

UltraGrip NG is designed and manufactured to have a Design Life Expectancy of 50 years.

What is the maximum ovality that can be accommodated by UltraGrip?

Ovality is accommodated by variations in the gasket compression around the circumference of the pipe. Because of the thickness of the gasket used on UltraGrip, a maximum ovality of 3mm is possible.

Why is UltraGrip coating not GSK approved?

GSK is an association of Epoxy coating manufacturers. They do not offer approvals for coatings other than Epoxy at the moment.

Why does UltraGrip need a support liner for PE pipe and AquaFast does not?

The AquaFast sealing ring has a double 'O' ring design that exerts a very light pressure on the outside of the PE pipe when the product is installed. This pressure is not enough to collapse the PE pipe. The AquaFast gasket is 'Pressure Responsive'. Pipeline pressure is applied to the back of the gasket to increase sealing as pipe pressure increases.

On the UltraGrip range, full gasket sealing pressure is achieved under bolting. The external loads on the pipe are therefore much higher than those experienced by the AquaFast. These loads would collapse the PE pipe unless a support liner is used.

Why the gripping element is not made from metal (stainless steel)?

Viking Johnson tested many different types of gripping elements during the development of UltraGrip. We found that plastic grippers coated with Aluminium Oxide Grit gave the best results. Metallic grippers rely on penetration of the pipe surface to provide the grip. The amount of penetration varies greatly depending on the pipe material. Therefore, the amount of grip will vary also. The UltraGrip grippers work on friction between the grit and the pipe surface. They are pressed 'against' rather than 'into' the pipe surface. This gives more consistent gripping performance and also means that the same gripper can be used for all pipe materials.

What is the Purpose of the Minimum and Maximum Insertion Depths and what if they are Reduced or Exceeded?

The setting gaps used in UltraGrip are to ensure the following does not happen:-

1. Maximum insertion depth. This is to ensure that with maximum angular deflection and with the pipe fully expanded due thermal changes, there is no chance of the pipe end coming into contact with the other pipe in the coupling. In the event this occurs then there is a chance of damage to the pipe ends.

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2. Minimum insertion depth – this is to ensure that again with full angular deflection and with the pipe fully contracted due to thermal changes then there is no chance of the gasket falling off the end of the pipe – i.e. it comes out of the coupling.

What Corrosion Protection is used on the UltraGrip Product?

All cast components in UltraGrip products (sleeve, end ring, adaptor bodies etc) are fully coated with Black Rilsan Nylon 11, a thermoplastic polyamide produced from a renewable raw material of plant origin (Castor Oil) that meets WIS 4-52-01 part 1 and EN 10310. Rilsan has excellent resistance to impact, abrasion, weathering, many chemicals and with good thermal stability and flexibility to accommodate rough site handling.

As standard the bolts / nuts are supplied in stainless steel coated with a dry film lubricant to prevent galling during tightening. The nuts are Dacromet coated. UltraGrip End Caps are available with steel bolts & nuts coated with green Sheraplex to WIS 4-52-03.

What is the working pressure?

The working pressure for UltraGrip NG is as follows:-

Water Applications:- DN40 to DN300 = 16 bar / DN350 & DN400 = 10 bar

Gas Applications:- DN40 to DN400 = 5 bar

All products have a field test pressure rating of 1.5 times the rated working pressure.

What is the maximum working temperature for the UltraGrip?

The UltraGrip product range has been designed for use on cold potable water applications and as such will function up to a temperature of 30 Deg C.

Can UltraGrip be used on gas pipes?

The UltraGrip product range is suitable for use on gas applications, so long as the working pressure of the system is 5 bar or less and the products are fitted with Nitrile gaskets.

Why will UltraGrip not grip on AC pipe?

AC pipe is manufactured from asbestos fibres and cement slurry, with the encapsulated asbestos fibres acting as a reinforcing material to form an intrinsic part of the cement matrix. The main issues preventing the use of UltraGrip on AC pipe are:-

- It is not possible to confirm the structural strength of the AC pipe in the field
- The grippers will impose a high load on the AC pipe and potentially crack the pipe

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- It is not possible to get a reliable friction gripping action between the UltraGrip and the fibre cement matrix material used to manufacture the pipe, which may be deteriorating.

UltraGrip needs a support liner for PE pipes and Thin Walled PVC pipes. How do we determine what is 'Thin Walled'?

PVC pipe to German Standard DIN8062 Class 4 does not require a support liner. All other PVC pipe is considered 'Thin Walled' and will require a support liner.

Can you get the grippers back in if they are removed inadvertently?

Yes

How often can the End Cap be re-used before you have to change the gripper/seal sub assembly?

The Grippers should be changed after each use of the UltraGrip End Cap. The complete sub-assembly should be changed if the Carriers are out of shape.

Can you just replace the grippers or does the whole sub-assembly need to be replaced?

The Grippers can be replaced alone if this is all that is required.

Are the bolts reversible on all sizes?

No. All the couplings with Cup Square Heads are reversible. These are on all Couplings and Pecatadaptors from DN100 and larger and on all Reducing Couplings. UltraGrip End Caps have Pan Head bolts which are also reversible. UltraGrip Flange Adaptors do not have reversible bolts.

Is it possible to reverse the bolts on one end only?

Yes

Will UltraGrip grip on other pipe materials such as Stainless Steel, Copper, ABS etc?

Stainless Steel and Copper pipes are too thin to be able to use UltraGrip. ABS pipe can be used with a support liner.

Can UltraGrip be used as a gripping / restrained product on GRP pipe?

No. The high external load applied by the UltraGrip seal and gripper will delaminate GRP pipe.

What pipe materials can UltraGrip be used on?

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The UltraGrip product range can be used on the following pipe materials, which depends on if it is being used in the gripping / restrained or non-gripping / flexible mode as follows:-

Gripping / Restrained Product or Non-Gripping / Flexible Products	Non-Gripping / Flexible Products Only
Used without support liner:- - Steel (coated & uncoated) - Ductile Iron - Cast Iron - PVC Class 4 DIN8062 Used with a support liner:- - PE80 & PE100 - PVC - all other classes	Used without support liner:- - Asbestos Cement

Can UltraGrip product be used on PE Pipe?

UltraGrip can be used on PE pipe so long as a close fit support liner is used.

PE pipes are not "rigid" and when the pipe is subjected to an external load (from the gripper / gasket) it will over time react and deform away, so for this reason we have to use a support liner that after installation is in contact with the bore of the pipe to prevent it from over time collapsing and leaking. Another characteristic of this pipe material is that its length reacts to both thermal and pressure changes and these changes can be large – i.e. it expands / contracts and if not fully restrained in a coupling.

Why does UltraGrip need a "close fit liner stainless steel" and can not use those used in Viking Johnson Small Diameter AquaGrip?

The manufacturing tolerances for PE pipe mean its bore will always vary in diameter. PE pipes are not "rigid" and when the pipe is subjected to an external load (from the gripper / gasket) it will over time react and deform away, so for this reason we have to use a support liner that after installation is in contact with the bore of the pipe to prevent it from over time collapsing and leaking. There are two types of support liners:-

- Close Fit – these are where the liner is adjusted during installation on site to form a close fit in contact with the bore of the PE pipe to provide support. This is usually done by driving a wedge in the liner to expand it outwards to physically make contact with the bore of the pipe. These liners are used where the mechanical coupling is not designed to collapse the pipe, but simply grip & seal on the pipe.
- Loose Fit – these are liners made from tube to accommodate the various manufacturing tolerances for PE pipe and thus will fit into the smallest bore likely

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to be encountered in the field. These liners are used where the mechanical coupling is designed to physically collapse the PE pipe onto the liner as well as grip & seal on the pipe

The carrier and gripper sub-assembly mechanism in UltraGrip is only designed to collapse down onto the pipe surface to mobilise the seal and friction grip and not designed to also collapse the PE pipe onto the support liner, hence the need to use “close fit” liners.

What gasket design is used in the UltraGrip products?

The gaskets in the UltraGrip products now incorporate features from the waffle design that has been used in the EasiRange of repair products. The waffle design now not only provides a series of high pressure sealing points that run circumferentially round the pipe but also one that run longitudinally under the gasket.

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Do Viking Johnson UltraGrip Products Have To Conform To PED – European Pressure Equipment Directive?

The pressure equipment directive, applies to the design, manufacture and conformity assessment of pressure equipment and assemblies of pressure equipment with a maximum allowable pressure greater than 0.5 bar.

UltraGrip products are not defined as pressure equipment or pressure accessories but are defined as component parts for pressure equipment for which the PED specifies no specific assessment procedure. Their suitability where applicable will be checked on the occasion of conformity assessment of the complete pressure equipment or assembly.

E.g. A compressor set may be defined as pressure equipment made up of component parts including tubes, flanges, couplings, and valves etc. The tubes, flanges and couplings will not require individual assessment to the PED or require CE marking but when assembled to form the “whole”, the compressor set will require assessment at that final stage. This will be the responsibility of the manufacturer or assembler of the compressor set. Valves, however, are considered by the PED to be pressure accessories and require separate individual assessment and consideration for CE marking. This will be the responsibility of the valve manufacturer.

Why Can UltraGrip only be used as a gripping / restrained product for buried applications?

Pipework installed above ground can be subjected to large changes in temperature (maximum in summer to minimum in winter) and this change in temperature introduces forces into the pipeline that have to be accommodated by any connection. These forces can be substantially larger than the end load forces due to the internal pressure of the pipeline and UltraGrip has not been designed to accommodate these additional forces. Buried pipework is not subjected to large changes in temperature, thus limiting the forces that have to be accommodated by the coupling to only those due to internal pressure.

Since it is not possible to predict safely the additional loads due to thermal expansion and contraction the use of UltraGrip in the gripping mode from a health and safety perspective is limited to buried applications only.

Why are the insertion depths for UltraGrip different when a support liner is required?

During the development of the new range of UltraGrip we have reviewed the insertion depths in the new product. These are now only a function of diameter and no longer depend on if a support liner is used – see table below:-

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Nominal Diameter	O.D. Range	Bolt Size	Insertion Depth		Pipe Materials	
					Gripping & Non-Gripping	Non-Gripping
			Size	T (min)		
	(mm)		(mm)	(mm)		
32	036.0 - 046.0	M12	TBA	TBA	Used without support liner:- - Steel - Ductile Iron - Cast Iron - PVC Class 4 DIN8062 Used with a support liner:- - PE80 & PE100 - PVC - all other classes	Used without support liner:- - Asbestos Cement
40	043.5 - 063.5	M12	65	95		
50	048.0 - 071.0	M12	65	110		
65	063.0 - 083.7	M12	65	95		
80	085.7 - 107.0	M12	65	110		
100	107.2 - 133.2	M16	90	125		
125	132.2 - 160.2	M16	90	125		
150	158.2 - 192.2	M16	90	135		
175	192.2 - 226.9	M16	125	165		
200	218.1 - 256.0	M16	125	165		
250	266.2 - 310.0	M16	125	165		
300	315.0 - 356.0	M16	125	200		
350	352.2 - 396.0	M16	125	200		
400	398.2 - 442.0	M16	125	200		