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**Rev 1: March 2018**

**KE KELIT NZ**

**VSH XPress GAS  
distributed by KE KELIT NZ**

**Australasia**

**Technical Specification**

CONTENTS

[Reference Documents 1](#_Toc508211732)

[Features and Benefits 2](#_Toc508211733)

[Pipe & Fitting Materials 2](#_Toc508211734)

[Print & Identification 4](#_Toc508211735)

[Scope of Use & Operating Conditions 4](#_Toc508211736)

[Specification 5](#_Toc508211737)

[Limitations – XPress GAS Systems 6](#_Toc508211738)

[Installation 7](#_Toc508211739)

[Warranty 8](#_Toc508211740)

[Quality Assurance 11](#_Toc508211741)

[New Zealand Building Code Compliance – XPress Stainless Steel GAS 12](#_Toc508211742)

[New Zealand Building Code Compliance – XPress Copper GAS 16](#_Toc508211743)

[Component Images and Product Codes 20](#_Toc508211744)

## Reference Documents

This document should be read in conjunction with the following documents:

* VSH XPress GAS distributed by KE KELIT NZ Technical Manual
* VSH XPress GAS distributed by KE KELIT NZ Training Manual (most recent copy available upon request)
* KE KELIT Product Catalogue for full list of available VSH XPress GAS products.

## Features and Benefits

VSH XPress GAS distributed by KE KELIT NZ is suitable for use in 2nd (natural gas) and 3rd (LPG) family gas applications. The VSH XPress GAS system is available in stainless steel pipe and fittings, or copper and copper alloy gas fittings for use in conjunction with copper pipes that satisfy EN1057 R250/R290, such as KE KELIT COPPERFIX pipe. A description of the material types can be found below.

## Pipe & Fitting Materials

VSH XPress Stainless Steel GAS pipes and KE KELIT COPPERFIX pipes for use with the corresponding VSH XPress GAS fittings are thin-walled precision pipes. The outer and inner surfaces of the pipe are blank, free of discoloration and are supplied free of manufacturing residue that could otherwise cause corrosion. VSH XPress Stainless Steel GAS pipes are manufactured in accordance with EN 10312. KE KELIT COPPERFIX pipes are manufactured in accordance with EN 1057.

The VSH XPress GAS system is available in fittings and pipe produced from the following materials:

VSH XPress Stainless Steel pipe AISI316;

X5CrNiMo 17 12 2 material no. 1.4401 in accordance with DIN-EN 10088, TIG or laser welded, 100% eddy current tested in accordance with EN 108932:2011, precision tolerances as specified in EN10312 – table 2.

VSH XPress Stainless Steel GAS fittings;

1.4404 materials in accordance with DIN 10088, fitted with “yellow” Hydrogenated Nitrile Butadiene Rubber (HNBR) O-rings.

Approved copper pipes for use with XPress Copper GAS fittings;

DHP copper material no. CW 024A in accordance with DIN EN 1412, conforming to EN1057 R250/R290. Copper pipes in accordance with EN1057 R250/R290 that are suitable for use with the XPress Copper GAS fittings are shown in Table 1 on the following page. KE KELIT NZ supply COPPERFIX piping to these specifications and intend them for use with VSH Xpress GAS fittings.

VSH XPress Copper GAS fittings;   
CU-DHP copper, CW024A materials, 2.109 bronze materials, fitted with “yellow” Nitrile Butadiene Rubber (NBR) O-rings.

XPress GAS fittings have been certified for use in gas installations by international certifying bodies DVGW, BSI, ÖVGW, and SVGW (SVGW for VSH XPress Stainless Steel GAS only). XPress GAS fittings do not come with a “Leak before Pressed” (LBP) function for safety reasons. The maximum working temperature and pressure for gas applications is indicated in the specification.

Available pipe and fitting diameters are 15mm, 18mm, 22mm, 28mm, 35mm, 42mm, 54mm, 76.1mm, 88.9mm and 108mm (76.1mm-108mm sizes are for VSH XPress Stainless Steel GAS only).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Copper Pipes in accordance with EN1057 for use with XPress Copper GAS fittings** | | | | | | | |
| **Outside**  **Diameter (mm)** | **Wall thickness (mm)** | | | | | | |
| **0.7** | **0.8** | **0.9** | **1.0** | **1.2** | **1.5** | **2.0** |
| **15** | R250 |  |  | R290 |  |  |  |
| **18** |  | R250 |  | R250  R290 |  |  |  |
| **22** |  |  | R250 | R250  R290 |  |  |  |
| **28** |  |  | R250 | R290 | R250 | R290 |  |
| **35** |  |  |  |  | R250  R290 | R290 |  |
| **42** |  |  |  |  | R250  R290 | R290 |  |
| **54** |  |  |  |  | R250  R290 |  | R290 |

Table 1: Suitable Copper Pipes

The manufacturer, V.S.H. FITTINGS B.V. carries the following Certification:

* Manufactured in accordance with ISO 9001:2015 - 'Quality Management Systems’.

## Print & Identification

XPress Stainless Steel GAS Pipe is marked as follows:

SudoXPress stainless DN [dimension x wall thickness] Stainless steel/Edelstahl–Sanitary/Sanitär–GAS 1.4401/AISI316 EN10312 DVGW GW541 Reg.nr. [DVGW registration number] SVGW ÖVGW W1.397 WRAS VA1.22/20294 VA1.12/18769 SINTEF PZH SITAC 0168/04 ATEC 14/15-2097 CSTBat 116-2097 LPCB VdS G4080037 [operational pressure LPCB/VdS] bar <FM> [operational pressure FM] psi C(UL)US LISTED 4NB1 [operational pressure UL/cUL] psi KK NDE ATG 3057 [batch number or production date], [supplier code] [model designation, repeated every 60 cm]

XPress Stainless Steel GAS fittings are marked as follows:

Yellow marking, GAS, GT5/PN5, 316L, XPress, Dimension, DVGW

XPress Stainless Steel GAS fittings have the following packaging labels:

Type R…..G, Dimension, Description, EAN No., Art. No., Approvals, Quantity

KE KELIT COPPERFIX Pipe is marked as follows:

TX88 BS EN 1057 [Hardness H/HH] [Dimensions: 18x0.8] [TYPE X] [Production date]

XPress Copper GAS fittings are marked as follows:

Yellow marking, GAS, GT1/PN5, RYW, Dimension, DVGW, Gastec Qa

XPress Copper GAS fittings have the following packaging labels:

Type G….., Dimension, Description, EAN no., Art. no., Approvals, Quantity

## Scope of Use & Operating Conditions

The VSH XPress GAS system distributed by KE KELIT NZ is for use in 2nd and 3rd family gas installation pipework. These are combustible gases: natural gases and liquid gases. It can be used for gas applications inside buildings (with Higher Thermal Capacity, proven connection tightness over 30 minutes at 650°C) and outside buildings (without HTC). When used outside of buildings it can only be laid above the ground (not under screed or underground).

During construction and in concrete, corrosion protection is required for VSH XPress Stainless Steel GAS systems and recommended for VSH Xpress Copper GAS systems. It is advisable to always use corrosion protection on the piping in situations where corrosion is likely to occur (damp room, crawl spaces, etc.). Gas pipes must always be protected in accordance with local regulations.

The operating temperature range of VSH XPress GAS systems is between -20°C and 70°C. The maximum operating pressure allowed within VSH XPress GAS systems is 5 bar, and the maximum allowable test pressure is 7.5 bar. For safety reasons, the maximum test pressure with air or inert gases is set at 3 bar.

XPress GAS fittings have been certified for use in gas installations by international certifying bodies DVGW, BSI, ÖVGW, and SVGW (SVGW for VSH XPress Stainless Steel GAS only).

XPress Stainless Steel GAS pipe is suitable for combustible gas installations in accordance with DVGW – Worksheet G260 I/II, DVGW – Worksheet G600, DVGW – TRGI 86/96 and TRF 1996.

The yellow HNBR O-rings used in VSH XPress Stainless Steel GAS fittings are suitable for use in installations for combustible gases: natural gases and liquid gases in accordance with Worksheet DVGW G260 I/II and installations for natural gas in accordance with Worksheet DVGW G600 TRGI 86/96, and liquid gases in accordance with TRF (1996).

The yellow NBR O-rings used in VSH XPress Copper GAS fittings are suitable to use in installations for combustible gases: natural gases and liquid gases in accordance with Worksheet DVGW Gas TRGI 86/89, and for liquid gases in accordance with TRF (1996).

## Specification

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **System** | **Applications** | **Temperature & Pressure** | **Sizes** | **Pipe** | **Jointing** | **Fittings** |
| VSH XPress Stainless Steel GAS distributed by KE KELIT NZ | Gas Installations Inside Buildings and Outside Buildings (Above Ground) | -20°C to 70°C, 5 bar max | 15mm - 108mm | EN 1.4401/AISI 316 manufactured to EN10312 | EN 1.4401 / AISI 316 M-profile press fittings with HNBR (yellow) O-rings. | Threaded (DIN 2999/ ISO 7/1) |
| VSH XPress Copper GAS distributed by KE KELIT NZ | Gas Installations Inside Buildings and Outside Buildings (Above Ground) | -20°C to 70°C, 5 bar max | 15mm - 54mm | DHP Copper material no. CW 024A in accordance with DIN EN 1412 complying with EN1057 R250/R290 | CU-DHP copper, CW024A materials and 2.109 bronze M-profile press fittings with NBR (yellow) O-rings. | Threaded (DIN 2999/ ISO 7/1), Screwed (DIN 3436 HTC) |

## Limitations – XPress GAS Systems

Care should be taken to ensure that the VSH XPress GAS fittings and pipe are free of excessive dirt and moisture when stored on site. Never store VSH XPress GAS system components outside. Fittings must have undamaged yellow HNBR/NBR ‘O’ Rings. You must observe the installation guidelines for the VSH XPress GAS system. Please refer to the training documentation and the VSH XPress GAS distributed by KE KELIT NZ technical manual.

Important Notes! Always cut the pipe straight at a right angle to its axis using wheel cutters. Always ensure pipes are deburred and calibrated thoroughly. Calibrate the pipe ends exactly. Always mark the insertion depth using the insertion depth gauge. Check the pipe and fittings carefully before pushing the fittings completely on to the pipe without damaging the O-rings. Remember to press the press fittings to ensure there is a long term axial seal. Press-fit end connectors are not permitted for use as a final connection to an appliance where the final connection has to be destroyed to disconnect the appliance. Mixed metal installations are not permitted for VSH XPress GAS installations i.e. a combination of stainless steel and copper is not permitted.

Observe the recommended pipe support spacings, for details see the VSH XPress GAS distributed by KE KELIT NZ technical manual. Allowances must be made for thermal expansion of the pipe as per the technical manual. Each piping system must have any debris or other harmful materials removed from the inside of the pipe surface. When pressure testing a VSH XPress GAS installation, make sure that the system is purged after testing and no air or contaminants remain in the system afterwards. Pressure testing of the VSH XPress Copper GAS System must not exceed the performance set out by the manufacturer, which is provided by KE KELIT NZ Documentation to local and government authority standards.   
In order to qualify for the Guarantee cover, each installation must use VSH XPress GAS system parts and approved EN1057 R250/R290 copper piping only (such as KE KELIT COPPERFIX). With VSH XPress Copper GAS systems, the guarantee cover only applies to the fittings i.e. any issues that arise due to the copper piping used do not qualify for cover, even if the pipe conforms to EN1057 R250/R290. To install the VSH XPress GAS system correctly, a minimal amount of expenditure is required for tools. For your own security you must use and maintain the KE KELIT approved tools.

Outer corrosion can occur if VSH XPress Stainless Steel GAS piping comes into contact with chlorine gas, saltwater or brine or (oxygen-saturated) water with a high chlorine content. If there is the danger of building materials coming into contact over a long period with highly chlorinated water, suitable corrosion protection must be used.

Copper's high resistance to corrosion often renders corrosion-protection measures superfluous. However, copper tubing must sometimes also be protected from the impact of outer corrosion, such as sulphites, nitrites and ammonia.

The designer must correctly use the XPress GAS system for its intended purpose and take into account the flow and pressure rate requirements (refer to the VSH XPress GAS distributed by KE KELIT NZ technical manual). The design and suitability of XPress GAS Systems is limited by its performance. All users must take into account all written documentation within the VSH XPress GAS distributed by KE KELIT NZ technical handbook available from KE KELIT NZ Limited. For any use outside of the VSH XPress GAS distributed by KE KELIT NZ technical manual, you must consult with a KE KELIT agent or KE KELIT NZ Limited on Phone: +64(04)5684870, or Email: [info@kekelit.co.nz](mailto:info@kekelit.co.nz).

## Installation

Installation is to only be done by a Registered Certifying Gasfitter or a Registered Licensed Gasfitter that is under the supervision of a Certifying Gasfitter as set out by the Plumbers Gasfitters and Drainlayers Act 2006. Installers should also hold a KE KELIT Installation training card, and only KE KELIT approved tools should be used as outlined in the KE KELIT training and in the VSH XPress GAS distributed by KE KELIT NZ Technical Manual.

Installations are to be carried out in accordance with the VSH XPress GAS distributed by KE KELIT NZ Technical Manual, VSH XPress GAS Training Documentation, and all national and local gas regulations. Following the manufacturer’s instructions does not relieve the obligation to meet the requirements of AS/NZS5601:2013.

For Gas Applications, pressure testing always needs to be conducted according to local regulations. In New Zealand this involves multiple gas tightness tests which are to be performed in accordance with Appendix E of AS/NZS 5601.1:2013. This ensures that the piping system will withstand a foreseeable pressure. The process is described in detail within the VSH Xpress GAS distributed by KE KELIT NZ Training Manual, and Section 3 and Appendix E of AS/NZS 5601.1:2013.

In order to comply with AS/NZS 5601.1:2013, air, the gas for which the system is designed, or an inert gas shall be the only substances used within consumer piping for pressure testing unless there is a testing process set out in the certified design for the gas installation (or part installation), and this is adhered to. Oxygen cannot be used as a substitute for air. The test pressure should be 1.5 times the maximum operating pressure, or 7 kPa, whichever is the greater.

## Warranty VSH XPress Stainless Steel GAS Systems:

Scope

These terms of guarantee apply to all by VSH Fittings B.V. (further VSH) delivered press fittings and tubes in stainless steel listed in the XPress Stainless GAS product range. The XPress Stainless GAS system can be used in the following applications.

* Gas Installations

The terms of guarantee are only applicable when the instructions in the, at the time of installation valid VSH XPress GAS distributed by KE KELIT NZ technical manual\*, are followed

Compatibility

VSH guarantees the pressed connection of XPress Stainless GAS fittings which are pressed with tubes from other brands under the following conditions:

1. The stainless steel tubes comply with DVGW worksheet GW 541 – dimensions according to table 2 – (DIN 17455) and with the national certifications for gas (e.g. SVGW worksheet G1/01, ÖVGW PG 314)
2. The terms of guarantee, as described in this document have been followed.

Content of the guarantee

1. VSH will compensate the direct damage as a result of culpable manufacturing defects (if diagnosed by VSH) in the XPress fittings and XPress pipes; in this case VSH provides a replacement delivery free of charge for all fittings and/or pipes to repair the damage and/or VSH compensates the recovery expenses such as the necessary cost for removal and installation, including the costs for restoring the building in the original condition and/or other direct consequential damage, sum up to the maximum of € 1,000,000, -- for XPress fittings and pipes in stainless steel.
2. Indirect damage, for example (but not limited to) as a result of business or production standstill, will not be compensated.
3. Damage as a result of wrong assembly or improper use of XPress fittings will not be compensated.
4. The VSH terms of guarantee apply to XPress System for fittings and pipes in stainless steel for a period of 10 years after delivery date.
5. For products, that have been replaced according the terms of guarantee, the period of guarantee is the same as the original supplied products. This means that for the replacement products the guarantee period starts at the delivery date of the original supplied products.

Obligations of Installer

The installer is obliged to:

1. Check, if the application of the products is legal and in accordance with local regulations.
2. Follow the assembly instructions as mentioned in the VSH XPress GAS distributed by KE KELIT NZ technical manual\*, valid at the time of installation.
3. Comply with the valid and accepted rules and regulations of installation technique.
4. Press the XPress fittings only with a press tool in combination with the press jaws, press slings and press elements according the XPress tool schedule – “XPress Werkzeugen Schema”\*. For XPress Stainless GAS the exceptions should be taken into account.
5. Take directly all necessary measures to limit the damage.
6. Immediately notify VSH in writing when the installer discovers or should have discovered any damage that has arisen, giving a description of the event which contains the customer name, address, the time and a description of the damage.
7. Give VSH the opportunity to, after receiving the notification of damage, determine the damage itself or to have it appraised by an expert.
8. Send the parts that have caused the damage directly to VSH for further investigation by VSH.
9. If, without written permission by VSH, the installer, end user or any other third party removes, repairs or otherwise influences the products the terms of guarantee are not applicable.

If one of the above-mentioned obligations are not met, VSH is relieved from the terms of guarantee. The terms of guarantee persist insofar as this failure does not affect the opportunities for determining the damage or its level.

Obligations of VSH

VSH is obliged to:

1. Inform the installer about the results of the investigation by VSH or a by VSH hired expert.

VSH is entitled to repair the damage itself or have it repaired by a third party.

Remaining Definitions

On these terms of guarantee the general conditions of VSH are applicable (deposited to clerk of the county-court in Amsterdam on 24 August 1992 under number 237/1992), unless deviated in the above mentioned.

\*For the most recent version of the VSH XPress GAS distributed by KE KELIT NZ technical manual, or the XPress tool schedule – “XPress Werkzeugen Schema” please contact KE KELIT New Zealand/VSH.

## VSH XPress Copper GAS Fittings (TBC):

Scope

These terms of guarantee apply to all by VSH Fittings B.V. (further VSH) delivered press fittings in CU-DHP copper, CW024A materials and 2.109 bronze materials listed in the XPress Copper GAS product range. The XPress Copper GAS system can be used in the following applications.

* Gas Installations

The terms of guarantee are only applicable when the instructions in the, at the time of installation valid VSH XPress GAS distributed by KE KELIT NZ technical manual\*, are followed

Compatibility

VSH guarantees the pressed connection of XPress GAS fittings which are pressed with tubes from other brands under the following conditions:

1. The copper tubes comply with the norm EN 1057 R250/R290 and with the national certifications for gas (e.g. SVGW worksheet G1/01, ÖVGW PG 314)
2. The terms of guarantee, as described in this document have been followed.

Content of the guarantee

1. VSH will compensate the direct damage as a result of culpable manufacturing defects (if diagnosed by VSH) in the XPress fittings; in this case VSH provides a replacement delivery free of charge for all fittings and/or pipes to repair the damage and/or VSH compensates the recovery expenses such as the necessary cost for removal and installation, including the costs for restoring the building in the original condition and/or other direct consequential damage, sum up to the maximum of € 1,000,000, -- for XPress fittings in CU-DHP copper, CW024A materials and 2.109 bronze materials.
2. Indirect damage, for example (but not limited to) as a result of business or production standstill, will not be compensated.
3. Damage as a result of wrong assembly or improper use of XPress fittings will not be compensated.
4. The VSH terms of guarantee apply to XPress System for fittings in CU-DHP copper, CW024A materials and 2.109 bronze materials for a period of 10 years after delivery date.
5. For products, that have been replaced according the terms of guarantee, the period of guarantee is the same as the original supplied products. This means that for the replacement products the guarantee period starts at the delivery date of the original supplied products.

Obligations of Installer

The installer is obliged to:

1. Check, if the application of the products is legal and in accordance with local regulations.
2. Follow the assembly instructions as mentioned in the VSH XPress GAS distributed by KE KELIT NZ technical manual\*, valid at the time of installation.
3. Comply with the valid and accepted rules and regulations of installation technique.
4. Press the XPress fittings only with a press tool in combination with the press jaws, press slings and press elements according the XPress tool schedule – “XPress Werkzeugen Schema”\*. For XPress Copper GAS the exceptions should be taken into account.
5. Take directly all necessary measures to limit the damage.
6. Immediately notify VSH in writing when the installer discovers or should have discovered any damage that has arisen, giving a description of the event which contains the customer name, address, the time and a description of the damage.
7. Give VSH the opportunity to, after receiving the notification of damage, determine the damage itself or to have it appraised by an expert.
8. Send the parts that have caused the damage directly to VSH for further investigation by VSH.
9. If, without written permission by VSH, the installer, end user or any other third party removes, repairs or otherwise influences the products the terms of guarantee are not applicable.

If one of the above-mentioned obligations are not met, VSH is relieved from the terms of guarantee. The terms of guarantee persist insofar as this failure does not affect the opportunities for determining the damage or its level.

Obligations of VSH

VSH is obliged to:

1. Inform the installer about the results of the investigation by VSH or a by VSH hired expert.

VSH is entitled to repair the damage itself or have it repaired by a third party.

Remaining Definitions

On these terms of guarantee the general conditions of VSH are applicable (deposited to clerk of the county-court in Amsterdam on 24 August 1992 under number 237/1992), unless deviated in the above mentioned.

\*For the most recent version of the VSH XPress GAS distributed by KE KELIT NZ technical manual, or the XPress tool schedule – “XPress Werkzeugen Schema” please contact KE KELIT New Zealand/VSH.

## KE KELIT COPPERFIX Copper Pipe:

KE KELIT COPPERFIX copper pipe will be completely covered by KE KELIT’s comprehensive warranty as detailed below;

10 years: for KE KELIT COPPERFIX piping. Cover applies to:

* Damages to the pipe which can be attributed to production or material defects
* Damage to property or persons suffered by third parties as a result of product defects
* To guarantee this warranty, KE KELIT confirms that they have product liability insurance for the sum of €1,000,000 for each defective product (e.g. pipe). To a maximum of €20,000,000 per project.
* Expenditure incurred by third parties for removing the defective product and installing replacement product.

Years 11 to 25: for KE KELIT COPPERFIX piping. Cover applies to:

* Replacement of product which is deemed to be defective.
* Provide this warranty on KE KELIT NZ Ltd standard form.
* Commence warranty from the date of manufacture of the pipe system.

Clarification or additional information on any aspect of the details above are available upon request.

## Quality Assurance

The producer of the fittings, V.S.H. FITTINGS B.V. has fully implemented a Quality Management system according to EN/ISO 9001:2015 and keeps it up to date and enforced.

In order to achieve the quality targets set out in ISO 9001:2015, the following tests are carried out during the manufacturing process.

Internal testing in the VSH Laboratory:

* Raw material parameters`
* Dimensions
* Quality of manufactured goods
* Bursting pressure
* Behaviour under heat conditions

## New Zealand Building Code Compliance – XPress Stainless Steel GAS

The VSH XPress Stainless Steel GAS System can demonstrate compliance to the following NZBC Clauses:

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| --- | --- | --- | --- | --- |
| **VSH XPress Stainless Steel GAS System** | | | | |
| **Description:** XPress Stainless GAS is a pipe and press fitting system with pipe made from X5CrNiMo 17 12 2 material no. 1.4401 and fittings made from 1.4404 materials (to En 10088-1). Fitting sizes range from diameter 15-108 mm. They are fitted with yellow HNBR O-rings (to EN549). | | | | |
| **NZ Building Code Applicable Performance Clauses** | **Manufacturing Standards Tests Applied** | | **Limitations** | **Comments** |
| B2.3.1 *Building elements* must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the *specified intended life* of the *building*, if stated, or:  the life of the building, being not less than 50 years, if:  (ii) those *building elements* are difficult to access or replace, or  (iii) failure of those *building elements* to comply with the *building code* would go undetected during both normal use and maintenance of the *building*. | Original Manufacturing Standard for pipes: EN 10312:2002  Welded stainless steel tubes for the conveyance of aqueous liquids including water for human consumption. | Additional Tests: FprEN10352: 2012 – Stainless steel plumbing fittings – Fittings with press ends for metallic tubes1 | Installation requirements limit temperature to between -20°C and 70°C, and pressure to 500 kPa2  Insulating materials that release chloride ions in water or which could cause a local increase in chloride ions are not permitted. The weight ratio of water-solution chloride ions in the thermal insulation of the pipe may not exceed 0.05%3  For installations using HNBR “O” Rings. | Manufacturer has ISO 9001 Accreditation4  DVGW5 is the largest gas and water industry certification body in Europe, covering all the certification procedures required in the gas and water sectors.  Approval reports from testing are provided6 |
| Approvals DVGW, ÖVGW, SVGW, BSI | Approvals DVGW, ÖVGW, SVGW, BSI |

1 BSI Test Report 8153033   
2 VSH XPress GAS distributed by KKNZ technical manual page 5  3 VSH XPress GAS distributed by KKNZ technical manual page 48  4 Manufacturer is VSH Fittings B.V., Oude Amersfoortseweg 99, 1212 AA Hilversum, Netherlands   
5 DVGW = German Technical and Scientific Association for Gas and Water 6Certificates DG-8531BP0467 (DVGW), G 2.822 (ÖVGW) , 05-019-6 (SVGW) & VC 615215 (BSI).

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| G10.3.1 Piping systems shall be constructed to avoid the likelihood of:  (a) significant leakage or damage during normal or reasonably foreseeable abnormal conditions, (b) Detrimental contamination of the contents by other substances. | Original Manufacturing Standard for pipes: EN 10312:2002  Welded stainless steel tubes for the conveyance of aqueous liquids including water for human consumption. | Additional Tests: DVGW FprEN10352: 2012 – Stainless steel plumbing fittings – Fittings with press ends for metallic tubes | Installation is limited to persons authorised under the Plumbers, Gasfitters & Drainlayers Act 2006 who have passes the KE KELIT training course7 | Fittings have been comprehensively tested to all relevant requirements of EN 10352: 2012 including leaktightness8  After training, KE KELIT NZ review the first installation of the tradesman. All authorised installers carry evidence of Ke Kelit Installers approval9  Comprehensive leak and pressure testing required during installation10  Proven tightness of the connection at 650°C for 30 minutes11    HNBR O-rings suitable for natural and liquid gases in accordance with DVGW G260 I/II12 |
| Approvals DVGW, ÖVGW, SVGW, BSI | Approvals DVGW, ÖVGW, SVGW, BSI |

7 VSH XPress GAS distributed by KKNZ training manual page #   
8 BSI Test Report 8153033   
9 VSH XPress GAS distributed by KKNZ training manual page #   
10 VSH XPress GAS distributed by KKNZ technical manual page 46   
11 VSH XPress GAS distributed by KKNZ technical manual page 5   
12VSH XPress GAS distributed by KKNZ technical manual page 9

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| G10.3.3 Pipes shall be protected against corrosion in the environment of their use | Original Manufacturing Standard for pipes: EN 10312:2002  Welded stainless steel tubes for the conveyance of aqueous liquids including water for human consumption. | Additional Tests: FprEN10352: 2012 – Stainless steel plumbing fittings – Fittings with press ends for metallic tubes | VSH XPress stainless steel GAS pipes and fittings should not be laid unprotected in concrete/cement or in building materials that contain chloride.13  If there is the danger of building materials coming into contact over a long period with highly chlorinated water, corrosion protection must be used.14  When built-in, the pipe and fittings have to be wrapped by an elastic and pliable coating that separates the installation completely from the building so that there is no direct contact.13  Stainless steel pipes may not be bent warm.15 | Prescribed by DIN1988 insulation materials are a good solution.13  Insulating materials that release chloride ions in water or which could cause a local increase in chloride ions are not permitted.15  Ultimately the responsibility for taking relevant measures rests with the user and the installer.14 |
| Approvals DVGW, ÖVGW, SVGW, BSI | Approvals DVGW, ÖVGW, SVGW, BSI |

13 VSH XPress GAS distributed by KKNZ technical manual page 45   
14 VSH XPress GAS distributed by KKNZ technical manual page 47   
15 VSH XPress GAS distributed by KKNZ technical manual page 48

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| G10.3.4 Piping systems shall be identified with markings if the contents are not readily apparent from the location or associated equipment | Original Manufacturing Standard for pipes: EN 10312:2002  Welded stainless steel tubes for the conveyance of aqueous liquids including water for human consumption. | Additional Tests:  FprEN10352: 2012 – Stainless steel plumbing fittings – Fittings with press ends for metallic tubes |  | The XPress Stainless Steel GAS fittings include yellow markings which are labelled “GAS”16 |
| G11.3.1 Supply systems shall be constructed to maintain a safe pressure range appropriate to the appliances and the type of gas used. | Approvals DVGW, ÖVGW, SVGW, BSI | Approvals DVGW, ÖVGW, SVGW, BSI |  | The Technical Manual provides pipe sizing guidance and methods for quantifying pressure drops17, but the onus is on the designer/installer to comply with this clause.  The VSH XPress Stainless Steel GAS system is suitable for gases of the second and the third gas families (natural and liquid gases) in accordance with DVGW Worksheet G 26016 & 18 |

16 VSH XPress GAS distributed by KKNZ technical manual page 9   
17 VSH XPress GAS distributed by KKNZ technical manual section 2.7 18 VSH XPress GAS distributed by KKNZ technical manual page 6

## New Zealand Building Code Compliance – XPress Copper GAS

The VSH XPress Copper GAS System can demonstrate compliance to the following NZBC Clauses:

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| **VSH XPress Copper GAS System** | | | | |
| **Description:** XPress Copper GAS is a press fitting system made from CU-DHP copper, CW024A materials and 2.109 bronze materials. It is for use with copper Pipes that satisfy EN1057 R250/R290, such as KE KELIT COPPERFIX pipe, and fitting sizes range from diameter 15-54 mm. They are fitted with yellow NBR O-rings. | | | | |
| **NZ Building Code Applicable Performance Clauses** | **Manufacturing Standards Tests Applied** | | **Limitations** | **Comments** |
| B2.3.1 *Building elements* must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the *specified intended life* of the *building*, if stated, or:  the life of the building, being not less than 50 years, if:  (ii) those *building elements* are difficult to access or replace, or  (iii) failure of those *building elements* to comply with the *building code* would go undetected during both normal use and maintenance of the *building*. | Original Manufacturing Standard for pipes: EN 1057:2006 (R250/R290) Copper and copper alloys. Seamless, round copper tubes for water and gas in sanitary and heating applications | Additional Tests:  BS 8537: 2010 – Copper and copper alloys Plumbing fittings –  Specification for press ends of plumbing fittings for use with metallic tubes1 | Installation requirements limit temperature to between -20°C and 70°C, and pressure to 500 kPa2  Insulation materials for copper must be nitrate-free i.e. they may not contain more than 0.02% nitrate3  For installations using NBR “O” Rings. | Manufacturer of the fittings has ISO 9001 Accreditation4  DVGW5 is the largest gas and water industry certification body in Europe, covering all the certification procedures required in the gas and water sectors.  Approval reports from testing are provided6 |
| Approvals DVGW, ÖVGW, BSI | Approvals DVGW, ÖVGW, BSI |

1BSI Test Report 8153033, BSI TR/14/090, BSI TR/14/091 2VSH XPress GAS distributed by KKNZ technical manual page 5  3 VSH XPress GAS distributed by KKNZ technical manual page 48  4 Manufacturer is VSH Fittings B.V., Oude Amersfoortseweg 99, 1212 AA Hilversum, Netherlands   
5 DVGW = German Technical and Scientific Association for Gas and Water 6Certificates DG-8531BP0467 (DVGW), G 2.822 (ÖVGW) , 05-019-6 (SVGW) & VC 615215 (BSI).

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| G10.3.1 Piping systems shall be constructed to avoid the likelihood of:  (a) significant leakage or damage during normal or reasonably foreseeable abnormal conditions, (b) Detrimental contamination of the contents by other substances. | Original Manufacturing Standard for pipes: EN 1057:2006 (R250/R290) Copper and copper alloys. Seamless, round copper tubes for water and gas in sanitary and heating applications | Additional Tests:  BS 8537: 2010 – Copper and copper alloys Plumbing fittings –  Specification for press ends of plumbing fittings for use with metallic tubes | Installation is limited to persons authorised under the Plumbers, Gasfitters & Drainlayers Act 2006 who have passes the KE KELIT training course7  Fittings can only be used with copper pipes conforming to R250/R290 of EN 1057:20068 | Fittings have been comprehensively tested to all relevant requirements of BS 8537: 2010 including leaktightness9  After training, KE KELIT NZ reviews the first installation of the tradesman. All authorised installers carry evidence of Ke Kelit Installers approval10 |
|  | Approvals DVGW, ÖVGW, BSI | Approvals DVGW, ÖVGW, BSI |  | Comprehensive leak and pressure testing required during installation11  Proven tightness of the connection at 650°C for 30 minutes12  NBR O-rings suitable for natural and liquid gases in accordance with Worksheet DVGW Gas TRGI 86/8913 |

7 VSH XPress GAS distributed by KKNZ training manual page #   
8 VSH XPress GAS distributed by KKNZ technical manual page 7 9 BSI Test Report 8153033, BSI TR/14/090, BSI TR/14/091   
10 VSH XPress GAS distributed by KKNZ training manual page #   
11 VSH XPress GAS distributed by KKNZ technical manual page 46   
12 VSH XPress GAS distributed by KKNZ technical manual page 5   
13VSH XPress GAS distributed by KKNZ technical manual page 9

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| G10.3.3 Pipes shall be protected against corrosion in the environment of their use | Original Manufacturing Standard for pipes: EN 1057:2006 (R250/R290) Copper and copper alloys. Seamless, round copper tubes for water and gas in sanitary and heating applications | Additional Tests:  BS 8537: 2010 – Copper and copper alloys Plumbing fittings –  Specification for press ends of plumbing fittings for use with metallic tubes | Copper pipes must sometimes be protected from the impact of outer corrosion, such as sulphites, nitrites and ammonia14  Insulating materials must be nitrate free (i.e. contain no more than 0.02% nitrate)14 | Copper's high resistance to corrosion often renders corrosion-protection measures superfluous14  Prescribed by DIN1988 insulation materials are a good solution.15 |
|  | Approvals DVGW, ÖVGW, BSI | Approvals DVGW, ÖVGW, BSI |  | Ultimately the responsibility for taking relevant measures rests with the user and the installer.16 |

14 VSH XPress GAS distributed by KKNZ technical manual page 48   
15 VSH XPress GAS distributed by KKNZ technical manual page 45   
16 VSH XPress GAS distributed by KKNZ technical manual page 47

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| G10.3.4 Piping systems shall be identified with markings if the contents are not readily apparent from the location or associated equipment | Original Manufacturing Standard for pipes: EN 1057:2006 (R250/R290) Copper and copper alloys. Seamless, round copper tubes for water and gas in sanitary and heating applications | Additional Tests:  BS 8537: 2010 – Copper and copper alloys Plumbing fittings –  Specification for press ends of plumbing fittings for use with metallic tubes |  | The XPress Copper GAS fittings include yellow markings which are labelled “GAS”17 |
|  | Approvals DVGW, ÖVGW, BSI | Approvals DVGW, ÖVGW, BSI |  |  |

17 VSH XPress GAS distributed by KKNZ technical manual page 9

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| G11.3.1 Supply systems shall be constructed to maintain a safe pressure range appropriate to the appliances and the type of gas used. | Original Manufacturing Standard for pipes: EN 1057:2006 (R250/R290) Copper and copper alloys. Seamless, round copper tubes for water and gas in sanitary and heating applications | Additional Tests:  BS 8537: 2010 – Copper and copper alloys Plumbing fittings –  Specification for press ends of plumbing fittings for use with metallic tubes |  | The Technical Manual provides pipe sizing guidance and methods for quantifying pressure drops18, but the onus is on the designer/installer to comply with this clause.  The VSH XPress Copper GAS system is suitable for gases of the second and the third gas families (natural and liquid gases) in accordance with Worksheet DVGW Gas TRGI 86/8919 |
|  | Approvals DVGW, ÖVGW, BSI | Approvals DVGW, ÖVGW, BSI |  |  |

18 VSH XPress GAS distributed by KKNZ technical manual section 2.7 19 VSH XPress GAS distributed by KKNZ technical manual page 9

## Component Images and Product Codes

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| **Image** | **Code** | **Description** |
|  |  | R2750 Stainless Steel Pipe 1.4401 (316) 15mm x 1.0mm x 6m  R2750 Stainless Steel Pipe 1.4401 (316) 18mm x 1.0mm x 6m  R2750 Stainless Steel Pipe 1.4401 (316) 22mm x 1.2mm x 6m  R2750 Stainless Steel Pipe 1.4401 (316) 28mm x 1.2mm x 6m  R2750 Stainless Steel Pipe 1.4401 (316) 35mm x 1.5mm x 6m  R2750 Stainless Steel Pipe 1.4401 (316) 42mm x 1.5mm x 6m  R2750 Stainless Steel Pipe 1.4401 (316) 54mm x 1.5mm x 6m  R2750 Stainless Steel Pipe 1.4401 (316) 76.1mm x 2.0mm x 6m  R2750 Stainless Steel Pipe 1.4401 (316) 88.9mm x 2.0mm x 6m  R2750 Stainless Steel Pipe 1.4401 (316) 108mm x 2.0mm x 6m |
|  |  | R2701G Stainless Steel Straight Coupling - 2x Press 15mm  R2701G Stainless Steel Straight Coupling - 2x Press 18mm  R2701G Stainless Steel Straight Coupling - 2x Press 22mm  R2701G Stainless Steel Straight Coupling - 2x Press 28mm  R2701G Stainless Steel Straight Coupling - 2x Press 35mm  R2701G Stainless Steel Straight Coupling - 2x Press 42mm  R2701G Stainless Steel Straight Coupling - 2x Press 54mm  R2701G Stainless Steel Straight Coupling - 2x Press 76.1mm  R2701G Stainless Steel Straight Coupling - 2x Press 88.9mm  R2701G Stainless Steel Straight Coupling - 2x Press 108mm |
|  |  | R2703G Stainless Steel Slip Coupling - 2x Press 15mm  R2703G Stainless Steel Slip Coupling - 2x Press 18mm  R2703G Stainless Steel Slip Coupling - 2x Press 22mm  R2703G Stainless Steel Slip Coupling - 2x Press 28mm  R2703G Stainless Steel Slip Coupling - 2x Press 35mm  R2703G Stainless Steel Slip Coupling - 2x Press 42mm  R2703G Stainless Steel Slip Coupling - 2x Press 54mm |
|  |  | R2708G Stainless Steel Bend 90° - 2x Press 15mm  R2708G Stainless Steel Bend 90° - 2x Press 18mm  R2708G Stainless Steel Bend 90° - 2x Press 22mm  R2708G Stainless Steel Bend 90° - 2x Press 28mm  R2708G Stainless Steel Bend 90° - 2x Press 35mm  R2708G Stainless Steel Bend 90° - 2x Press 42mm |
| **Image** | **Code** | **Description** |
|  |  | R2708G Stainless Steel Bend 90° - 2x Press 54mm  R2708G Stainless Steel Bend 90° - 2x Press 76.1mm  R2708G Stainless Steel Bend 90° - 2x Press 88.9mm  R2708G Stainless Steel Bend 90° - 2x Press 108mm |
|  |  | R2711G Stainless Steel Bend 90° - Press x Male 15mm x ϕ15mm  R2711G Stainless Steel Bend 90° - Press x Male 18mm x ϕ18mm  R2711G Stainless Steel Bend 90° - Press x Male 22mm x ϕ22mm  R2711G Stainless Steel Bend 90° - Press x Male 28mm x ϕ28mm  R2711G Stainless Steel Bend 90° - Press x Male 35mm x ϕ35mm  R2711G Stainless Steel Bend 90° - Press x Male 42mm x ϕ42mm  R2711G Stainless Steel Bend 90° - Press x Male 54mm x ϕ54mm  R2711G Stainless Steel Bend 90° - Press x Male 76.1mm x ϕ76.1mm  R2711G Stainless Steel Bend 90° - Press x Male 88.9mm x ϕ88.9mm  R2711G Stainless Steel Bend 90° - Press x Male 108mm x ϕ108mm |
|  |  | R2713G Stainless Steel Bend 45° - 2x Press 15mm  R2713G Stainless Steel Bend 45° - 2x Press 18mm  R2713G Stainless Steel Bend 45° - 2x Press 22mm  R2713G Stainless Steel Bend 45° - 2x Press 28mm  R2713G Stainless Steel Bend 45° - 2x Press 35mm  R2713G Stainless Steel Bend 45° - 2x Press 42mm  R2713G Stainless Steel Bend 45° - 2x Press 54mm  R2713G Stainless Steel Bend 45° - 2x Press 76.1mm  R2713G Stainless Steel Bend 45° - 2x Press 88.9mm  R2713G Stainless Steel Bend 45° - 2x Press 108mm |
|  |  | R2712G Stainless Steel Bend 45° - Press x Male 15mm x ϕ15mm  R2712G Stainless Steel Bend 45° - Press x Male 18mm x ϕ18mm  R2712G Stainless Steel Bend 45° - Press x Male 22mm x ϕ22mm  R2712G Stainless Steel Bend 45° - Press x Male 28mm x ϕ28mm  R2712G Stainless Steel Bend 45° - Press x Male 35mm x ϕ35mm  R2712G Stainless Steel Bend 45° - Press x Male 42mm x ϕ42mm  R2712G Stainless Steel Bend 45° - Press x Male 54mm x ϕ54mm  R2712G Stainless Steel Bend 45° - Press x Male 76.1mm x ϕ76.1mm  R2712G Stainless Steel Bend 45° - Press x Male 88.9mm x ϕ88.9mm  R2712G Stainless Steel Bend 45° - Press x Male 108mm x ϕ108mm |

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| **Image** | **Code** | **Description** |
|  |  | R2714G Stainless Steel Tee - 3x Press 15mm  R2714G Stainless Steel Tee - 3x Press 18mm  R2714G Stainless Steel Tee - 3x Press 22mm  R2714G Stainless Steel Tee - 3x Press 28mm  R2714G Stainless Steel Tee - 3x Press 35mm  R2714G Stainless Steel Tee - 3x Press 42mm  R2714G Stainless Steel Tee - 3x Press 54mm  R2714G Stainless Steel Tee - 3x Press 76.1mm  R2714G Stainless Steel Tee - 3x Press 88.9mm  R2714G Stainless Steel Tee - 3x Press 108mm |
|  |  | R2715G Stainless Steel T-Reduced - 3x Press 18mmx15mmx18mm  R2715G Stainless Steel T-Reduced - 3x Press 22mmx15mmx22mm  R2715G Stainless Steel T-Reduced - 3x Press 22mmx18mmx22mm  R2715G Stainless Steel T-Reduced - 3x Press 28mmx15mmx28mm  R2715G Stainless Steel T-Reduced - 3x Press 28mmx18mmx28mm  R2715G Stainless Steel T-Reduced - 3x Press 28mmx22mmx28mm  R2715G Stainless Steel T-Reduced - 3x Press 35mmx15mmx35mm  R2715G Stainless Steel T-Reduced - 3x Press 35mmx18mmx35mm  R2715G Stainless Steel T-Reduced - 3x Press 35mmx22mmx35mm  R2715G Stainless Steel T-Reduced - 3x Press 35mmx28mmx35mm  R2715G Stainless Steel T-Reduced - 3x Press 42mmx22mmx42mm  R2715G Stainless Steel T-Reduced - 3x Press 42mmx28mmx42mm  R2715G Stainless Steel T-Reduced - 3x Press 42mmx35mmx42mm  R2715G Stainless Steel T-Reduced - 3x Press 54mmx22mmx54mm  R2715G Stainless Steel T-Reduced - 3x Press 54mmx28mmx54mm  R2715G Stainless Steel T-Reduced - 3x Press 54mmx35mmx54mm  R2715G Stainless Steel T-Reduced - 3x Press 54mmx42mmx54mm  R2715G Stainless Steel T-Reduced - 3x Press 76.1mmx22mmx76.1mm  R2715G Stainless Steel T-Reduced - 3x Press 76.1mmx28mmx76.1mm  R2715G Stainless Steel T-Reduced - 3x Press 76.1mmx35mmx76.1mm  R2715G Stainless Steel T-Reduced - 3x Press 76.1mmx42mmx76.1mm  R2715G Stainless Steel T-Reduced - 3x Press 76.1mmx54mmx76.1mm  R2715G Stainless Steel T-Reduced - 3x Press 88.9mmx22mmx88.9mm |

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| **Image** | **Code** | **Description** |
|  |  | R2715G Stainless Steel T-Reduced - 3x Press 88.9mmx28mmx88.9mm  R2715G Stainless Steel T-Reduced - 3x Press 88.9mmx35mmx88.9mm  R2715G Stainless Steel T-Reduced - 3x Press 88.9mmx42mmx88.9mm  R2715G Stainless Steel T-Reduced - 3x Press 88.9mmx54mmx88.9mm  R2715G Stainless Steel T-Reduced - 3x Press 108mmx22mmx108mm  R2715G Stainless Steel T-Reduced - 3x Press 108mmx28mmx108mm  R2715G Stainless Steel T-Reduced - 3x Press 108mmx35mmx108mm  R2715G Stainless Steel T-Reduced - 3x Press 108mmx42mmx108mm  R2715G Stainless Steel T-Reduced - 3x Press 108mmx54mmx108mm |
|  |  | R2718G Stainless Steel Tee - Press x Female thread x Press 15xRp1/2x15  R2718G Stainless Steel Tee - Press x Female thread x Press 18xRp1/2x18  R2718G Stainless Steel Tee - Press x Female thread x Press 18xRp3/4x18  R2718G Stainless Steel Tee - Press x Female thread x Press 22xRp1/2x22  R2718G Stainless Steel Tee - Press x Female thread x Press 22xRp3/4x22  R2718G Stainless Steel Tee - Press x Female thread x Press 28xRp1/2x28  R2718G Stainless Steel Tee - Press x Female thread x Press 28xRp3/4x28  R2718G Stainless Steel Tee - Press x Female thread x Press 35xRp1/2x35  R2718G Stainless Steel Tee - Press x Female thread x Press 35xRp3/4x35  R2718G Stainless Steel Tee - Press x Female thread x Press 42xRp1/2x42  R2718G Stainless Steel Tee - Press x Female thread x Press 54xRp1/2x54  R2718G Stainless Steel Tee - Press x Female thread x Press 54xRp3/4x54  R2718G Stainless Steel Tee - Press x Female thread x Press 54xRp2x54  R2718G Stainless Steel Tee - Press x Female thread x Press 76.1xRp3/4x76.1  R2718G Stainless Steel Tee - Press x Female thread x Press 76.1xRp2x76.1  R2718G Stainless Steel Tee - Press x Female thread x Press 88.9xRp3/4x88.9  R2718G Stainless Steel Tee - Press x Female thread x Press 88.9xRp2x88.9  R2718G Stainless Steel Tee - Press x Female thread x Press 108xRp3/4x108  R2718G Stainless Steel Tee - Press x Female thread x Press 108xRp2x108 |
|  |  | R2707G Stainless Steel Reducer - Male x Press ϕ18mmx15mm  R2707G Stainless Steel Reducer - Male x Press ϕ22mmx15mm  R2707G Stainless Steel Reducer - Male x Press ϕ22mmx18mm  R2707G Stainless Steel Reducer - Male x Press ϕ28mmx15mm  R2707G Stainless Steel Reducer - Male x Press ϕ28mmx18mm |
| **Image** | **Code** | **Description** |
|  |  | R2707G Stainless Steel Reducer - Male x Press ϕ28mmx22mm  R2707G Stainless Steel Reducer - Male x Press ϕ35mmx22mm  R2707G Stainless Steel Reducer - Male x Press ϕ35mmx28mm  R2707G Stainless Steel Reducer - Male x Press ϕ42mmx28mm  R2707G Stainless Steel Reducer - Male x Press ϕ42mmx35mm  R2707G Stainless Steel Reducer - Male x Press ϕ54mmx28mm  R2707G Stainless Steel Reducer - Male x Press ϕ54mmx35mm  R2707G Stainless Steel Reducer - Male x Press ϕ54mmx42mm  R2707G Stainless Steel Reducer - Male x Press ϕ76.1mmx42mm  R2707G Stainless Steel Reducer - Male x Press ϕ76.1mmx54mm  R2707G Stainless Steel Reducer - Male x Press ϕ88.9mmx54mm  R2707G Stainless Steel Reducer - Male x Press ϕ88.9mmx76.1mm  R2707G Stainless Steel Reducer - Male x Press ϕ108mmx54mm  R2707G Stainless Steel Reducer - Male x Press ϕ108mmx76.1mm  R2707G Stainless Steel Reducer - Male x Press ϕ108mmx88.9mm |
|  |  | R2705G Stainless Steel Straight Connector - Press x Male Thread 15mmxR1/2  R2705G Stainless Steel Straight Connector - Press x Male Thread 18mmxR1/2  R2705G Stainless Steel Straight Connector - Press x Male Thread 22mmxR1/2  R2705G Stainless Steel Straight Connector - Press x Male Thread 22mmxR3/4  R2705G Stainless Steel Straight Connector - Press x Male Thread 22mmxR1  R2705G Stainless Steel Straight Connector - Press x Male Thread 28mmxR1  R2705G Stainless Steel Straight Connector - Press x Male Thread 35mmxR1  R2705G Stainless Steel Straight Connector - Press x Male Thread 35mmxR1 1/4  R2705G Stainless Steel Straight Connector - Press x Male Thread 35mmxR1 1/2  R2705G Stainless Steel Straight Connector - Press x Male Thread 42mmxR1 1/2  R2705G Stainless Steel Straight Connector - Press x Male Thread 54mmxR2  R2705G Stainless Steel Straight Connector - Press x Male Thread 76.1mmxR2 1/2  R2705G Stainless Steel Straight Connector - Press x Male Thread 88.9mmxR3 |
|  |  | R2702G Stainless Steel Straight Connector - Press x Female Thread 15mmxRp1/2  R2702G Stainless Steel Straight Connector - Press x Female Thread 18mmxRp1/2  R2702G Stainless Steel Straight Connector - Press x Female Thread 22mmxRp1/2  R2702G Stainless Steel Straight Connector - Press x Female Thread 22mmxRp3/4  R2702G Stainless Steel Straight Connector - Press x Female Thread 22mmxRp1  R2702G Stainless Steel Straight Connector - Press x Female Thread 28mmxRp1  R2702G Stainless Steel Straight Connector - Press x Female Thread 35mmxRp1 |

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| **Image** | **Code** | **Description** |
|  |  | R2702G Stainless Steel Straight Connector - Press x Female Thread 35mmxRp1 1/4  R2702G Stainless Steel Straight Connector - Press x Female Thread 42mmxRp1 1/2  R2702G Stainless Steel Straight Connector - Press x Female Thread 54mmxRp2 |
|  |  | R2728G Stainless Steel Angle Adapter 90° - Press x Male Thread 15mmxR1/2  R2728G Stainless Steel Angle Adapter 90° - Press x Male Thread 18mmxR1/2  R2728G Stainless Steel Angle Adapter 90° - Press x Male Thread 22mmxR3/4  R2728G Stainless Steel Angle Adapter 90° - Press x Male Thread 28mmxR1  R2728G Stainless Steel Angle Adapter 90° - Press x Male Thread 35mmxR1 1/4 |
|  |  | R2709G Stainless Steel Angle Adapter 90° - Press x Female Thread 15mmxRp1/2  R2709G Stainless Steel Angle Adapter 90° - Press x Female Thread 18mmxRp1/2  R2709G Stainless Steel Angle Adapter 90° - Press x Female Thread 22mmxRp3/4  R2709G Stainless Steel Angle Adapter 90° - Press x Female Thread 28mmxRp1  R2709G Stainless Steel Angle Adapter 90° - Press x Female Thread 35mmxRp1 1/4 |
|  |  | R2741G Stainless Steel Coupling with Nut – Press x Female Thread 15mmxG7/8  R2741G Stainless Steel Coupling with Nut – Press x Female Thread 22mmxG1 1/8  R2741G Stainless Steel Coupling with Nut – Press x Female Thread 28mmxG1 3/8 |
|  |  | R2716G Stainless Steel Wallplate 90° – Press x Female Thread 15mm x Rp1/2  R2716G Stainless Steel Wallplate 90° – Press x Female Thread 18mm x Rp1/2  R2716G Stainless Steel Wallplate 90° – Press x Female Thread 22mm x Rp3/4 |
|  |  | R2729G Stainless Steel Stop End – 1x Press 15mm  R2729G Stainless Steel Stop End – 1x Press 18mm  R2729G Stainless Steel Stop End – 1x Press 22mm  R2729G Stainless Steel Stop End – 1x Press 28mm  R2729G Stainless Steel Stop End – 1x Press 35mm  R2729G Stainless Steel Stop End – 1x Press 42mm  R2729G Stainless Steel Stop End – 1x Press 54mm |
|  |  | R2726G Stainless Steel Flanged Connector PN10/16 – 1x Press 22mm  R2726G Stainless Steel Flanged Connector PN10/16 – 1x Press 28mm  R2726G Stainless Steel Flanged Connector PN10/16 – 1x Press 35mm  R2726G Stainless Steel Flanged Connector PN10/16 – 1x Press 42mm  R2726G Stainless Steel Flanged Connector PN10/16 – 1x Press 54mm  R2726G Stainless Steel Flanged Connector PN10/16 – 1x Press 76.1mm  R2726G Stainless Steel Flanged Connector PN10/16 – 1x Press 88.9mm  R2726G Stainless Steel Flanged Connector PN10/16 – 1x Press 108mm |

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| **Image** | **Code** | **Description** |
|  |  | R2742G Flat Seal for Stainless Steel GAS – yellow NBR 22mm  R2742G Flat Seal for Stainless Steel GAS – yellow NBR 28mm  R2742G Flat Seal for Stainless Steel GAS – yellow NBR 35mm  R2742G Flat Seal for Stainless Steel GAS – yellow NBR 42mm  R2742G Flat Seal for Stainless Steel GAS – yellow NBR 54mm |
|  |  | R2755G O-Ring Standard for Stainless Steel GAS – yellow HNBR 15mm  R2755G O-Ring Standard for Stainless Steel GAS – yellow HNBR 18mm  R2755G O-Ring Standard for Stainless Steel GAS – yellow HNBR 22mm  R2755G O-Ring Standard for Stainless Steel GAS – yellow HNBR 28mm  R2755G O-Ring Standard for Stainless Steel GAS – yellow HNBR 35mm  R2755G O-Ring Standard for Stainless Steel GAS – yellow HNBR 42mm  R2755G O-Ring Standard for Stainless Steel GAS – yellow HNBR 54mm  R2755G O-Ring Standard for Stainless Steel GAS – yellow HNBR 76.1mm  R2755G O-Ring Standard for Stainless Steel GAS – yellow HNBR 88.9mm  R2755G O-Ring Standard for Stainless Steel GAS – yellow HNBR 108mm |

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| **Image** | **Code** | **Description** |
|  |  | KE KELIT COPPERFIX Copper Pipe 15 x 0.7 (half hard) 5.8m length  KE KELIT COPPERFIX Copper Pipe 18 x 0.8 (half hard) 5.8m length  KE KELIT COPPERFIX Copper Pipe 22 x 0.9 (half hard) 5.8m length  KE KELIT COPPERFIX Copper Pipe 28 x 0.9 (half hard) 5.8m length  KE KELIT COPPERFIX Copper Pipe 35 x 1.2 (hard) 5.8m length  KE KELIT COPPERFIX Copper Pipe 42 x 1.2 (half hard) 5.8m length  KE KELIT COPPERFIX Copper Pipe 54 x 1.2 (half hard) 5.8m length |
|  |  | G7270 Copper Straight Coupling – 2x Press 15mm  G7270 Copper Straight Coupling – 2x Press 18mm  G7270 Copper Straight Coupling – 2x Press 22mm  G7270 Copper Straight Coupling – 2x Press 28mm  G7270 Copper Straight Coupling – 2x Press 35mm  G7270 Copper Straight Coupling – 2x Press 42mm  G7270 Copper Straight Coupling – 2x Press 54mm |
|  |  | G7270S Copper Slip Coupling – 2x Press 15mm  G7270S Copper Slip Coupling – 2x Press 18mm  G7270S Copper Slip Coupling – 2x Press 22mm  G7270S Copper Slip Coupling – 2x Press 28mm  G7270S Copper Slip Coupling – 2x Press 35mm  G7270S Copper Slip Coupling – 2x Press 42mm  G7270S Copper Slip Coupling – 2x Press 54mm |
|  |  | G7002A Copper Bend 90° - 2x Press 15mm  G7002A Copper Bend 90° - 2x Press 18mm  G7002A Copper Bend 90° - 2x Press 22mm  G7002A Copper Bend 90° - 2x Press 28mm  G7002A Copper Bend 90° - 2x Press 35mm  G7002A Copper Bend 90° - 2x Press 42mm  G7002A Copper Bend 90° - 2x Press 54mm |
|  |  | G7001A Copper Bend 90° - Press x Male 15mm x ϕ15mm  G7001A Copper Bend 90° - Press x Male 18mm x ϕ18mm  G7001A Copper Bend 90° - Press x Male 22mm x ϕ22mm  G7001A Copper Bend 90° - Press x Male 28mm x ϕ28mm  G7001A Copper Bend 90° - Press x Male 35mm x ϕ35mm  G7001A Copper Bend 90° - Press x Male 42mm x ϕ42mm  G7001A Copper Bend 90° - Press x Male 54mm x ϕ54mm |
| **Image** | **Code** | **Description** |
|  |  | G7041 Copper Bend 45° - 2x Press 15mm  G7041 Copper Bend 45° - 2x Press 18mm  G7041 Copper Bend 45° - 2x Press 22mm  G7041 Copper Bend 45° - 2x Press 28mm  G7041 Copper Bend 45° - 2x Press 35mm  G7041 Copper Bend 45° - 2x Press 42mm  G7041 Copper Bend 45° - 2x Press 54mm |
|  |  | G7040 Copper Bend 45° - Press x Male 15mm x ϕ15mm  G7040 Copper Bend 45° - Press x Male 18mm x ϕ18mm  G7040 Copper Bend 45° - Press x Male 22mm x ϕ22mm  G7040 Copper Bend 45° - Press x Male 28mm x ϕ28mm  G7040 Copper Bend 45° - Press x Male 35mm x ϕ35mm  G7040 Copper Bend 45° - Press x Male 42mm x ϕ42mm  G7040 Copper Bend 45° - Press x Male 54mm x ϕ54mm |
|  |  | G7087 Copper Crossover – 2x Male 15mm x ϕ15mm  G7087 Copper Crossover – 2x Male 18mm x ϕ18mm  G7087 Copper Crossover – 2x Male 22mm x ϕ22mm |
|  |  | G7085 Copper Crossover – 2x Press 15mm x ϕ15mm  G7085 Copper Crossover – 2x Press 22mm x ϕ22mm |
|  |  | G7130 Copper Tee – 3x Press 15mm  G7130 Copper Tee – 3x Press 18mm  G7130 Copper Tee – 3x Press 22mm  G7130 Copper Tee – 3x Press 28mm  G7130 Copper Tee – 3x Press 35mm  G7130 Copper Tee – 3x Press 42mm  G7130 Copper Tee – 3x Press 54mm |

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| **Image** | **Code** | **Description** |
|  |  | G7125 Copper T-Reduced – 3x Press 18mmx15mmx18mm  G7125 Copper T-Reduced – 3x Press 22mmx15mmx22mm  G7125 Copper T-Reduced – 3x Press 22mmx18mmx22mm  G7125 Copper T-Reduced – 3x Press 28mmx15mmx28mm  G7125 Copper T-Reduced – 3x Press 28mmx18mmx28mm  G7125 Copper T-Reduced – 3x Press 28mmx22mmx28mm  G7125 Copper T-Reduced – 3x Press 35mmx22mmx35mm  G7125 Copper T-Reduced – 3x Press 35mmx28mmx35mm  G7125 Copper T-Reduced – 3x Press 42mmx28mmx42mm  G7125 Copper T-Reduced – 3x Press 42mmx35mmx42mm  G7125 Copper T-Reduced – 3x Press 54mmx42mmx54mm |
|  |  | G7126 Copper T-Reduced – 3x Press 22mmx22mx15mm |
|  |  | G7127 Copper T-Reduced – 3x Press 22mmx15mmx15mm |
|  |  | G6130G Copper Tee Branch Female – Press x Female Thread x Press 15xRp1/2x15  G6130G Copper Tee Branch Female – Press x Female Thread x Press 18xRp1/2x18  G6130G Copper Tee Branch Female – Press x Female Thread x Press 22xRp1/2x22  G6130G Copper Tee Branch Female – Press x Female Thread x Press 22xRp3/4x22  G6130G Copper Tee Branch Female – Press x Female Thread x Press 28xRp1/2x28  G6130G Copper Tee Branch Female – Press x Female Thread x Press 28xRp3/4x28  G6130G Copper Tee Branch Female – Press x Female Thread x Press 35xRp1/2x35  G6130G Copper Tee Branch Female – Press x Female Thread x Press 35xRp1x35  G6130G Copper Tee Branch Female – Press x Female Thread x Press 42xRp1/2x42  G6130G Copper Tee Branch Female – Press x Female Thread x Press 54xRp1/2x54 |

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| **Image** | **Code** | **Description** |
|  |  | G7243 Copper Reducer – Male x Press ϕ18mm x 15mm  G7243 Copper Reducer – Male x Press ϕ22mm x 15mm  G7243 Copper Reducer – Male x Press ϕ22mm x 18mm  G7243 Copper Reducer – Male x Press ϕ28mm x 15mm  G7243 Copper Reducer – Male x Press ϕ28mm x 18mm  G7243 Copper Reducer – Male x Press ϕ28mm x 22mm  G7243 Copper Reducer – Male x Press ϕ35mm x 22mm  G7243 Copper Reducer – Male x Press ϕ35mm x 28mm  G7243 Copper Reducer – Male x Press ϕ42mm x 22mm  G7243 Copper Reducer – Male x Press ϕ42mm x 28mm  G7243 Copper Reducer – Male x Press ϕ42mm x 35mm  G7243 Copper Reducer – Male x Press ϕ54mm x 35mm  G7243 Copper Reducer – Male x Press ϕ54mm x 42mm |
|  |  | G6243G Copper Straight Connector – Press x Male Thread 15mmxR1/2  G6243G Copper Straight Connector – Press x Male Thread 15mmxR3/4  G6243G Copper Straight Connector – Press x Male Thread 18mmxR1/2  G6243G Copper Straight Connector – Press x Male Thread 18mmxR3/4  G6243G Copper Straight Connector – Press x Male Thread 22mmxR1/2  G6243G Copper Straight Connector – Press x Male Thread 22mmxR3/4  G6243G Copper Straight Connector – Press x Male Thread 22mmxR1  G6243G Copper Straight Connector – Press x Male Thread 28mmxR3/4  G6243G Copper Straight Connector – Press x Male Thread 28mmxR1  G6243G Copper Straight Connector – Press x Male Thread 28mmxR1 1/4  G6243G Copper Straight Connector – Press x Male Thread 35mmxR1  G6243G Copper Straight Connector – Press x Male Thread 35mmxR1 1/4  G6243G Copper Straight Connector – Press x Male Thread 42mmxR1 1/4  G6243G Copper Straight Connector – Press x Male Thread 42mmxR1 1/2  G6243G Copper Straight Connector – Press x Male Thread 54mmxR2 |

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| **Image** | **Code** | **Description** |
|  |  | G6270G Copper Straight Connector – Press x Female Thread 15xRp1/2  G6270G Copper Straight Connector – Press x Female Thread 15xRp3/4  G6270G Copper Straight Connector – Press x Female Thread 18xRp1/2  G6270G Copper Straight Connector – Press x Female Thread 18xRp3/4  G6270G Copper Straight Connector – Press x Female Thread 22xRp1/2  G6270G Copper Straight Connector – Press x Female Thread 22xRp3/4  G6270G Copper Straight Connector – Press x Female Thread 28xRp1  G6270G Copper Straight Connector – Press x Female Thread 35xRp1 1/4  G6270G Copper Straight Connector – Press x Female Thread 42xRp1 1/2  G6270G Copper Straight Connector – Press x Female Thread 54xRp2 |
|  |  | 6280G Copper Straight Connector - Male x Male Thread 15mmxR1/2  6280G Copper Straight Connector - Male x Male Thread 18mmxR1/2  6280G Copper Straight Connector - Male x Male Thread 18mmxR3/4  6280G Copper Straight Connector - Male x Male Thread 22mmxR1/2  6280G Copper Straight Connector - Male x Male Thread 22mmxR3/4  6280G Copper Straight Connector - Male x Male Thread 28mmxR1  6280G Copper Straight Connector - Male x Male Thread 35mmxR1 1/4  6280G Copper Straight Connector - Male x Male Thread 42mmxR1 1/2 |
|  |  | 6246G Copper Straight Connector - Male x Female Thread 15mmxRp1/2  6246G Copper Straight Connector - Male x Female Thread 18mmxRp1/2  6246G Copper Straight Connector - Male x Female Thread 18mmxRp3/4  6246G Copper Straight Connector - Male x Female Thread 22mmxRp1/2  6246G Copper Straight Connector - Male x Female Thread 22mmxRp3/4  6246G Copper Straight Connector - Male x Female Thread 28mmxRp3/4  6246G Copper Straight Connector - Male x Female Thread 28mmxRp1  6246G Copper Straight Connector - Male x Female Thread 35mmxRp1  6246G Copper Straight Connector - Male x Female Thread 35mmxRp1 1/4  6246G Copper Straight Connector - Male x Female Thread 42mmxRp1 1/2  6246G Copper Straight Connector - Male x Female Thread 54mmxRp2 |

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| **Image** | **Code** | **Description** |
|  |  | G6092G Copper Angle Adapter 90° - Press x Male Thread 15 x R1/2  G6092G Copper Angle Adapter 90° - Press x Male Thread 18 x R1/2  G6092G Copper Angle Adapter 90° - Press x Male Thread 18 x R3/4  G6092G Copper Angle Adapter 90° - Press x Male Thread 22 x R3/4  G6092G Copper Angle Adapter 90° - Press x Male Thread 28 x R1  G6092G Copper Angle Adapter 90° - Press x Male Thread 35 x R1 1/4  G6092G Copper Angle Adapter 90° - Press x Male Thread 42 x R1 1/2  G6092G Copper Angle Adapter 90° - Press x Male Thread 54 x R2 |
|  |  | G6090G Copper Angle Adapter 90° - Press x Female Thread 15 x Rp1/2  G6090G Copper Angle Adapter 90° - Press x Female Thread 15 x Rp3/4  G6090G Copper Angle Adapter 90° - Press x Female Thread 18 x Rp1/2  G6090G Copper Angle Adapter 90° - Press x Female Thread 18 x Rp3/4  G6090G Copper Angle Adapter 90° - Press x Female Thread 22 x Rp1/2  G6090G Copper Angle Adapter 90° - Press x Female Thread 22 x Rp3/4  G6090G Copper Angle Adapter 90° - Press x Female Thread 22 x Rp1  G6090G Copper Angle Adapter 90° - Press x Female Thread 28 x Rp1  G6090G Copper Angle Adapter 90° - Press x Female Thread 35 x Rp1 1/4  G6090G Copper Angle Adapter 90° - Press x Female Thread 42 x Rp1 1/2  G6090G Copper Angle Adapter 90° - Press x Female Thread 54 x Rp2 |
|  |  | G6340 Copper Straight Union – 2x Press 15mm  G6340 Copper Straight Union – 2x Press 22mm  G6340 Copper Straight Union – 2x Press 28mm  G6340 Copper Straight Union – 2x Press 35mm |
|  |  | G6360 Copper Coupling with Nut – Press x Female Thread 15mmxG7/8  G6360 Copper Coupling with Nut – Press x Female Thread 28mmxG1 3/8 |
|  |  | G6471G Copper Wallplate 90° – Press x Female Thread 15mm x Rp1/2  G6471G Copper Wallplate 90° – Press x Female Thread 18mm x Rp1/2  G6471G Copper Wallplate 90° – Press x Female Thread 22mm x Rp3/4 |

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| **Image** | **Code** | **Description** |
|  |  | G7301 Copper Stop End – 1x Press 15mm  G7301 Copper Stop End – 1x Press 15mm  G7301 Copper Stop End – 1x Press 15mm  G7301 Copper Stop End – 1x Press 15mm  G7301 Copper Stop End – 1x Press 15mm  G7301 Copper Stop End – 1x Press 15mm  G7301 Copper Stop End – 1x Press 15mm |
|  |  | G7999 O-Ring Standard for Copper GAS – yellow NBR 15mm  G7999 O-Ring Standard for Copper GAS– yellow NBR 18mm  G7999 O-Ring Standard for Copper GAS – yellow NBR 22mm  G7999 O-Ring Standard for Copper GAS – yellow NBR 28mm  G7999 O-Ring Standard for Copper GAS – yellow NBR 35mm  G7999 O-Ring Standard for Copper GAS – yellow NBR 42mm  G7999 O-Ring Standard for Copper GAS – yellow NBR 54mm |



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