Velox

Veltanium
TECHNICAL GUIDE

Veltanium Technical Guide

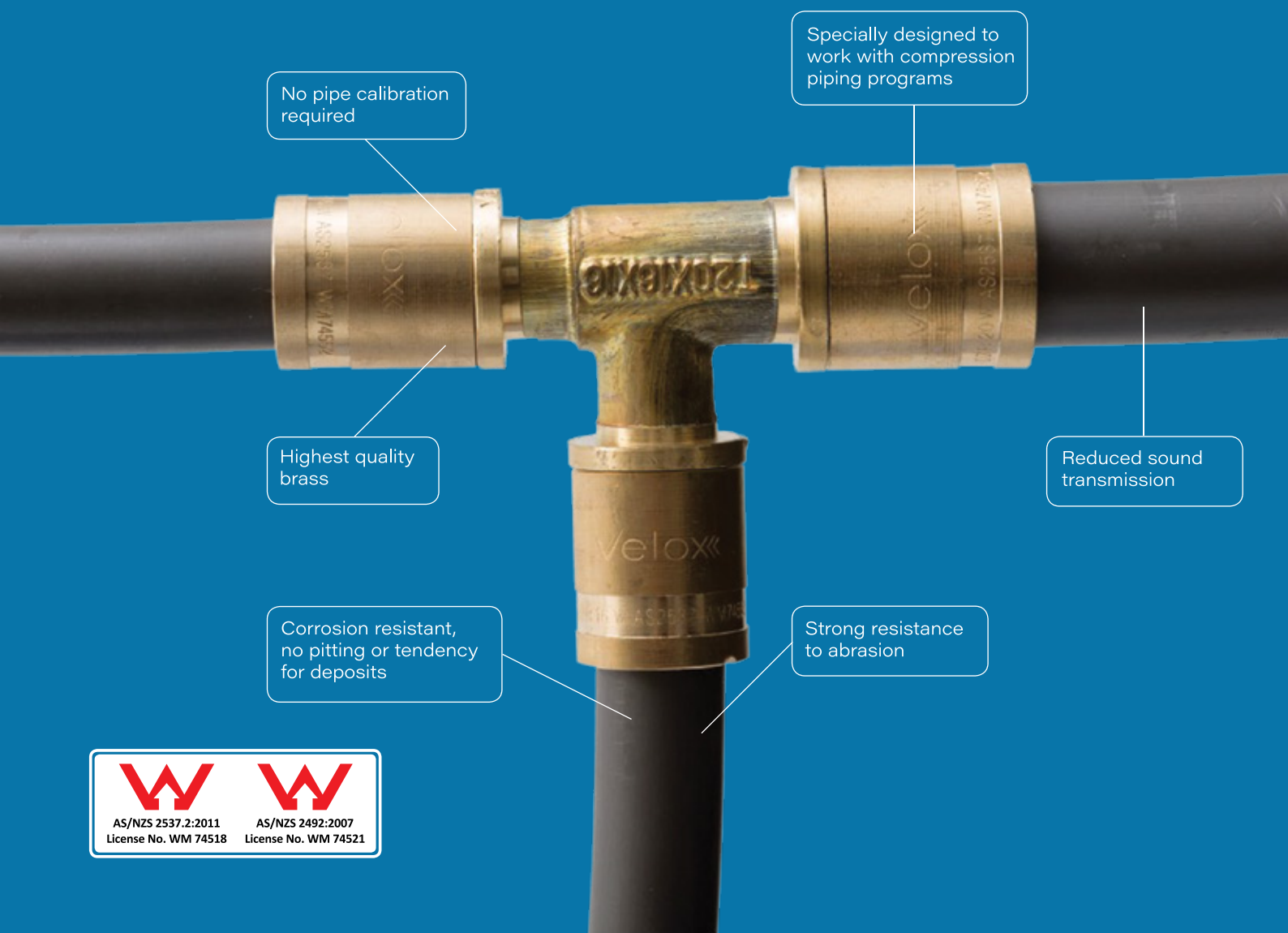
SEE THE RANGE

Veltanium

Veltanium is a universal compression sleeve jointing system that is easy to visually inspect once it is together. Offering superior quality and a reliable compression piping system.

Veltanium compression piping systems were born from the constant issues plumbers' face 24/7. Our whole purpose is to create products that work for you when you are on and off site.

So you can sleep at night knowing your workmanship and the product you installed is absolutely failsafe.



AS/NZS 2537.2:2011
License No. WM 74518

AS/NZS 2492:2007
License No. WM 74521

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VELTANIUM TECHNICAL GUIDE

THE VELTANIUM SYSTEM

The Veltanium compression piping system is ideal for creating large-scale water compression systems that are guaranteed not to fail. Veltanium is installed with a hydraulic or manual sleeving tool with a compatibly sized jaw. Once complete, the fitting forms a permanent and tough joint with the pipe.

Veltanium creates a permanently sealed joint without the need for an O-ring and can be immediately pressurised for guaranteed, visual confirmation of successful installation.

FULLY CERTIFIED

Complying with relevant Australian Standards (AS/NZ 2492, AS/NZ 2537) and also being certified by SAI Global. Sizes: 16, 20 & 25mm.

25 YEAR WARRANTY

All Veltanium products come with a full 25 year warranty covering against faults caused by defective manufacture of the fittings.

TEMPERATURE & PRESSURE

Tested, proven and certified for continuous temperature and pressure of up to 70 °C, 10 bar (service life >50years).

HIGH QUALITY PRODUCT

Highest quality brass with strong resistance to abrasion. Corrosion resistant pipe, no pitting or tendency for deposits.

WATERMARK LICENSE

CERTIFICATE OF CONFORMITY

ApprovalMark International hereby grants:

Alliance Worldwide
44 The Gateway, Broadmeadows
Melbourne, VIC 3047
AUSTRALIA

WaterMark Certificate of Conformity – WMCS 2016
Evaluated to:

AS/NZS 2537.2: 2011 - Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X) - Fittings (ISO 15875-3:2003, MOD)

The WaterMark licensee shall comply with all the terms and conditions as stipulated by the governance of the operating rules of WaterMark, and shall comply with standard requirement at all times including when standard is amended. The WaterMark license only covers the product which is identified in the product schedule.

This certificate is issued by a JAS-ANZ accredited certification body. The ABCB and JAS-ANZ do not in any way warrant, guarantee or represent that the product the subject of this Certificate conforms to the WaterMark Certification Scheme Rules, nor accepts any liability arising out of the use of the product. The ABCB disclaims to the extent permitted by law, all ability (including negligence) for claims of losses, expenses, damages and costs arising as a result of the use of the product(s) referred to in the certificate.
* This certificate may only be reproduced in its entirety.

Certificate No. WM 74518

Issued: 16th October 2018 **Originally Certified:** 26th June 2013

Expires: 25th June 2023 **Current Certification:** 16th October 2018

John PRASAD
Director
ApprovalMark International Pty Ltd
20/33 Holbeche Road, Arndell Park 2148, Australia
www.approvalmark.com

ApprovalMark

JAS-ANZ ApprovalMark Certification WaterMark

CERTIFICATE OF CONFORMITY

ApprovalMark International hereby grants:

Alliance Worldwide
44 The Gateway, Broadmeadows,
Melbourne, VIC 3047
AUSTRALIA

WaterMark Certificate of Conformity – WMCS 2016
Evaluated to:

AS/NZS 2492: 2007 - Cross-linked polyethylene (PE-X) pipes for pressure applications

The WaterMark licensee shall comply with all the terms and conditions as stipulated by the governance of the operating rules of WaterMark, and shall comply with standard requirement at all times including when standard is amended. The WaterMark license only covers the product which is identified in the product schedule.

This certificate is issued by a JAS-ANZ accredited certification body. The ABCB and JAS-ANZ do not in any way warrant, guarantee or represent that the product the subject of this Certificate conforms to the WaterMark Certification Scheme Rules, nor accepts any liability arising out of the use of the product. The ABCB disclaims to the extent permitted by law, all ability (including negligence) for claims of losses, expenses, damages and costs arising as a result of the use of the product(s) referred to in the certificate.
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Certificate No. WM 74521

Issued: 16th October 2018 **Originally Certified:** 21st June 2013

Expires: 21st June 2023 **Current Certification:** 16th October 2018

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ApprovalMark

JAS-ANZ ApprovalMark Certification WaterMark

HOT AND COLD WATER SYSTEMS

VALIDITY

This document has been formed to provide technical information and standards for specification and resource purposes.

WARRANTY LIMITATIONS

Veltanium warrants and guarantees for a period of 25 years the supply of Veltanium pipes and fittings free of charge to which damage has occurred. In addition to that Veltanium assumes warranty liability within the first 10 years from the date of purchase up to an amount of AUD $250,000 per installation.

The following conditions apply:

SCOPE OF WARRANTY

We guarantee that Veltanium pipes and compression sleeve fittings (products) are produced in accordance with ISO 9001 Quality Management procedures and are manufactured according to relevant Australian Standards.

Veltanium guarantees the quality of its products and that they are free of manufactur ing defects for the period of warranty.

This warranty covers faults in the products due to manufacturing defects within 25 years from the date of purchase. After inspection by Veltanium representatives, de fective products will be replaced or repaired with equivalent goods free of charge.

In addition, if product is found to be defective due to a manufacturing fault, Veltanium assumes warranty and liability within the first 10 years from the date of purchase up to an amount of AUD$250,000 per installation. Veltanium shall grant this warranty to the installation contractor in the event that the owner of the building successfully asserts any claim against the installation contractor for direct losses suffered or incurred by the owner of a building as a result of any defective products. The payment of damages for loss of use, operational downtimes and system depreciation as well as any other indi- rect consequential claim for losses shall be excluded.

Pipes installed in more than one building under one contract shall be regarded as one installation.

Any warranty claim made during the warranty period shall not extend the overall period of warranty coverage.

CONDITIONS

The warranty shall only cover claims for damage due to a fault in the manufacture.

In the event of a warranty claim being made, the party entitled to warranty cover must present the proof of purchase including purchase date of the product.

HOT AND COLD WATER SYSTEMS

This guarantee is not valid if non Veltanium components (pipe or fittings) have been installed or if the installation has not been carried out with the correct Veltanium compression sleeve fitting tool and Veltanium expander tool.

The system must be installed by a competent and licensed plumbing contractor. Any damage caused by normal wear and tear, unsuitable or improper use, external influences (e.g. chemicals, detergents, holes inadvertently drilled in pipework, etc.) as well as incorrect or faulty assembly/installation shall be excluded from the warranty.

The installation contactor must show that the design, installation, commissioning and operation was in accordance with the relevant codes and standards as well as the instructions and technical guidelines issued by Veltanium for the Australian market.

In the event of a claim, Veltanium must immediately be given the opportunity to inspect the damage within a maximum period of eight days after the damage occurs and prior to the execution of any remedial measures. Failure to comply with this condition will result in the loss of warranty cover.

Any measures undertaken by Veltanium in investigating a claim or in the way of damage mitigation shall not constitute recognition of liability. Negotiations on the payment of damages shall under no circumstances be understood as a waiver of the right to show that the notification of damage required under 2.6 was not given in due time, was unfounded or in any other way influenced.

Veltanium shall reserve the right to engage the services of qualified companies of its own choice to perform any necessary remedial measures.

EXCLUSIONS

To the fullest extent permitted by law, Veltanium excludes all liability for damage or injury to any person, damage to any property, and any indirect consequential or other loss or damage.

CLAIM PROCEDURE

Contact Drillcut Pty Ltd.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. Other than as expressly provided by this warranty, to the extent permitted by law, we exclude all such imposed warranties, conditions or obligations and exclude any warranty, condition or obligation imposed by law, equity or otherwise where you acquire the goods from us for the purposes of a business.

HOT AND COLD WATER SYSTEMS

DISPLAY

Illustrations for individual subsystems are listed in the corresponding pipe, fitting and compression sleeve colours.

Illustrations which are applicable for system-wide applications, such as drinking water, heating, gas installation

SLEEVE PN20 WATER & SLEEVE GAS

LATEST TECHNICAL INFORMATION

Velox Systems are continually updating technical information. Please ensure your resource is the most recent available. If you're unsure, contact Drillcut Pty Ltd. You can also refer to our website: www.veloxsystems.com.au

SAFETY ADVICE AND OPERATING INSTRUCTIONS

Please read the safety and operating instructions carefully and completely before beginning installation. If you are unsure of any aspect of installation or safety please contact Drillcut If the operating parameters are not followed, the pipes and joints may become stressed, leading to failure of the system and/or leaks. Failure to observe the safety information/instructions can result in damage to property and persons.

INTENDED USE

The VELTANIUM jointing methods are
considered proprietary and should be designed, installed, and operated in accordance to VELTANIUM's Technical Information. Any other use that does not fall within the intended use of the system is prohibited All relevant building, plumbing and other applicable authority codes must be followed as per the requirement for the region. Areas of application not contained in this Technical Information (special applications) require consultation with Drillcut Pty Ltd.

STAFF REQUIREMENTS

Installation of Veltanium products should only be carried out by qualified and licenced trades people.

VELTANIUM PIPING SYSTEMS

PEX-A PN20 WATER AND PEX-AL-PEX GAS SLEEVE JOINT SYSTEM

The Veltanium brass sleeve joint fitting is a truly unique combination gas and water fitting that is priced competitively for the Australian commercial plumbing market.

The Veltanium Pex-A water pipe offers the installer the strength of PN20 and the flexibility of an 82% cross-linked polymer pipe that is extremely durable, even at temperatures of up to 950C. The Veltanium sleeve jointing system has been designed to operate with the Pex-A pipe for water, and PEX-AL-PEX pipe for gas. Pex-B pipe is not permitted for sleeve joint systems.

FEATURES/BENEFITS OF VELTANIUM WATER SYSTEMS

WATER HAMMER

The flexibility of polymer piping enables the system to expand and contract, greatly reducing water hammer that would otherwise be evident in metallic systems such as copper from the result of fast closing taps and electronically operated valves.

WATER TRANSFER NOISE

Water transfer noise or the sound of water flowing through the pipes is greatly reduced due to the thickness of the polymer pipe wall.

PEX-A PN20 WATER AND PEX-AL-PEX GAS SLEEVE

SYSTEM DESCRIPTION

The Veltanium brass sleeve joint fitting is a truly unique combination gas and water fitting that is priced competitively for the water market. The Veltanium Pex-A water pipe offers the installer the strength of PN20 and the flexibility of an 82% cross-linked polymer pipe that is extremely durable, even at temperatures of up to 950C.

The Veltanium sleeve jointing system has been designed to operate with the Pex-A pipe for water, the PEX-AL-PEX pipe for gas. Pex-B pipe is not permitted for sleeve joint systems.

APPLICABLE PIPE TYPES

Veltanium offers PN20 water pipe in a variety of colours for ease of water type identification. It is the recommendation of Veltanium that before installation standard requirements are researched in order for pipe selection to be made.

VELTANIUM PIPING SYSTEMS

SLEEVE PN20 WATER & SLEEVE GAS

VELTANIUM PIPE BENEFITS:

- Corrosion resistant
- Acoustic insulation, offering minimal noise caused by water transfer
- Pex pipe flexibility resulting in minimal water hammer
- Pex-A pipes have outstanding memory properties adding to installation efficiency
- No build-up of lime or scale
- Strong material, with superior performance against abrasion and impact

SLEEVE GAS PIPE

PEX-AL-PEX is a polymer pipe with an aluminium core that can be moulded or bent to accommodate installation requirements that are found in modern day construction. The gas system must be installed according to AS/ NZS 5601.1:2013.

It can be used for gas services with normal operating temperature of 80°C and can also withstand short exposure to temperature of up to 95°C. It can also be operated at a pressure of up to 70 KPa at 80°C.

- Five layers with an aluminium core that is longitudinally welded
- Aluminium layer prevents oxygen diffusion
- Yellow PEX outer layer
- Suitable for NG and LPG installation
- Dimensions 16 – 32
- Rigid and resistant to deformation, the pipe will hold its shape when installed

VELTANIUM PIPING SYSTEMS

PN20 WATER PIPE

The titanium plumbing system must be installed according to AS/ NZS 3500.1:2003. It can be used for hot and cold water services with normal operating temperature of 65°C and can also withstand short exposure to temperature of up to 95°C. It can also be operated at a pressure of up to 2000 KPa at 20°C.

- Suitable for potable water installation
- Titanium PE outer layer
- Dimensions 16 – 32
- Flexible and extremely durable, capable of withstanding temperatures up to 95°C

PN20 HOT WATER PIPE

Water pipes with an outer red colour are available for ease of identification for the installer. Red pipes have the same physical and mechanical properties as Veltanium black pipes and should be installed similarly.

- Red PE outer layer
- Dimensions 16 – 25

PN20 RAINWATER PIPE

Water pipes with an outer green colour are available to meet regulatory requirements for rain water installation. Green pipes have the same physical and mechanical properties as Veltanium black pipes and should be installed similarly.

- Suitable for rainwater installation
- Green PE outer layer
- Dimensions 16 – 25

P20 RECYCLE WATER

Water pipes with an outer lilac colour are available to meet regulatory requirements for reclaimed water installation. Lilac pipes have the same physical and mechanical properties as Veltanium black pipes and should be installed similarly.

- Suitable for reclaimed water installation n
- Lilac PE outer layer
- Dimensions 16 – 25

VELTANIUM PIPING SYSTEMS

VELTANIUM PN20 SLEEVE FITTINGS

The Veltanium brass sleeve joint fitting is developed for the water market and is also approved for gas installations when used in conjunction with the PEX-AL-PEX gas pipe.

This system has been designed to operate with the Pex-A pipe for water, the PEX-AL-PEX pipe for gas. Pex-B pipe is not permitted for sleeve joint systems.

Veltanium brass fittings are dezincified resistant brass as per the plumbing standard requirement.

All sleeve fittings are for use on **BOTH** Sleeve PN20 Water and Sleeve Gas pipes

For a complete review of the sleeve joint fitting range, please refer to the Veltanium brochure available from Drillcut, or visit the Velox Systems website.

Veltanium sleeves are made from heat treated brass and are not required to be dezincified resistant as they don't come in contact with water.

COMPRESSION SLEEVE

16mm	Gas/PN20 Water	40VTMSLV16
20mm	Gas/PN20 Water	40VTMSLV20
25mm	Gas/PN20 Water	40VTMSLV25
32mm	Gas/PN20 Water	40VTMSLV32

WATER SYSTEM DESIGN: POINTS TO CONSIDER

THERMAL INSULATION

Thermal insulation requirements for water services are specified in the BCA /NCC and in AS/NZS 3500.

Where pipe is installed in a climate which is prone to freezing, care must be taken to protect the pipes from damage caused by being exposed to temperatures resulting in the fluid within the pipes freezing.

Veltanium pipes are not able to withstand exposure to freezing conditions and it is recommended that for long periods of freezing temperatures the pipes are insulated, and that warm water is recirculated periodically to prevent freezing within the pipes. Alternatively, system exposed to freezing may be temporarily decommissioned and drained to prevent damage.

HEAT LOSS PER METER OF PE-X AND COPPER PIPES

Insulation	None	9mm	13mm	25mm
Heat Loss	W/m	W/m	W/m	W/m
16x2.2 PE-X	31.3	11.2	9.5	7.1
12.7x0.91 Copper	27.2	10.0	8.5	6.5
20x2.8 PE-X	36.8	12.9	10.8	8.0
19.05x1.02 Copper	38.3	13.0	10.7	8.0
25x3.5 PE-X	43.3	14.9	12.5	9.0
25.4x1.22 Copper	48.9	15.9	13.0	9.4
32x4.4 PE-X	51.8	17.7	14.7	10.4
31.75x1.22 Copper	59.2	18.7	15.1	10.7

The heat losses are calculated based on:

- ISO 12241 (Thermal insulation for building equipment and industrial installations – calculation rules)
- Horizontal pipe installation indoors in still air
- Laminar air flow over pipe/insulation
- Internal heat transfer coefficient larger than 1000 W/m2K
- Water temperature of 65°C
- Ambient temperature of 20°C

Emissivity of: (Emissivity is the measure of an object's ability to emit infrared energy.):

- 0.77 for copper (strongly oxidized)
- 0.93 for polymer piping
- 0.90 for insulation

Thermal conductivity of: W/mK (watts per square metre of surface area for a temperature gradient of one kelvin for every metre thickness.)

- 380 W/mK for copper pipes
- 0.35 W/mk for PE-X pipes
- 0.04 W/mK for insulation

WATER SYSTEM DESIGN: POINTS TO CONSIDER

WATER HEATER CONNECTION

All installations must be in accordance with the AS/NZS 3500. As per the standard, it is mandatory that a metallic pipe (copper) be installed for one meter from any hot water unit. This is to allow any steam or excessive hot water to be dissipated from the system.

It is recommended by Veltanium that isolation valves be installed together with non-return valves to protect the hot water service from any backflow and make installation of a replacement hot water service simpler when required.

Veltanium PN20 pipes may be used for re-circulating hot water systems provided the installation guidelines are adhered to. Veltanium PN16/12.5 pipes may not be used for re-circulating hot water systems but may be used for non-re-circulating systems.

Veltanium recommends that only appliances with temperature control devices which can, at all times, restrict the outlet water temperature to within the Veltanium piping system's capabilities be installed in conjunction with Veltanium piping systems.

Heat trace wire may be used to a maximum temperature of 50°C. If the piping system needs to be shut down and drained, please ensure that the heat trace wire is turned off prior to draining the system. Failure to do so could result in damage to the system and void the Veltanium warranty.

SOLAR WATER HEATERS & OTHER WATER HEATERS WITH UNCONTROLLED ENERGY SOURCES

Solar collectors and other uncontrolled heat sources generally have operating conditions which exceed the specification of the Veltanium piping systems.

- Never use Veltanium pipes in the flow and return piping to any solar collectors/panels.
- Do not install Veltanium pipes in the flow and return of any uncontrolled heat source (e.g. wood fire heaters, etc.).

As per AS/NZS 3500 requirement, polymer pipe systems must never be used on the flow and return piping to any solar panel.

SUITABILITY OF PIPE FOR HOT WATER DELIVERY

	Re-Circulating	Non Re-Circulated	Solar/ Uncontrolled	Heat Trace Maximum Temp 50°c
PN20 – Pex-A – 16mm	✓	✓	X	✓
PN20 – Pex-A – 20mm	✓	✓	X	✓
PN20 – Pex A – 25mm	✓	✓	X	✓
PN20- Pex-A – 32mm	✓	✓	X	✓

WATER SYSTEM DESIGN: POINTS TO CONSIDER

APPROVAL AND CERTIFICATIONS

The complete range of Veltanium pipes and fittings comply with all relevant Australian and New Zealand standards.

Veltanium PE-X pipes comply with AS/NZS 2492:2007 for crosslinked polyethylene (PE-X) pipe for pressure application, and are certified under WaterMark Licence Number WM74521.

Veltanium brass fittings comply with AS/NZS 2537.2:2011 and are certified under WaterMark Licence Number WM74518 for:

- Mechanical jointing fittings used with crosslinked polyethylene (PE-X) for pressure applications
- Plastic piping systems for hot and cold water installations.

Veltanium multilayer pipes (PEX-AL-PEX) for pressure applications comply with AS4176.8:2010 and are certified to ISO Type 5 under Licence Number AMI74572:

- Multi-layer pipe systems for consumer gas installations with a maximum operating pressure up to and including 500Kpa.

REQUIREMENTS OF DRINKING WATER

Refer to Australian Drinking Water Guideline 2011

Note that in locations with highly corrosive water composition, e.g. in installations using bore/well water etc., the suitability of Veltanium piping systems must be checked with Veltanium Sales Office. In some cases, the available water quality may void the Veltanium warranty unless appropriate water treatment is provided.

PIPE SIZING

Required flow rates, loading units, etc. are detailed in AS/NZS 3500.
To avoid unnecessary large pipe sizes, Veltanium recommends carrying out pipe sizing based on the method described in AS/NZS 3500 and the Veltanium pressure loss tables (available in Appendix A and B) rather than sizing the system in copper and applying the equivalent pipe size table.

Please note that the final performance will strongly depend on the available mains pressure, the location (e.g. on top of a hill) and overall size of the building including how many bathrooms and outlets the pipe system has to supply.

WATER SYSTEM DESIGN: POINTS TO CONSIDER

PRESSURE TEST & FLUSHING

Sleeve joint systems should be visually inspected to ensure that all sleeves have been compressed.

Flushing of the system should occur prior to and after pressure testing. Installers must comply with AS/NZS 3500 requirements.

With initial pressurisation care must be taken to avoid air pockets, this usually entails releasing air from the furthest point of the system when first pressurised. All pressure testing must be conducted in accordance with the AS/NZS 3500.

The successful execution and documentation of a pressure test that complies with AS/NZS 3500 and these guidelines is a prerequisite for any warranty claims from Veltanium.

WATER PRESSURE TESTING

1. Build up pressure to 1250 KPa in the Veltanium piping system.
2. After 10 minutes read and write down the test pressure.
3. Perform visual inspection for leaks on the entire water service installation, especially on the connections.
4. After an additional test period of 20 minutes, read and write down the test pressure.

If the pressure remains stable (+/- 5%) the system is deemed sound.
If the test pressure has fallen by more than 5% then:

1. Repeat a thorough visual inspection of the piping and connections.
2. After resolving the cause of the drop in pressure, repeat the test.

PRESSURE LOSS TABLES PEX-A PIPES

Cold water at 25°C

PEAK FLOW RATE QS(L/S) (0.01 TO 0.050)	PN20 16 x 2.2 OD (mm) = 16.00 ID (mm) = 11.60		PN20 20 x 2.8 OD (mm) = 20.00 ID (mm) = 14.40		PN20 25 x 3.5 OD (mm) = 25.00 ID (mm) = 18.00		PN20 32 x 4.4 OD (mm) = 32.00 ID (mm) = 23.20	
	HEAD LOSS (kPa/m)	VELOCITY (m/s)	HEAD LOSS (kPa/m)	VELOCITY (m/s)	HEAD LOSS (kPa/m)	VELOCITY (m/s)	HEAD LOSS (kPa/m)	VELOCITY (m/s)
0.01		0.095		0.061		0.039		0.024
0.02		0.189		0.123		0.079		0.047
0.03		0.284		0.184		0.118		0.071
0.04	0.2355	0.378		0.246		0.157		0.095
0.05	0.3464	0.473	0.1241	0.307		0.196		0.118
0.06	0.4755	0.568	0.1701	0.368	0.0591	0.236		0.142
0.07	0.624	0.662	0.2222	0.430	0.0771	0.275	0.0232	0.166
0.08	0.7864	0.757	0.2802	0.491	0.0970	0.314	0.0292	0.189
0.09	0.9674	0.852	0.3442	0.553	0.1190	0.354	0.0357	0.213
0.10	1.1648	0.946	0.4139	0.614	0.1429	0.393	0.0429	0.237
0.11	1.3786	10.41	0.4892	0.375	0.1687	0.432	0.0505	0.260
0.12	1.6085	1.135	0.5700	0.737	0.1964	0.472	0.0588	0.284
0.13	1.8542	1.230	0.6563	0.798	0.2259	0.511	0.0675	0.308
0.14	2.1156	1.325	0.7480	0.860	0.2572	0.551	0.0768	0.331
0.15	2.3926	1.419	0.8451	0.921	0.2903	0.589	0.0866	0.355
0.16	2.6850	1.514	0.9474	0.982	0.3252	0.629	0.0969	0.378
0.17	2.9927	1.609	1.0549	1.044	0.3618	0.668	0.1077	0.402
0.18	3.3156	1.703	1.1677	1.105	0.4002	0.707	0.1191	0.426
0.19	3.6536	1.798	1.2856	1.167	0.4402	0.747	0.1309	0.449
0.20	4.0066	1.892	1.4086	1.228	0.4820	0.786	0.1432	0.473
0.21	4.3745	1.987	1.5367	1.289	0.5254	0.825	0.1560	0.497
0.22	4.7572	2.082	1.6698	1.351	0.5705	0.865	0.1693	0.520
0.23	5.1548	2.176	1.8079	1.412	0.6173	0.904	0.1831	0.544
0.24	5.5670	2.271	1.9510	1.474	0.6658	0.943	0.1973	0.568
0.25	5.9939	2.366	2.0991	1.535	0.7158	0.982	0.2120	0.591
0.26	6.4354	2.461	2.2521	1.596	0.7675	1.022	0.2272	0.615
0.27	6.8915	2.555	2.4101	1.658	0.8209	1.061	0.2429	0.639
0.28	7.3620	2.649	2.5729	1.719	0.8758	1.100	0.2590	0.662
0.29	7.8470	2.744	2.7406	1.781	0.9324	1.140	0.2755	0.686
0.30	8.3464	2.839	2.9131	1.842	0.9905	1.179	0.2926	0.710
0.31	8.8602	2.933	3.0905	1.903	1.0503	1.218	0.3101	0.733
0.32	9.3883	3.028	3.2727	1.965	1.1116	1.258	0.3280	0.757
0.33	9.9307	3.123	3.4597	2.026	1.1745	1.297	0.3464	0.781
0.34	10.4873	3.217	3.6515	2.088	1.2390	1.336	0.3652	0.804
0.35	11.0582	3.312	3.8481	2.149	1.3050	1.375	0.3845	0.828
0.36	11.6433	3.406	4.0494	2.210	1.3726	1.415	0.4043	0.852
0.37	12.2426	3.501	4.2555	2.272	1.4418	1.454	0.4244	0.875
0.38	12.8560	3.596	4.4663	2.333	1.5125	1.493	0.4451	0.899
0.39	13.4836	3.690	4.6819	2.395	1.5848	1.533	0.4661	0.923
0.40	14.1252	3.785	4.9021	2.456	1.6586	1.572	0.4876	0.946
0.41	14.7810	3.880	5.1271	2.517	1.7339	1.611	0.5096	0.970
0.42	15.4507	3.974	5.3567	2.579	1.8108	1.650	0.5319	0.994
0.43			5.5911	2.640	1.8892	1.690	0.5547	1.017
0.44			5.8301	2.702	1.9691	1.729	0.5780	1.041
0.45			6.0737	2.763	2.0505	1.768	0.6016	1.065
0.46			6.3221	2.825	2.1335	1.808	0.6257	1.088
0.47			6.5750	2.886	2.2180	1.847	0.6502	1.112
0.48			6.8326	2.947	2.3039	1.886	0.6752	1.135
0.49			7.0949	3.009	2.3914	1.926	0.7006	1.159
0.50			7.3617	3.070	2.4804	1.965	0.7264	1.183

PRESSURE LOSS TABLES PEX-A PIPES

Cold water at 25°C

PEAK FLOW RATE QS(L/S) (0.05 TO 2.50)	PN20 32 x 4.4 OD (mm) = 32.00 ID (mm) = 23.20	
	HEAD LOSS (kPa/m)	VELOCITY (m/s)
0.05		0.118
0.10	0.0429	0.237
0.15	0.0866	0.355
0.20	0.1432	0.473
0.25	0.2120	0.591
0.30	0.2926	0.710
0.35	0.3845	0.828
0.40	0.4876	0.946
0.45	0.6016	10.65
0.50	0.7264	1.183
0.55	0.8617	1.301
0.60	1.0075	1.419
0.65	1.1637	1.538
0.70	1.3301	1.656
0.75	1.5067	1.774
0.80	1.6933	1.892
0.85	1.8900	2.011
0.90	2.0966	2.129
1.00	2.5396	2.366
1.05	2.7758	2.484
1.10	3.0218	2.602
1.15	3.2775	2.720
1.20	3.5429	2.839
1.25	3.8179	2.957
1.30	4.1025	3.075
1.35	4.3968	3.194
1.40	4.7006	3.312
1.45	5.0140	3.430
1.50	5.3369	3.548
1.55	5.6692	3.667
1.60	6.0111	3.785
1.65	6.3624	3.903
1.70	6.7231	4.021
1.75		
1.80		
1.95		
2.00		
2.05		
2.10		
2.15		
2.20		
2.25		
2.30		
2.40		
2.45		
2.50		

PEAK FLOW RATE QS (L/S) (0.51 TO 1)	PN20 20 x 2.8 OD (mm) = 20.00 ID (mm) = 14.40		PN20 25 x 3.5 OD (mm) = 25.00 ID (mm) = 18.00		PN20 32 x 4.4 OD (mm) = 32.00 ID (mm) = 23.20	
	HEAD LOSS (kPa/m)	VELOCITY (m/s)	HEAD LOSS (kPa/m)	VELOCITY (m/s)	HEAD LOSS (kPa/m)	VELOCITY (m/s)
0.51	7.6332	3.132	2.5709	2.004	0.7526	1.206
0.52	7.9093	3.193	2.6628	2.043	0.7792	1.230
0.53	8.1900	3.254	2.7563	2.083	0.8063	1.254
0.54	8.4752	3.316	2.8513	2.122	0.8338	1.277
0.55	8.7651	3.377	2.9477	2.161	0.8617	1.301
0.56	9.0596	3.439	3.0457	2.201	0.8900	1.325
0.57	9.3586	3.500	3.1451	2.240	0.9188	1.348
0.58	9.6622	3.567	3.2460	2.279	0.9479	1.372
0.59	9.9704	3.623	3.3484	2.319	0.9775	1.396
0.60	10.2831	3.684	3.4522	2.358	1.0075	1.419
0.61	10.6004	3.746	3.5575	2.397	1.0379	1.443
0.62	10.9223	3.807	3.6643	2.436	1.0687	1.467
0.63	11.2487	3.868	3.7726	2.476	1.1000	1.490
0.64	11.5796	3.930	3.8823	2.515	1.1316	1.514
0.65	11.9151	3.991	3.9935	2.554	1.1637	1.538
0.66	12.2551	4.053	4.1062	2.594	1.1961	1.561
0.67			4.2203	2.633	1.2290	1.585
0.68			4.3358	2.672	1.2623	1.609
0.69			4.429	2.712	1.2960	1.632
0.70			4.5714	2.751	1.3301	1.656
0.71			4.6913	2.790	1.3646	1.680
0.72			4.8127	2.829	1.3995	1.703
0.73			4.9355	2.869	1.4348	1.727
0.74			5.0598	2.908	1.4705	1.751
0.75			5.1856	2.947	1.5067	1.774
0.76			5.3127	2.987	1.5432	1.798
0.77			5.4414	3.026	1.5801	1.821
0.78			5.5714	3.065	1.6174	1.845
0.79			5.7029	3.105	1.6552	1.869
0.80			5.8359	3.144	1.6933	1.892
0.81			5.9703	3.183	1.7319	1.916
0.82			6.1061	3.222	1.7708	1.940
0.83			6.2434	3.262	1.8101	1.963
0.84			6.3821	3.301	1.8499	1.987
0.85			6.5222	3.340	1.8900	2.011
0.86			6.6637	3.380	1.9305	2.034
0.87			6.8067	3.419	1.9715	2.058
0.88			6.69511	3.045	2.0128	2.082
0.89			7.0970	3.497	2.0545	2.105
0.90			7.2443	3.537	2.0966	2.123
0.91			7.3930	3.576	2.1392	2.153
0.92			7.5431	3.615	2.1821	2.176
0.93			7.6946	3.655	2.2254	2.200
0.94			7.8476	3.694	2.2691	2.224
0.95			8.0020	3.733	2.3132	2.247
0.96			8.1578	3.773	2.3577	2.271
0.97			8.3151	3.812	2.4026	2.295
0.98			8.4737	3.851	2.4479	2.318
0.99			8.6338	3.890	2.4935	2.342
1.00			8.7953	3.930	2.5396	2.366

PRESSURE LOSS TABLES PEX-A PIPES

Hot water at 60°C

PEAK FLOW RATE QS(L/S) (0.01 TO 0.050)	PN20 16 x 2.2 OD (mm) = 16.00 ID (mm) = 11.60		PN20 20 x 2.8 OD (mm) = 20.00 ID (mm) = 14.40		PN20 25 x 3.5 OD (mm) = 25.00 ID (mm) = 18.00		PN20 32 x 4.4 OD (mm) = 32.00 ID (mm) = 23.20	
	HEAD LOSS (kPa/m)	VELOCITY (m/s)	HEAD LOSS (kPa/m)	VELOCITY (m/s)	HEAD LOSS (kPa/m)	VELOCITY (m/s)	HEAD LOSS (kPa/m)	VELOCITY (m/s)
0.01		0.095		0.061		0.039		0.024
0.02	0.0590	0.189		0.123		0.079		0.047
0.03	0.1191	0.284	0.0426	0.184	0.0148	0.118		0.071
0.04	0.1968	0.378	0.0702	0.246	0.0243	0.157	0.0073	0.095
0.05	0.2913	0.473	0.1036	0.307	0.0358	0.196	0.0107	0.118
0.06	0.4020	0.568	0.1426	0.368	0.0492	0.236	0.0147	0.142
0.07	0.5286	0.662	0.1871	0.430	0.0644	0.275	0.0192	0.166
0.08	0.6705	0.757	0.2368	0.491	0.0814	0.314	0.0243	0.189
0.09	0.8277	0.852	0.2918	0.553	0.1001	0.354	0.0298	0.213
0.10	0.9999	0.946	0.3519	0.614	0.1205	0.393	0.0358	0.237
0.11	1.1869	10.41	0.4170	0.675	0.1426	0.432	0.0424	0.260
0.12	1.3885	1.135	0.4871	0.737	0.1664	0.472	0.0494	0.284
0.13	1.6047	1.230	0.5622	0.798	0.1918	0.511	0.0568	0.308
0.14	1.8353	1.325	0.6421	0.860	0.2188	0.551	0.0648	0.331
0.15	2.0802	1.419	0.7269	0.921	0.2474	0.589	0.0731	0.355
0.16	2.3394	1.514	0.8165	0.982	0.2776	0.629	0.0820	0.378
0.17	2.6127	1.609	0.9108	1.044	0.3094	0.668	0.0913	0.402
0.18	2.9001	1.703	1.0099	1.105	0.3427	0.707	0.1010	0.426
0.19	3.2016	1.798	1.1136	1.167	0.3775	0.747	0.1112	0.449
0.20	3.5171	1.892	1.2221	1.228	0.4139	0.786	0.1218	0.473
0.21	3.8464	1.987	1.3352	1.289	0.4519	0.825	0.1329	0.497
0.22	4.1897	2.082	1.4530	1.351	0.4913	0.865	0.1444	0.520
0.23	4.5468	2.176	1.5754	1.412	0.5323	0.904	0.1563	0.544
0.24	4.9178	2.271	1.7024	1.474	0.5747	0.943	0.1686	0.568
0.25	5.3025	2.366	1.8340	1.535	0.6186	0.982	0.1814	0.591
0.26	5.7009	2.461	1.9701	1.596	0.6641	1.022	0.1946	0.615
0.27	6.1131	2.555	2.1109	1.658	0.7110	1.061	0.2082	0.639
0.28	6.5390	2.649	2.2561	1.719	0.7594	1.100	0.2222	0.662
0.29	6.9785	2.744	2.4059	1.781	0.8092	1.140	0.2366	0.686
0.30	7.4317	2.839	2.5602	1.842	0.8606	1.179	0.2514	0.710
0.31	7.8985	2.933	2.7191	1.903	0.9134	1.218	0.2667	0.733
0.32	8.3789	3.028	2.8824	1.965	0.9676	1.258	0.2824	0.757
0.33	8.8729	3.123	3.0502	2.026	1.0233	1.297	0.2984	0.781
0.34	9.3805	3.217	3.2225	2.088	1.0804	1.336	0.3149	0.804
0.35	9.9016	3.312	3.3993	2.149	1.1390	1.375	0.3318	0.828
0.36	10.4362	3.406	3.5806	2.210	1.1990	1.415	0.3491	0.852
0.37	10.9844	3.501	3.7663	2.272	1.2605	1.454	0.3668	0.875
0.38	11.5461	3.596	3.9564	2.333	1.3234	1.493	0.3846	0.899
0.39	12.1213	3.690	4.1510	2.395	1.3877	1.533	0.4034	0.923
0.40	12.7100	3.785	4.3501	2.456	1.4535	1.572	0.4223	0.946
0.41	13.3121	3.880	4.5536	2.517	1.5207	1.611	0.4416	0.970
0.42	13.9277	3.974	4.7615	2.579	1.5893	1.650	0.4613	0.994
0.43	14.5568		4.9738	2.640	1.6593	1.690	0.4813	1.017
0.44			5.1906	2.702	1.7307	1.729	0.5018	1.041
0.45			5.4117	2.763	1.8036	1.768	0.5227	1.065
0.46			5.6373	2.825	1.8778	1.808	0.5440	1.088
0.47			5.8673	2.886	1.9535	1.847	0.5656	1.112
0.48			6.1017	2.947	2.0306	1.886	0.5877	1.135
0.49			6.3404	3.009	2.1091	1.926	0.6101	1.159
0.50			6.5836	3.070	2.1890	1.965	0.6329	1.183

PEAK FLOW RATE QS(L/S) (0.05 TO 2.50)	PN20 32 x 4.4 OD (mm) = 32.00 ID (mm) = 23.20	
	HEAD LOSS (kPa/m)	VELOCITY (m/s)
0.05	0.0107	0.118
0.10	0.0358	0.237
0.15	0.0731	0.355
0.20	0.1218	0.473
0.25	0.1814	0.591
0.30	0.2514	0.710
0.35	0.3318	0.828
0.40	0.4223	0.946
0.45	0.5227	10.65
0.50	0.6329	1.183
0.55	0.7529	1.301
0.60	0.8825	1.419
0.65	1.0216	1.538
0.70	1.1703	1.656
0.75	1.3284	1.774
0.80	1.4960	1.892
0.85	1.6728	2.011
0.90	1.8590	2.129
0.95	2.0545	2.247
1.00	2.2593	2.366
1.05	2.4733	2.484
1.10	2.6965	2.602
1.15	2.9289	2.720
1.20	3.1704	2.839
1.25	3.4211	2.957
1.30	3.6810	3.075
1.35	3.9499	3.194
1.40	4.2280	3.312
1.45	4.5151	3.430
1.50	4.8113	3.548
1.55	5.1166	3.667
1.60	5.4310	3.785
1.65	5.7543	3.903
1.70	6.0868	4.021
1.75		
1.80		
1.95		
2.00		
2.05		
2.10		
2.15		
2.20		
2.25		
2.30		
2.40		
2.45		
2.50		

PRESSURE LOSS TABLES PEX-A PIPES

Hot water at 60°C

PEAK FLOW RATE QS (L/S) (0.51 TO 1)	PN20 20 x 2.8 OD (mm) = 20.00 ID (mm) = 14.40		PN20 25 x 3.5 OD (mm) = 25.00 ID (mm) = 18.00		PN20 32 x 4.4 OD (mm) = 32.00 ID (mm) = 23.20	
	HEAD LOSS (kPa/m)	VELOCITY (m/s)	HEAD LOSS (kPa/m)	VELOCITY (m/s)	HEAD LOSS (kPa/m)	VELOCITY (m/s)
0.51	6.8312	3.132	2.2703	2.004	0.6561	1.206
0.52	7.0831	3.193	2.3530	2.043	0.6797	1.230
0.53	7.3394	3.254	2.4371	2.083	0.7037	1.254
0.54	7.6001	3.316	2.5225	2.122	0.7281	1.277
0.55	7.8652	3.377	2.6094	2.161	0.7529	1.301
0.56	8.1346	3.439	2.6977	2.201	0.7780	1.325
0.57	8.4084	3.500	2.7874	2.240	0.8036	1.348
0.58	8.6866	3.567	2.8784	2.279	0.8295	1.372
0.59	8.9691	3.623	2.9709	2.319	0.8558	1.396
0.60	9.2560	3.684	3.0647	2.358	0.8825	1.419
0.61	9.5473	3.746	3.1600	2.397	0.9095	1.443
0.62	9.8429	3.807	3.2566	2.436	0.9370	1.467
0.63	10.1429	3.868	3.3546	2.476	0.9648	1.490
0.64	10.4472	3.930	3.4539	2.515	0.9930	1.514
0.65	10.7559	3.991	3.5547	2.554	1.0216	1.538
0.66	11.0689	4.053	3.6568	2.594	1.0506	1.561
0.67			3.7604	2.633	1.0800	1.585
0.68			3.8653	2.672	1.1097	1.609
0.69			3.9716	2.712	4.332	1.632
0.70			4.0792	2.751	1.1703	1.656
0.71			4.1882	2.790	1.2012	1.680
0.72			4.2987	2.829	1.2324	1.703
0.73			4.4104	2.869	1.2641	1.727
0.74			4.5236	2.908	1.2961	1.751
0.75			4.6381	2.947	1.3274	1.774
0.76			4.7540	2.987	1.3612	1.798
0.77			4.8713	3.026	1.3943	1.821
0.78			4.9899	3.065	1.4278	1.845
0.79			5.1099	3.105	1.4617	1.869
0.80			5.2313	3.144	1.4960	1.892
0.81			5.3541	3.183	1.5306	1.916
0.82			5.4782	3.222	1.5656	1.940
0.83			5.6037	3.262	1.6010	1.963
0.84			5.7305	3.301	1.6367	1.987
0.85			5.8587	3.340	1.6728	2.011
0.86			5.9883	3.380	1.7093	2.034
0.87			6.1192	3.419	1.7462	2.058
0.88			6.2515	3.045	1.7834	2.082
0.89			6.3852	3.497	1.8211	2.105
0.90			6.5202	3.537	1.8590	2.123
0.91			6.6566	1.8974	2.1392	2.153
0.92			6.7944	3.615	1.9361	2.176
0.93			6.9335	3.655	1.9752	2.200
0.94			7.0740	3.694	2.0147	2.224
0.95			7.2158	3.733	2.0545	2.247
0.96			7.3590	3.773	2.0947	2.271
0.97			7.5035	3.812	2.1353	2.295
0.98			7.6494	3.851	2.1763	2.318
0.99			7.7967	3.890	2.2176	2.342
1.00			7.9453	3.930	2.2593	2.366

GAS SLEEVE PIPE (NATURAL GAS) PRESSURE DROP TABLES

Natural Gas (NG)
Flow rates based on:
- Pressure: 1023.15 mber
- Gas Temp: 15°C
- Heating Value (gross): 38.7 M3/m3

Pressure drop of 0.075 kPa
(Supply pressure of aroun 1.1 kPa)

PIPE SIZE	PIPE LENGTH IN METRES												
	2	4	6	8	10	12	14	16	18	20	25	30	35
16	80	55	45	38	34	30	26	22	20	18	14	12	11
20	140	96	77	66	58	53	49	45	43	40	35	29	25
25	251	172	139	119	105	95	88	81	77	73	64	58	53
32	490	336	270	232	204	186	171	159	149	141	124	114	104
PIPE SIZE	PIPE LENGTH IN METRES												
	40	45	50	55	60	65	70	75	80	85	90	95	100
16	8	7	6	6	5	5	4	4	4	4	3	3	3
20	21	19	17	16	14	13	12	11	11	10	9	9	9
25	47	45	41	38	35	32	30	28	26	25	23	21	20
32	92	86	81	77	74	71	68	66	64	62	60	57	56

Pressure drop of 0.12 kPa
(Supply pressure of around 1.25 kPa)

PIPE SIZE	PIPE LENGTH IN METRES												
	2	4	6	8	10	12	14	16	18	20	25	30	35
16	93	64	52	44	39	35	33	31	28	26	21	17	15
20	174	121	96	82	73	66	61	57	54	51	45	41	38
25	310	213	171	146	130	118	108	100	94	89	79	72	65
32	600	412	331	283	250	227	209	194	183	172	153	139	127

PIPE SIZING EXAMPLE

The following example uses Natural Gas with a Meter Pressure of 2.75kpa with Pressure Drop of 0.75kpa .

Step 1. Add the mega joule rating of all the appliances.
Example (190 + 30 + 70) = 290Mj/h

Always refer Gas Pex™ sizing Tables to calculate the pipe size of the longest run:
A-B + B-C + C-D (13 + 10 + 8) = 31m

Look up the table at the next highest length value (e.g. =35m)
Look for mega joule rating of the Appliances (290 mj/h)
Calculated pipe size = 32mm
Apply this pipe size to (A-B = 32mm

GAS SLEEVE PIPE (NATURAL GAS) PRESSURE DROP TABLES

Step 2. Calculate the length of each run:
For the hot water service the calculations are:
A-B + B-F (13 + 4) = 17m

Multiply the number of fittings (3) x the fitting equivalence
(refer Gas Pex™ Pipe Sizing Tables)
Add the run length to the fitting allowance:
17m + 1.8m = 18.8m
Look up the table at the next highest length value =20m
Look for mega joule rating of the appliance (190mj/h)
Calculate pipe size =25mm

Apply this pipe size to (B-F) = 25mm

Step 3. Repeat the above for each run:

For the run B-C, the calculations are:
A-B + B-C = (13 + 10) = 23m
Multiply the number of fittings (3) x the fitting equivalence
(refer Gas Pex™ Pipe Sizing Tables)

Add the run length to the fitting allowance:
23m + 1.8 = 24.8m
Look up the table at the next highest length value =25m
Add the mega joule value of the remaining 2 appliances
(cooktop and space heater) = 100Mj/h,

Calculate pipe size = 20mm
Apply this pipe size to (B-C) = 20mm
For the cooktop the calculations are:
A-B + B-C + C-E (13 + 10 + 6) = 29m

Multiply the number of fittings (4) x the fitting Equivalence
(refer Gas Pex ™ Pipe Sizing Tables)
Add the run length to the fitting allowance: 29m + 2.4m =31.4m
Look up the table at the next highest length value = 35m
Look for mega joule rating of the appliance (30Mj/h)
Calculate pipe size = 16mm
Apply this pipe size to (C-E) = 16mm

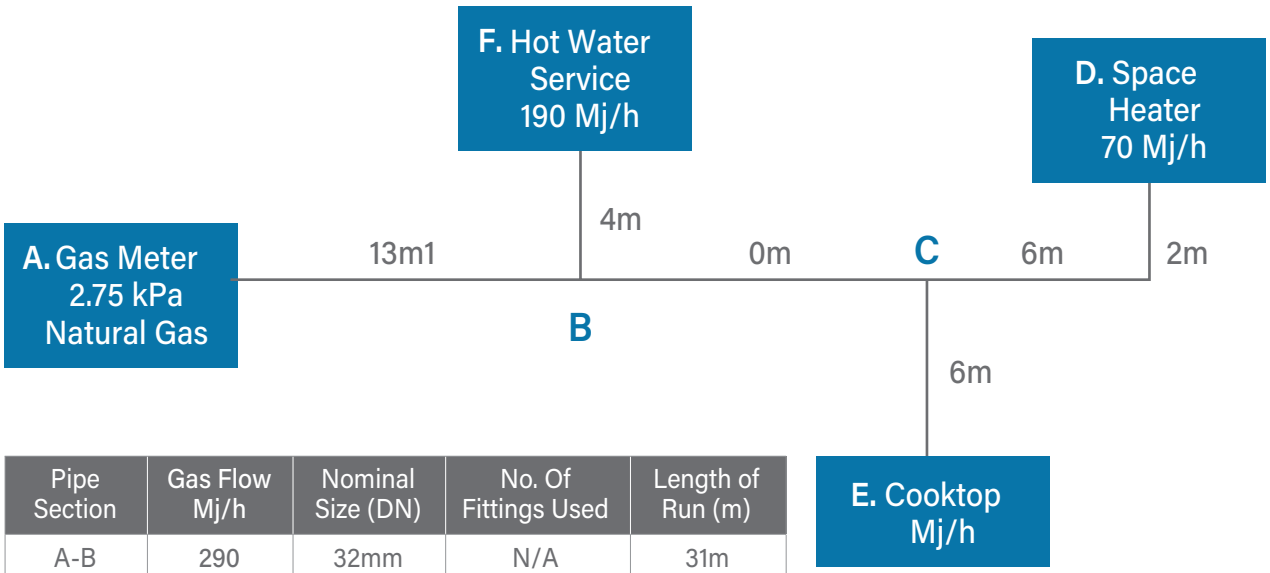
GAS SLEEVE PIPE (NATURAL GAS) PRESSURE DROP TABLES

For the space heater the calculations are:
A-B + B-C + C-D (13 + 10 + 8) = 31m
Multiply the number of fittings (4) x the fitting equivalence

(refer Gas Pex Pipe Sizing Tables)
Add the run length to the fitting allowance:
31m + 2.4m = 33.4m

Look up the table at the next highest length value = 35m
Look for mega joule rating of the appliance (70 Mj/h)
Calculate pipe size = 20mm
Apply this pipe size to (C-D) = 20mm

Table below indicates what pipe size should be used for each run.



Pipe Section	Gas Flow Mj/h	Nominal Size (DN)	No. Of Fittings Used	Length of Run (m)
A-B	290	32mm	N/A	31m
B-C	100	20mm	3	24.8m
C-D	70	20mm	4	33.4m
C-E	30	16mm	4	31.4m
B-F	190	25mm	3	18.8m

VELTANIUM TECHNICAL DATA

Pipe	OD(mm)	16.0-16.3	20-20.3	25-25.3
	Thickness(mm)	2.2-2.45	2.8-3.15	3.5-3.8
	ID	11.5-11.7	14.3-14.5	17.8-18.1
	Temperature	up to 70 °C,		
	Elongation at break	≥350%		
	Slow Crack Growth	0.8 MPA 5000h 80°C		
	Orgin of PEX material	HDPE XL1800 (LG Cheam, South Korea)		
	Carbon Black	≤A3		
	Thermal stability (min)	≥20, 200℃		
Fitting	Core OD(mm)	13.4-13.55	16.4-16.55	19.7-19.85
	Lead Content	1.7-2.8%		
Warranties	25 Years			
After Sales Support	1. Preshipment QC report 2. Faulty products reason analysis 3.CNAS			

Our verbal and written advice relating to technical applications is based on experience and is to the best of our knowledge correct but is given without obligation.

The use of VELTANIUM products in conditions that are beyond our control or for applications other than those specified releases us from any obligation in regard to claims made in respect of the products. We recommend that the suitability of any VELTANIUM product for the intended application should be checked.

Utilization and processing of our products are beyond our control and are therefore exclusively your responsibility. In the event that a liability is nevertheless considered, any compensation will be limited to the value of the goods supplied by us and used by you.

Our warranty assumes consistent quality of our products in accordance with our specification and in accordance with our general conditions of sale.

GENERAL

Do not use dirty/damaged components, pipes, fittings, compression sleeves or seals.

- Make sure that the connection components are free of prohibited stress during assembly and when in operation. Make sure that the piping has sufficient scope of movement (e.g. from deflection legs).
- When flat-sealed joints (or similar) are opened, check that the sealing surface is undamaged before reconnecting and insert a new seal if necessary. Use suitable sheeting to protect fittings and compression sleeves against contact with brickwork or with screed, cement, plaster, bonding agents, aggressive media and other materials and substances which can cause corrosion.
- Protect fittings, pipes and compression sleeves against humidity.
- Protect fittings, pipes and compression sleeves against dirt, drilling dust, primer and glue, mortar, grease, oil, paint, adhesive/protective primers, solvents, etc.
- In aggressive environments (e.g. agricultural, encased in concrete, sea water atmosphere, cleaning agents), protect piping and fittings against corrosion adequately and in such a way that they are sealed against vapours (e.g. to aggressive gases, fermentation gases, chloride mediums).
- Ensure that the employed sealants, cleaning agents, building foams, insulation, protective tape, adhesive tape or thread sealant etc. do not contain any components which cause stress cracking or corrosion, e.g. ammonia, ammonia-bearing, aromatic & oxygenated solvents (e.g. ketone and ether), chlorinated hydrocarbons or chloride which can leach. Veltanium pipe can be bent either by hand or using a bending tool.

BENDING

- When bending without tools, the min bending radius is 5x the pipe diameter.
- When bending with a spiral spring, the min bending radius is 3x times the pipe diameter.
- The minimum bending radius is measured with respect to the centre of the pipe.
- After bending, ensure that there are no kinks, wrinkles or bulges and installation of Veltanium systems within concrete/screed floors and walls are allowed, provided specific requirements from local installation standards are fulfilled and adequate protection from mechanical damage and chemical damage are provided.
  Fittings shall be wrapped with suitable tape to avoid direct contact with concrete.

HOT WATER APPLICATION

- Short pipe length after connection to water meter before going in ground.
- Connection to an externally located water heater for the above exceptions, the following must be ensured.
- The length of pipe installed above ground shall be kept to an absolute minimum not exceeding 2 metres. Below ground installation should always be preferred.
- All pipe and connections must be adequately protected from corrosion, frost and excessive temperature.
- The system components must be protected from any mechanical and physical damages. Consideration shall be given to the type and level of damage which is likely to occur during the long term operation of the system, e.g. UV-radiation, etc.

CORROSION PROTECTION

All joints in ground, except for Veltanium brass fitting joints with Veltanium PEX-A pipes, must be protected against corrosion using a recognized corrosion protection system, such as the petrolatum system or equivalent. When using an alternative Corrosion Protection System.

- Ensure chemical compatibility with Veltanium pipes and fittings.
- When using Veltanium pipe ensure there is no adverse effect on the adhesion of the outer PE-layer to the aluminium layer.
- Only use systems which are suitable for the application and ground conditions and include an approved cavity filler/putty that can be applied to profile the joint, allowing smooth application.

The corrosion protection system shall cover a minimum of 150 mm of the pipe on each side of the joint. Ensure mechanical protection is provided to avoid any damage to the corrosion protection tape e.g. by backfill material. The Building Codes of Australia and New Zealand both stipulate that service penetrations must not reduce the fire resistance level/rating of the building element they penetrate. In Australia, the verification requirements for service penetrations are specified in the National Construction Code (NCC) Vol. 1 under Specification

PENETRATIONS OF WALLS FLOORS & CEILINGS BY SERVICES

The approved Document for Aus/NZ Building Code Fire Safety Clause C lists - under Paragraph 6.17 and Appendix C 6.1 - the requirement tests to prove a selected combination of the fire stop and pipe achieve the required fire resistance rating.

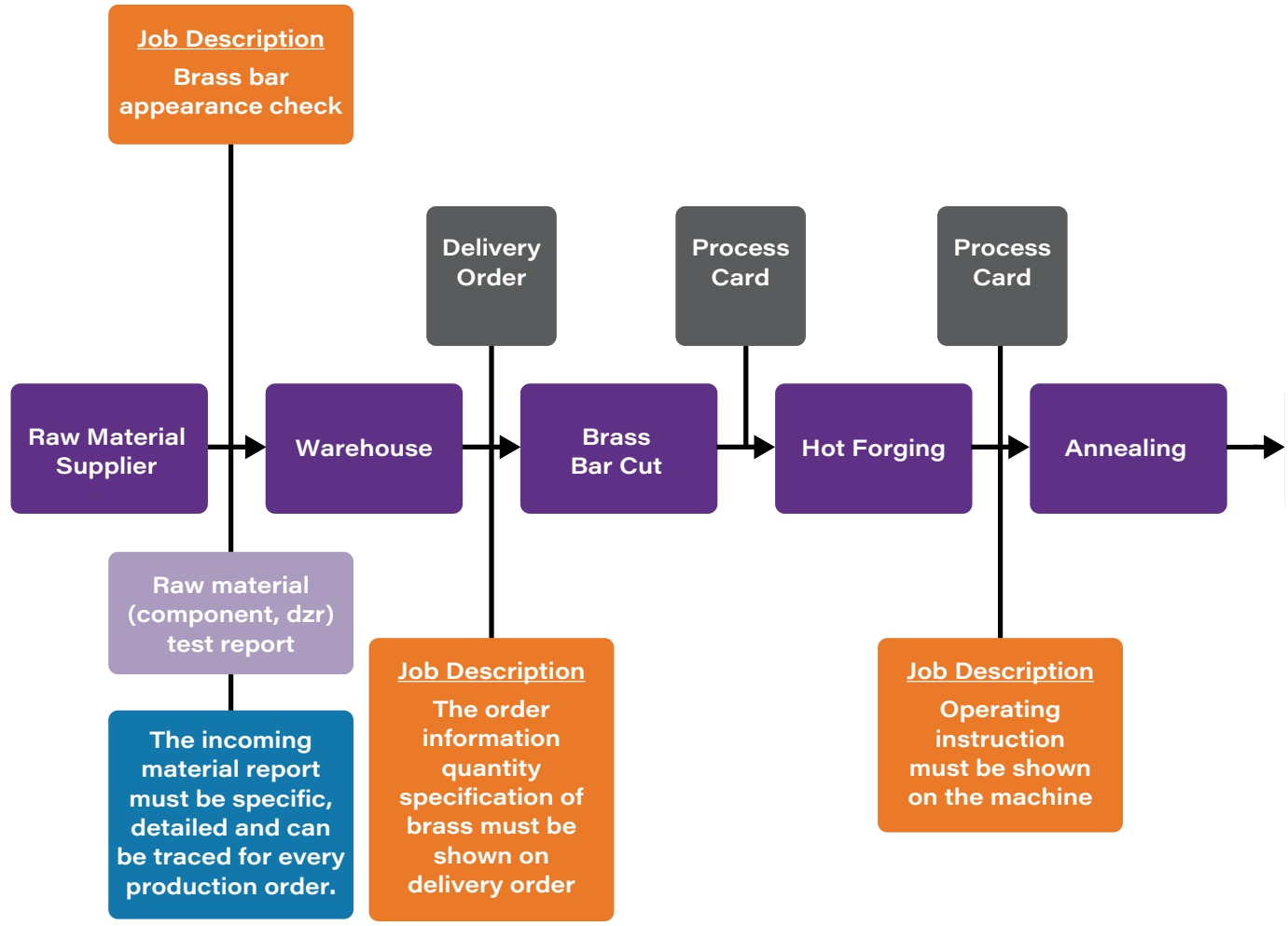
Applicable test methods are detailed in AS 1530.4 (methods for fire tests on building materials, components and structures – Part 4: Fire-resistant tests of elements of building construction).

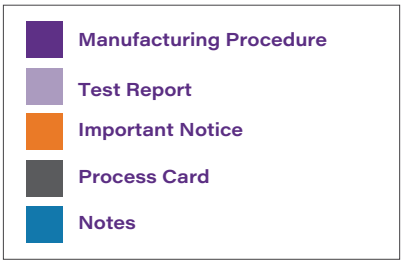
Every service penetration reacts differently in the event of fire. As this is the case, test results are only applicable to the tested wall or floor construction, installed pipes and the applied fire stops. A fire safety engineer responsible for a particular building can at his discretion accept test results from a different test setup, if he deems the construction in question to be achieving a better fire rating than the one that was tested.

Veltanium recommends to only use the fire protection methods which have been specifically tested with the Veltanium pipe system. Veltanium cannot accept responsibility or liability for the correct manufacture or installation of fire protection systems.

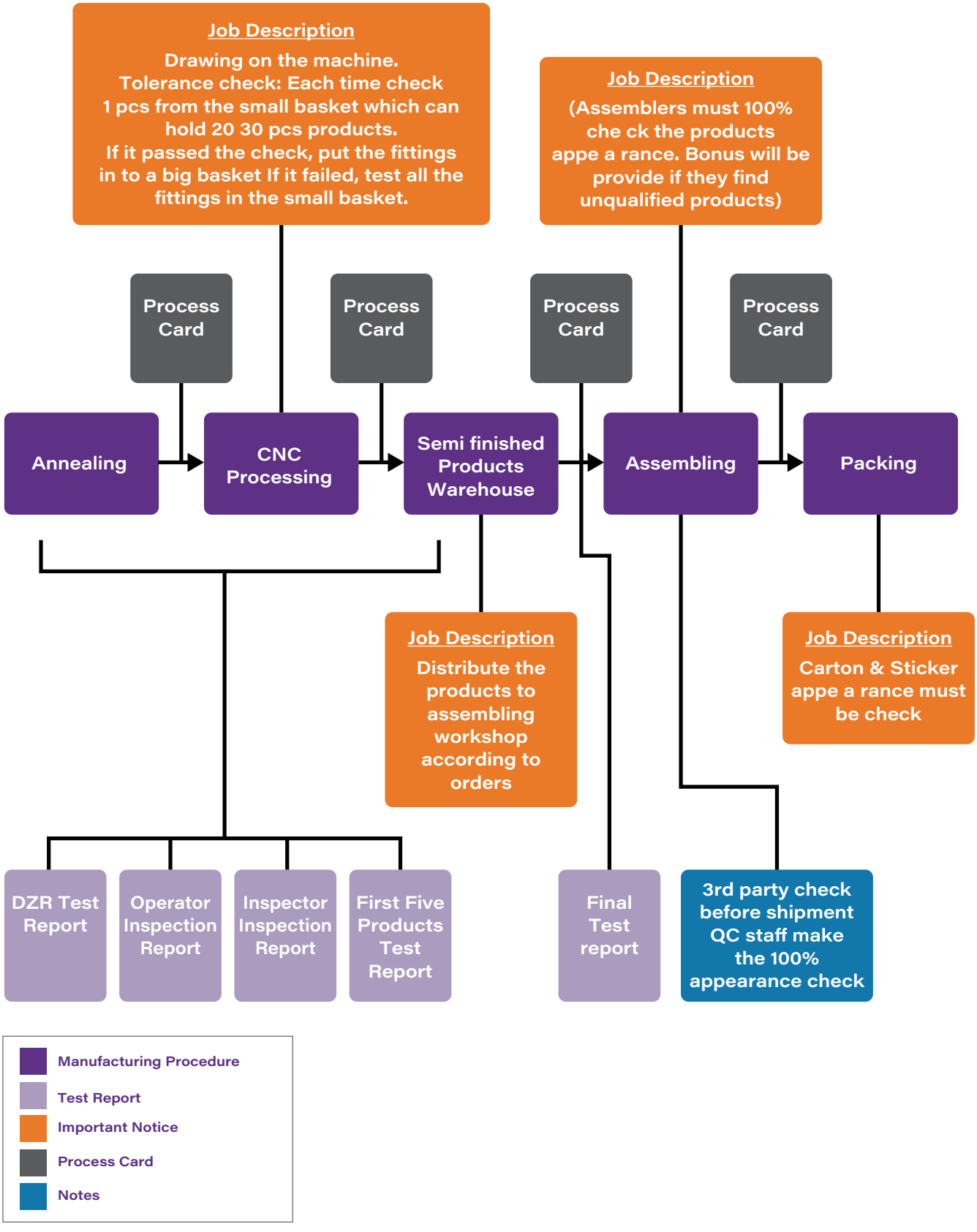
Thermal insulation requirements for hot and cold water services are specified in the National Construction Code NCC and in AS/NZS 3500.

FITTINGS PRODUCTION PROCEDURE





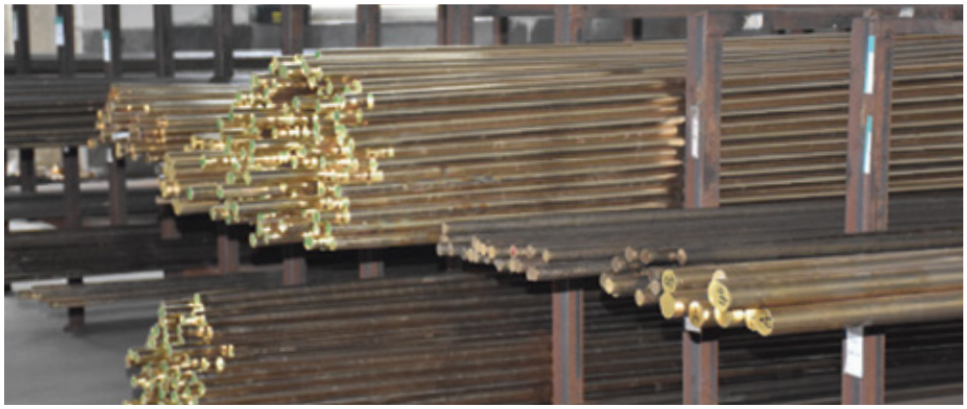
FITTINGS PRODUCTION PROCEDURE



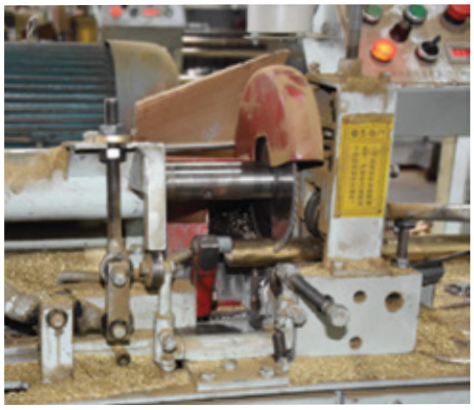
FITTINGS PRODUCTION PROCEDURE

Raw Material

Warehouse



Brass Bar Cut



FITTINGS PRODUCTION PROCEDURE

Hot Forging


Annealing


Casts/Dies for all Fittings

FITTINGS PRODUCTION PROCEDURE

CNC Processing

Semi Finished Products Warehouse

Pressure Testing

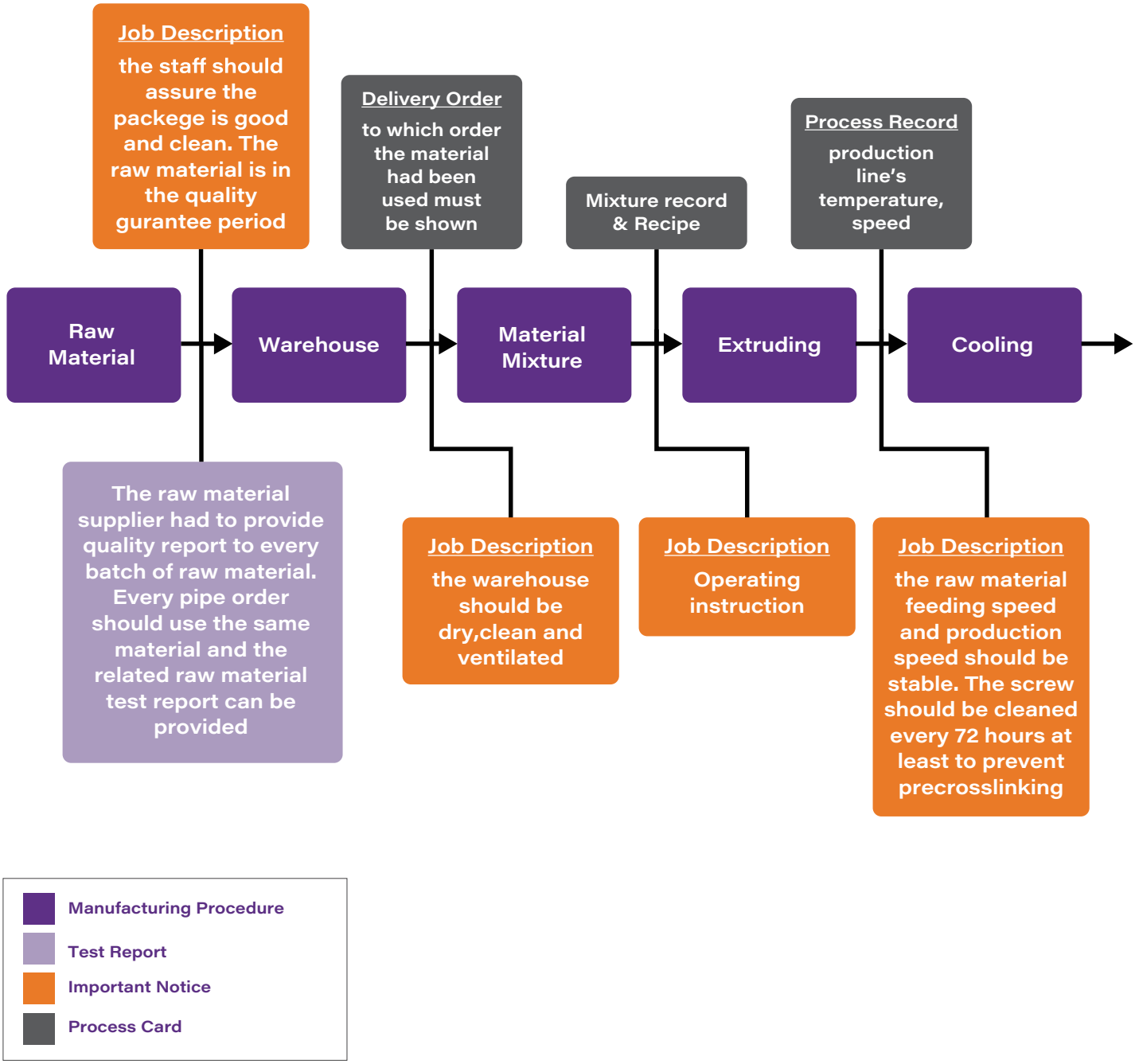
FITTINGS PRODUCTION PROCEDURE

Test Reports

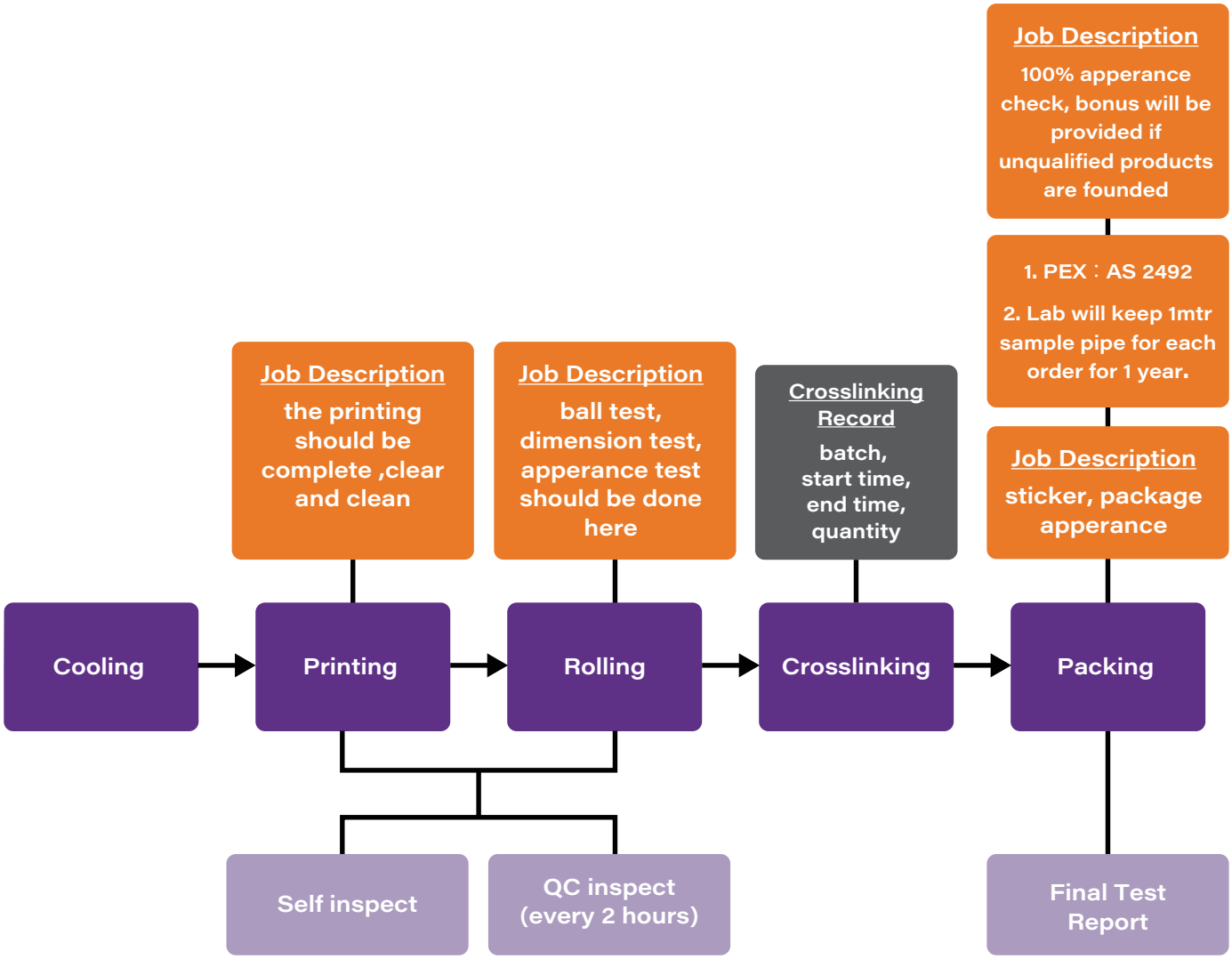
Assembling

Packing

PEX PIPE PRODUCTION PROCEDURE



PEX PIPE PRODUCTION PROCEDURE



INSTALLATION INSTRUCTIONS

Veltanium is a universal compression sleeve jointing system that is easy to visually inspect once it is together. This creates a permanently sealed joint without the need for an O-ring and can be immediately pressurised. Pipes don't need to be calibrated or deburred however, if the pipe is cut improperly, re-cut the pipe to ensure a square and burr-free cut.

Only make compression sleeve joints with the Veltanium Tool. If foreign tools are to be used when making the joint, these must be approved by the corresponding manufacturer for use with Veltanium system and especially for use with Veltanium brass fittings and compression sleeves. If the pipe cracks at the expanded zone, cut off the damaged pipe end and repeat the expansion procedure. Veltanium is a robust jointing technology, highly suitable for construction sites and has all the options available for any application.

CUT PIPE TO LENGTH

Cut the pipe to the length you require at 90° and without burrs using the appropriate cutters.

PREPARE THE PIPE

Ensure the pipe end (at least three times the compression sleeve length) is straight and free from any foreign material. (e.g. lubricant, adhesive or tape).

SLIDE ON THE COMPRESSION SLEEVE

Slide the compression sleeve onto the pipe. Brass compression sleeve shall be compressed with the chamfered side facing the fitting.

PREPARE THE EXPANDING TOOL

Avoid using damaged or dirty expander heads, pipes or connection components. Select the appropriate expander head. Screw the expander heads fully onto the expansion tool as shown.

INSTALLATION INSTRUCTIONS

Maintain a minimum distance between the pipe end and the compression sleeve of at least twice the compression sleeve length. Always insert the segments of the expander head completely into the pipe. Avoid skewing the expander head. Expand the pipe once.

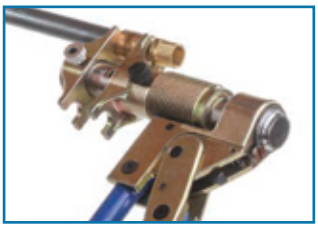
- Use only non-defective expander heads (e.g. not bent, broken off, fractured). Replace defective expander head.
- Maintain a minimum distance between the pipe end and the compression sleeve (at least twice the length of the compression sleeve).
- Always check the expansion evenness of the inner surface of the expanded pipe end (e.g. no grooves, no local overstretching of the pipe material).
- If cracks or overstretching occurs, discard pipe end and repeat.

EXPAND THE PIPE

Ensure the pipe end (at least three times the compression sleeve length) is straight and free from any foreign material.
(e.g. lubricant, adhesive or tape).

INSERT THE FITTING INTO THE EXPANDED PIPE

Immediately after expansion, completely insert the fitting into the expanded pipe. Pipe contracts with time due to memory effect.
1. Ensure all sealing ribs are covered by the pipe.
2. Ensure joints do not move apart before compression is finished



COMPRESS THE FITTING

1. Place compression sleeve joint onto the compression tool at 90°.
2. Push the compression sleeve fully up to the fitting collar.
3. Visually inspect joint for damages and incomplete compression.

SCAN FOR EXAMPLE INSTALL VIDEO

PIPE RANGE

VELTANIUM WATER PIPE COIL - TITANIUM

QUICK	PART NO	SIZE (mm)	LENGTH (mtr)	QTY
C1637	40VTML16TI	16	5	1
C1599	40VTMC16100TI	16	100	1
C1641	40VTML20TI	20	5	1
C1603	40VTMC20100TI	20	100	1
C1645	40VTML25TI	25	5	1
C1609	40VTMC2550TI	25	50	1
C3859	40VTML32TI	32	5	1
C3587	40VTMC3250TI	32	50	1

VELTANIUM WATER PIPE COIL - GREEN

QUICK	PART NO	SIZE (mm)	LENGTH (mtr)	QTY
C1600	40VTMC1650GREEN	16	50	1
C1604	40VTMC2050GREEN	20	50	1
C1606	40VTMC2550GREEN	25	50	1

VELTANIUM WATER PIPE COIL - LILAC

QUICK	PART NO	SIZE (mm)	LENGTH (mtr)	QTY
C1601	40VTMC1650LILAC	16	50	1
C1605	40VTMC2050LILAC	20	50	1
C1607	40VTMC2550LILAC	25	50	1

Veltanium compression piping comes in a range of colours, to define needs, with our signature titanium pipe being the choice for hot and cold water.

Our pipes feature no pitting, offering corrosion resistance, have no tendency to deposits and our polymer pipe material reduces sound transmission along the pipe. Our pipes are designed to be resistant to abrasions and all Velox pipes carry WaterMark registration, as standard.

VELTANIUM WATER PIPE COIL - RED

QUICK	PART NO	SIZE (mm)	LENGTH (mtr)	QTY
C1636	40VTML16RED	16	5	1
C1598	40VTMC16100RED	16	100	1
C1640	40VTML20RED	20	5	1
C1602	40VTMC20100RED	20	100	1
C1644	40VTML25RED	25	5	1
C1608	40VTMC2550RED	25	50	1

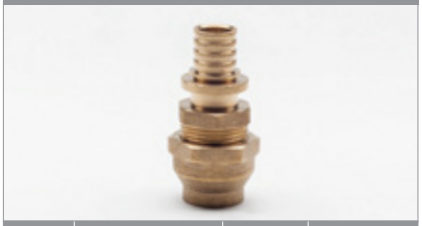
VELTANIUM GAS PIPE COIL - YELLOW

QUICK	PART NO	SIZE (mm)	LENGTH (mtr)	QTY
C3851	40VTML16GY	16	5	1
C3848	40VTMC16100GY	16	100	1
C3852	40VTML20GY	20	5	1
C3849	40VTMC20100GY	20	100	1
C3853	40VTML25GY	25	5	1
C3850	40VTMC2550GY	25	50	1
C3858	40VTML32GY	32	5	1
C3856	40VTMC3250GY	32	50	1

FITTINGS RANGE

Veltanium connection fittings are formed from the highest quality brass, for systems 16-32mm. Both materials remain the superior choice for the most failsafe, high-performance systems. We have a full range of elbows, couplings, tees, tails, sleeves and breeches.

VELTANIUM COPPER FLARED ADAPTER



QUICK	PART NO	SIZE (mm)	QTY
C1610	40VTMCOPA1616	16 x 16	12
C1611	40VTMCOPA2020	20 x 20	12

VELTANIUM EQUAL ELBOW

QUICK	PART NO	SIZE (mm)	QTY
C1615	40VTME16	16	24
C1616	40VTME20	20	18
C1617	40VTME25	25	8
C3861	40VTME32	32	1

VELTANIUM GAS VALVE

QUICK	PART NO	SIZE (mm)	QTY
C3855	40VTMBBV20	20	10
C3854	40VTMBBV25	25	6

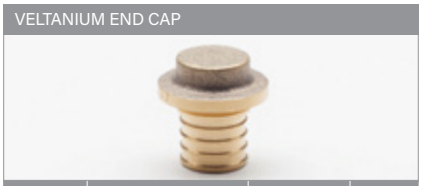
VELTANIUM SLEEVE

QUICK	PART NO	SIZE (mm)	QTY
C1662	40VTMSLV16	16	75
C1663	40VTMSLV20	20	50
C1664	40VTMSLV25	25	30
C3868	40VTMSLV32	32	1

VELTANIUM COPPER BRAZING TAIL

QUICK	PART NO	SIZE (mm)	QTY
C1612	40VTMCOPB16	16	60
C1613	40VTMCOPB20	20	36
C1614	40VTMCOPB25	25	15
C3860	40VTMCOPB32	32	1

VELTANIUM END CAP



QUICK	PART NO	SIZE (mm)	QTY
C1618	40VTMEC16	16	75
C1619	40VTMEC20	20	60

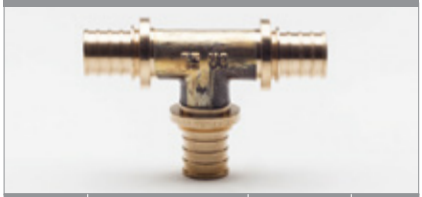
VELTANIUM REDUCER

QUICK	PART NO	SIZE (mm)	QTY
C1657	40VTMR2016	20 x 16	36
C1658	40VTMR2520	25 x 20	18
C3865	40VTMR3220	32 x 20	1
C3866	40VTMR3225	32 x 25	1

VELTANIUM STRAIGHT COUPLING

QUICK	PART NO	SIZE (mm)	QTY
C1659	40VTMSC16	16	40
C1660	40VTMSC20	20	24
C1661	40VTMSC25	25	12
C3867	40VTMSC32	32	1

VELTANIUM EQUAL TEE



QUICK	PART NO	SIZE (mm)	QTY
C1665	40VTMT16	16	18
C1666	40VTMT20	20	12
C1667	40VTMT25	25	4
C3869	40VTMT32	32	1

VELTANIUM UNEQUAL TEE

QUICK	PART NO	SIZE (mm)	QTY
C1668	40VTMTR201616	20 x 16(c)x 16	15
C1669	40VTMTR201620	20 x 16(c)x 20	15
C1670	40VTMTR202016	20 x 20(c)x 16	15
C1671	40VTMTR252020	25 x 20(c)x 20	8
C1672	40VTMTR252025	25 x 20(c)x 25	8
C1673	40VTMTR252520	25 x 25(c)x 20	8
C3870	40VTMTR321632	32 x 16(c)x 32	1
C3871	40VTMTR322032	32 x 20(c)x 32	1
C3872	40VTMTR322532	32 x 25(c)x 32	1

VELTANIUM FEMALE UNION

QUICK	PART NO	SIZE (mm)	THREAD SIZE	QTY
C1629	40VTMFI1616	16	16FI	30
C1630	40VTMFI2016	20	16FI	28
C1631	40VTMFI2020	20	20FI	12

FITTINGS RANGE

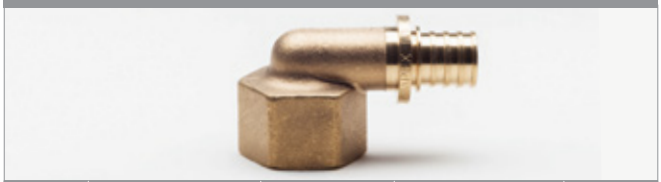
VELTANIUM FEMALE LUGGED ELBOW

QUICK	PART NO	SIZE (mm)	THREAD SIZE	QTY
C1632	40VTMFIEL1616	16	16FI	10
C1633	40VTMFIEL2020	20	20FI	8

VELTANIUM MALE UNION

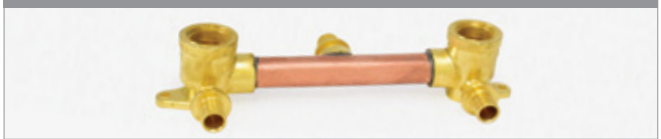
QUICK	PART NO	SIZE (mm)	THREAD SIZE	QTY
C1646	40VTMMI1616	16	16MI	48
C1647	40VTMMI2016	20	16MI	36
C1648	40VTMMI2020	20	20MI	24
C1649	40VTMMI2520	25	20MI	15
C1650	40VTMMI2525	25	25MI	15
C3864	40VTMMI3225	32	25MI	1

VELTANIUM FEMALE ELBOW



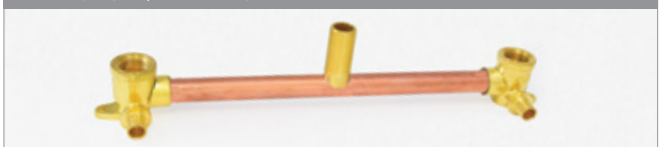
QUICK	PART NO	SIZE (mm)	THREAD SIZE	QTY
C1620	40VTMEFI1616	16	16FI	18
C1621	40VTMEFI2016	20	16FI	12
C1622	40VTMEFI2020	20	20FI	12
C1623	40VTMEFI2520	25	20FI	10

VELTANIUM SHOWER BREECH



QUICK	PART NO	LENGTH (mm)	SIZE (mm)	QTY
C1676	40VTMWBTSH150	150	16	15

VELTANIUM SINK/BATH BREECH



QUICK	PART NO	LENGTH (mm)	SIZE (mm)	QTY
C1674	40VTMWBT200	200	16	15
C1675	40VTMWBT300	300	16	10

VELTANIUM MALE LUGGED ELBOW

QUICK	PART NO	LENGTH (mm)	SIZE (mm)	THREAD SIZE	QTY
C1651	40VTMMIEL1616X200	200	25	16MI	40
C1652	40VTMMIEL1616X65	65	25	16MI	12
C1653	40VTMMIEL1616X90	90	25	16MI	10
C1654	40VTMMIEL2016X200	200	20	16MI	40
C1655	40VTMMIEL2016X95	95	20	16MI	8
C1656	40VTMMIEL2020X150	150	20	20MI	28

VELTANIUM MALE ELBOW

QUICK	PART NO	SIZE (mm)	THREAD SIZE	QTY
C1624	40VTMEMI1616	16	16MI	32
C1625	40VTMEMI2016	20	16MI	24
C1626	40VTMEMI2020	20	20MI	24
C1627	40VTMEMI2520	25	20MI	15
C1628	40VTMEMI2525	25	25MI	12
C3862	40VTMEMI3225	32	25MI	1

VELPRESS TO VELTANIUM ADAPTER

VELPRESS WATER

QUICK	PART NO	SIZE (mm)	QTY
C2808	49VPWVXA16	15 x 16	5
C2809	49VPWVXA20	20 x 20	5
C2810	49VPWVXA25	25 x 25	5
C3873	49VPWVXA32	32 x 32	1

VELPRESS GAS

QUICK	PART NO	SIZE (mm)	QTY
C3874	49VPGVXA16	15 x 16	5
C3875	49VPGVXA20	20 x 20	5
C3876	49VPGVXA25	25 x 25	5
C3877	49VPGVXA32	32 x 32	1

THE TOOL RANGE

Veltanium installation tools are designed and manufactured to precisely work with Veltanium compression piping programs and product. We have created and sourced the highest quality materials for our tools so they stand the test of time. Velox tools last! The tools supplied by Velox range from manual to battery operated tools, which makes the process faster.

EXPANSION TOOL

VELTANIUM EXPANDERS

QUICK	PART NO	SIZE (mm)	QTY
J0970	40VXEXP1625	16-25	1

When expanding PEX-A pipes, observe the following:

- Cut made square and clean with no burring
- Segments of the expander head are inserted fully inside the pipe until the back plate rests against the end on the pipe
- Handles are fully closed to complete expansion standard cutters blades damaged

PIPE CUTTERS

PIPE SCISSORS

QUICK	PART NO	SIZE (mm)	QTY
J0959	40CXLZ-SC1	16-32	1

When cutting pipes, observe the following:

- Use the correct pipe cutters for the corresponding pipe type only
- Cut the pipe square and without burrs
- Pipe cutters must be in good working condition

COMPRESSION TOOL

VELTANIUM TOOL KIT

QUICK	PART NO	SIZE (mm)	QTY
J0971	40VXTK1625	16-25	1

When compressing, observe the following:

- Bevelled edge of sleeve closest to the fitting end
- Sleeve is pulled all the way up to fitting collar

VELTANIUM NOVOPRESS KITS

VELTANIUM TOOL KIT 16-32

QUICK	PART NO	QTY
J0924	39PT-VXM12K	1

VELTANIUM JAWS

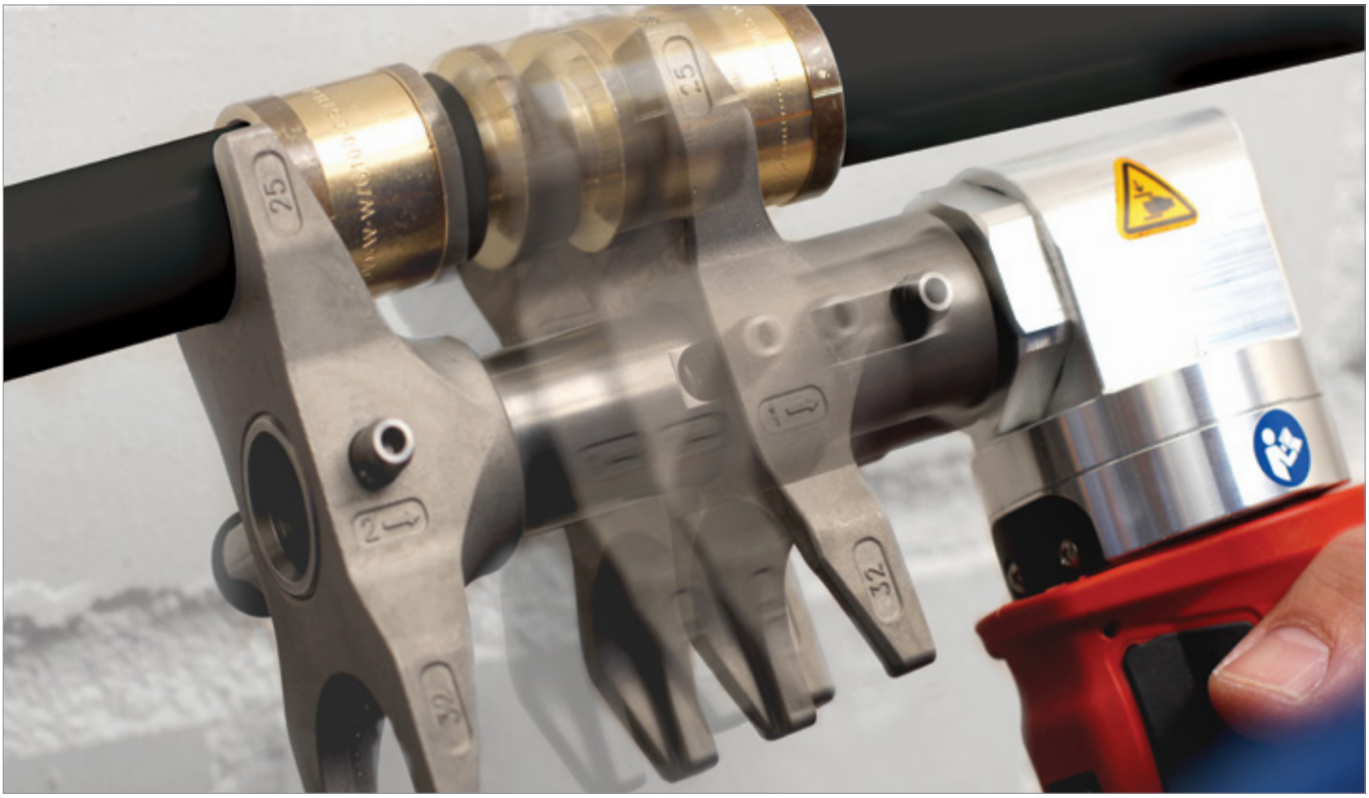
QUICK	PART NO	TO SUIT	QTY
J0922	39PT-VXJ1620	16-20MM	1
J0923	39PT-VXJ2532	25-32MM	1

NOVOPRESS TOOL

Novopress pressing tools have all the features needed for a more economic and efficient experience. Key features include brushless motor technology the capability of data transfer between tool and app along with error displays & maintenance warnings.

AXIAL PRESSING TOOL AAP102

TECHNICAL DATA	
Dimensions:	Up to Dimension 40mm
Weight including Battery:	2.2kg
Length:	325mm
Width:	69mm
Height:	195mm
Power Consumption:	240 W
Piston Force:	System Related
Piston Stroke:	System Related
Battery**:	12 V / 1.5 Ah Li-Ion 12 V / 3.0 Ah Li-Ion
Battery Capacity**:	40 - 180 Press Cycles
Charging Time:	30 / 60min



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