

LEAD-FREE
SYSTEM



FORZA
FORZAPLAS

TM

**SPECIFICATIONS &
INSTALLATION GUIDE**

ANOTHER QUALITY
PRODUCT BY
FORZA GLOBAL



FORZA GLOBAL are the manufacturers and distributors of FORZA PE-Xa PIPING Systems which includes the Lead-Free FORZAPLAS system for potable water, rainwater and recycled water.

FORZA GLOBAL also manufacture and distribute FORZA HDPE/AL/PEX GAS System, FORZA PE-Xa BRASS CRIMP system. This manual provides specification and installation information for the FORZAPLAS system for Hot and Cold Water.

A LEAD-FREE SYSTEM.

The FORZAPLAS system is a unique expansion jointing system which relies on the elastic memory of the PE-Xa pipe and sleeves.

A FORZAPLAS expansion sleeve is fitted over the pipe end; both the pipe and expansion sleeve are expanded using the expander tool, the FORZAPLAS fitting is then pushed into the pipe with expansion sleeve.

The memory effect of the FORZAPLAS will then complete the joint.

All products are manufactured to strict quality controls and comply with Australian Standards, are watermarked approved and fully warranted for 25 years.

The superior material properties of FORZA PE-Xa are ideal for hot and cold water installations. The system is hygienic, lead-free and non-toxic, providing clean and clear potable water without the inherent problems of conventional plumbing system which include chlorine, corrosion and scale.

Colour coded pipe is available in BLACK and RED for potable water, GREEN for harvested rainwater and LILAC for recycled water. FORZA is suitable for domestic and commercial applications.

FORZA cross linked high-density polyethylene offering flexibility and impact resistance. With a smooth bore design the result is quiet delivery of water minimizing water hammer and noise attributed to fluctuations in hydraulic pressure.

The FORZAPLAS Plumbing System joint can be made without the need for flame, heat, solder, or solvents.

SPECIFICATIONS

- Pipe made from Peroxide-cross linked polyethylene (PE-Xa)
 - Used for Hot and Cold Water Services
 - Thermal Conductivity :0.35 W/m.K
 - Roughness: 0.007mm
 - Maximum Temperature: 95 Deg C
 - Short-term Temperature in case of HWS malfunction : 100 Deg
 - Fittings are made from PPSU and C46500 Lead-Free Brass.
 - Pipe Dimension : 16 to 20
 - Suitable for both Wet and Dry construction
 - Approval Mark International Product Certification to Australian Standards
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EXPANDER TOOLS

FORZAPLAS systems tools have been designed to ensure a leak proof joint on FORZAPLAS fittings. The expander tools have been manufactured with the highest quality material and designed to give long term trouble free service.

WARRANTY

The FORZAPLAS Plumbing System (excluding tooling) is warranted for 25 years when installed by a licensed plumber in accordance with AS 3500 of the National Plumbing Code Parts 1, 4 and 5 and established installation practices.

AUSTRALIAN STANDARDS COMPLIANCE

The FORZAPLAS Plumbing System is certified by Approval Mark International to Australian Standards and complies with Australian and New Zealand Standards AS/NZ 2492:2007 for Pipe (Lic.No.74616) and AS/NZS 2537.2:2011 for fittings (Lic. No. 74797).

TEST PROCEDURE FOR WATERMARK COMPLIANCE

Listed below are the characteristics that are being tested for as well as the code from which the method for testing is followed:

- Slow crack growth - ISO 13479
- Long term stability - ISO 1167 or as 1462.6
- Thermal stability – ISO/TR 10837
- Resistance to weathering – ISO 14531-1
- Longitudinal reversion – ISO 2505
- Hydrostatic strength – ISO 1167 or AS 1462.6
- Elongation at break - ISO 6259-1, ISO 6259-3
- Effect on water- AS 4020
- Opacity- ISO 7686
- Diameter and wall thickness - AS/NZS 1462.1
- Degree of cross linking - ISO 10147



PRESSURE LOSS TABLES FOR PN20 PE-X_a PIPE

COLD WATER AT 25°C

PEAK FLOW RATE QS (L/S) .01 TO .50	16mm x 2.2 HEAD LOSS (k PA/m)	20mm x 2.8 HEAD LOSS (k PA/m)	25mm x 3.5 HEAD LOSS (k PA/m)	32mm x 4.4 HEAD LOSS (k PA/m)
0.05	0.3465	0.1242	-	-
0.10	1.1650	0.4141	0.1430	0.0430
0.15	2.3930	0.8455	0.2905	0.0866
0.20	4.0077	1.4090	0.4822	0.1430
0.25	5.9950	2.1001	0.7160	0.2122
0.30	8.3490	2.9143	0.9908	0.2927
0.35	11.0620	3.8498	1.3053	0.3846
0.40	14.1295	4.9036	1.6589	0.4879
0.45	-	6.0756	2.0510	0.6018
0.50	-	7.3633	2.4808	0.7266

HOT WATER AT 60°C

PEAK FLOW RATE QS (L/S) .01 TO .50	16mm x 2.2 HEAD LOSS (k PA/m)	20mm x 2.8 HEAD LOSS (k PA/m)	25mm x 3.5 HEAD LOSS (k PA/m)	32mm x 4.4 HEAD LOSS (k PA/m)
0.05	0.2913	0.0135	0.0358	0.0106
0.10	1.0002	0.3520	0.1205	0.0357
0.15	2.0803	0.7270	0.2475	0.0731
0.20	3.5175	1.2222	0.4140	0.1218
0.25	5.3030	1.8343	0.6185	0.1814
0.30	7.4321	2.5605	0.8685	0.2515
0.35	9.9026	3.3998	1.1392	0.3318
0.40	12.7115	4.3509	1.4535	0.4223
0.45	-	5.4121	1.8038	0.5228
0.50	-	6.5836	2.1891	0.6329



FORZA PIPE PACKAGING

PIPE SIZE	BLACK
16MM	5M LENGTHS, 100M COILS
20MM	5M LENGTHS, 100M COILS
25MM	5M LENGTHS, 50M COILS
32MM	5M LENGTHS, 50M COILS
40MM	5M LENGTHS
50MM	5M LENGTHS

PIPE SIZE	RED
16MM	5M LENGTHS, 100M COILS
20MM	5M LENGTHS, 100M COILS
25MM	5M LENGTHS, 50M COILS
32MM	5M LENGTHS, 50M COILS

PIPE SIZE	LILAC	GREEN
16MM	5M LENGTHS, 50M COILS	5M LENGTHS, 50M COILS
20MM	5M LENGTHS, 50M COILS	5M LENGTHS, 50M COILS
25MM	5M LENGTHS, 50M COILS	5M LENGTHS, 50M COILS

NOM OD	MEAN OUTSIDE DIA (mm)		WALL THICKNESS (mm)	
	MIN	MAX	MIN	MAM
DN 16-16MM	16.0	16.3	2.2	2.6
DN 20-20MM	20.0	20.3	2.8	3.2
DN 25-25MM	25.0	25.3	3.6	4.0
DN 32-32MM	32.0	32.3	4.4	5.0
DN 40-40MM	40.0	40.4	5.5	6.2
DN 50-50MM	50.0	50.5	6.9	7.7

PRESSURE RATINGS

Pipes for water applications are classified in terms of the nominal pressure rating (PN) at water service temperature of 20°C. FORZA has a pressure rating of PN20 and a nominal working pressure and pipe material temperature (PMT).

PMT	20C	60C	70C
PN			
20	KPA 2000	1500	1330



CERTIFICATE OF CONFORMITY

ApprovalMark International hereby grants:

Forza Global Pty Ltd

2/8 Barclay Road,
Derrimut 3030
AUSTRALIA

WaterMark Certificate of Conformity – Level 1

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.

Certificate No. WM 74616

Issued: 1st December 2015

Expires: 1st December 2020

Originally Certified: 1st December 2015

Current Certification: 1st December 2015

John PRASAD

Certification Manager



ApprovalMark Certification



WaterMark

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FORZAPLAS FITTINGS LIST



CODE	SIZE	DESCRIPTION
EXPANSION SLEEVES		
FPLES16	DN16	FORZAPLAS EXPANSION SLEEVE 16MM
FPLES20	DN20	FORZAPLAS EXPANSION SLEEVE 20MM



CODE	SIZE	DESCRIPTION
EQUAL ELBOWS		
FPLE16	DN16	FORZAPLAS NO.12 EQUAL ELBOW 16MM
FPLE20	DN20	FORZAPLAS NO. 12 EQUAL ELBOW 20MM



CODE	SIZE	DESCRIPTION
EQUAL TEES		
FPLET16	DN16	FORZAPLAS NO. 24 EQUAL TEE 16MM
FPLET20	DN20	FORZAPLAS NO. 24 EQUAL TEE 20MM



CODE	SIZE	DESCRIPTION
REDUCING COUPLING		
FPLRC2016	DN20-16	FORZAPLAS NO.1 REDUCING COUPLING 20MM X 16MM



CODE	SIZE	DESCRIPTION
REDUCING TEES		
FPLRT201616	DN20x16x16	FORZAPLAS NO. 27 REDUCING TEE 20MM x 16MM x 16MM
FPLRT201620	DN20x16x20	FORZAPLAS NO. 26 REDUCING TEE 20MM x 16MM x 20MM
FPLRT202016	DN20x20x16	FORZAPLAS NO. 25 REDUCING TEE 20MM x 20MM x 16M



CODE	SIZE	DESCRIPTION
STOPPERS		
FPLS16	DN16	FORZAPLAS NO. 61 STOPPER 16MM
FPLS20	DN20	FORZAPLAS NO. 61 STOPPER 20MM

FORZAPLAS FITTINGS LIST



CODE	SIZE	DESCRIPTION
FEMALE STRAIGHT CONNECTOR		
FPLFSC1615	DN16MM x 1/2"	FORZAPLAS NO. 2 STRAIGHT CONNECTOR 16MM x 1/2" BSPF DR.
FPLFSC2020	DN20MM x 3/4"	FORZAPLAS NO. 2 STRAIGHT CONNECTOR 20MM x 3/4" BSPF DR.



CODE	SIZE	DESCRIPTION
MALE STRAIGHT CONNECTOR		
FPLMSC1615	DN16MM x 1/2"	FORZAPLAS NO. 3 STRAIGHT CONNECTOR 16MM x 1/2" BSPM DR.
FPLMSC2020	DN20MM x 3/4"	FORZAPLAS NO. 3 STRAIGHT CONNECTOR 20MM x 3/4" BSPM DR.



CODE	SIZE	DESCRIPTION
MALE ELBOW		
FPLME1615	DN16MM x 1/2"	FORZAPLAS NO. 13 ELBOW 16MM x 1/2" BSPM DR.



CODE	SIZE	DESCRIPTION
STRAIGHT COUPLING		
FPSC16	DN16	FORZAPLAS NO. 1 STRAIGHT COUPLING 16MM
FPSC20	DN20	FORZAPLAS NO. 1 STRAIGHT COUPLING 20MM



CODE	SIZE	DESCRIPTION
STRAIGHT TAP CONNECTOR		
FPLSTC1615	DN16MM x 1/2"	FORZAPLAS NO. 62 STRAIGHT TAP CONNECTOR 16MM x 1/2" BSPF DR.
FPLSTC2020	DN20MM x 3/4"	FORZAPLAS NO. 62 STRAIGHT TAP CONNECTOR 20MM x 3/4" BSPF DR.

FORZAPLAS FITTINGS LIST

CODE	SIZE	DESCRIPTION
LAUNDRY BREECHES		
FPLBLARA200	200MM	FORZAPLAS BATH/LAUNDRY ASSEMBLY RIGHT ANGLE 200MM DR.
FPLBLARA300	300MM	FORZAPLAS BATH/LAUNDRY ASSEMBLY RIGHT ANGLE 300MM DR.



CODE	SIZE	DESCRIPTION
STRAIGHT COUPLING		
FPLSARA150	150MM	FORZAPLAS SHOWER ASSEMBLY RIGHT ANGLE 150MM DR.
FPLSARA200	200MM	FORZAPLAS SHOWER ASSEMBLY RIGHT ANGLE 200MM DR.



CODE	SIZE	DESCRIPTION
FEMALE LUGGED ELBOW		
FPLWF1615	DN16x1/2"MI	FORZAPLAS NO. 15BP LUGGED ELBOW 16MM x 1/2" BSPF DR.
FPLWF2020	DN20x3/4"MI	FORZAPLAS NO. 15BP LUGGED ELBOW 20MM x 3/4" BSPF DR.



CODE	SIZE	DESCRIPTION
MALE LUGGED ELBOW		
FPLWM161565	DN16x1/2"MI-65	FORZAPLAS NO.19BP LUGGED ELBOW 16MM X 1/2" BSP MALE 65MM LONG DR.
FPLWM161590	DN16x1/2"MI-90	FORZAPLAS NO.19BP LUGGED ELBOW 16MM X 1/2" BSP MALE 90MM LONG DR.
FPLWM1615200	DN16x1/2"MI-200	FORZAPLAS NO.19BP LUGGED ELBOW 16MM X 1/2" BSP MALE 200MM LONG DR.
FPLWM201595	DN20x1/2"MI-95	FORZAPLAS NO.19BP LUGGED ELBOW 20MM X 1/2" BSP MALE 95MM LONG
FPLWM2015200	DN20x1/2"MI-200	FORZAPLAS NO.19BP LUGGED ELBOW 20MM X 1/2" BSP MALE 200MM LONG DR.
FPLWM2020200	DN20x3/4"MI-200	FORZAPLAS NO.19BP LUGGED ELBOW 20MM X 3/4" BSP MALE 200MM LONG DR.





CERTIFICATE OF CONFORMITY

ApprovalMark International hereby grants:

FORZA GLOBAL PTy LTD
2/8 Barclay Road
Derrimut 3030
AUSTRALIA

WaterMark Certificate of Conformity – wmCS 2016
Evaluated to:

AS/NZS 2537.2:2011 - mechanical jointing fittings for use with crosslinked polyethylene (PE-x) for pressure applications - 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.

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* This certificate may only be reproduced in its entirety.

Certificate No. wm 74797

Issued: 25th June 2019

Originally Certified: 25th June 2019

Expires: 25th June 2020

Current Certification: 25th June 2020



John PRASAD

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ApprovalMark



ApprovalMark Certification



WaterMark

FORZAPLAS INSTALLATION INSTRUCTIONS

The following instructions explain the correct installation procedure for FORZAPLAS fittings in conjunction with FORZA PEX PN20 pipe.

Ensure you have the correct FORZAPLAS fittings, FORZA PEX PN20 pipe and Expansion tool with the correct expansion head is ready.



with a set of pipe cutters /shears cut the pipe at 90° ensuring the pipe is square on the end.



Pick up the expansion sleeve and ensure the correct size for the FORZA PEX pipe.



Slide the ForzaPlas expansion sleeve over the pipe ensuring the lugs are flush with the end of the pipe. Pipe is now ready to be expanded.



Choose the correct size expander head for the pipe being expanded. Pictured is the 20mm head suitable for 20mm pipe. Gently, insert the expander head into the end of the pipe.

FORZAPLAS INSTALLATION INSTRUCTIONS

5



Press and hold the trigger on the expander tool, the expander head will begin to splay and expand the end of the pipe. The expansion tool comes with built-in auto rotation. Ensure you hold the pipe whilst expanding. Let the tool complete its cycle, do not stop and start.

6



Repeat 6 rotations for 16mm and 8 rotations for 20mm until snug against the expander head. Remove tool from pipe end.

7



Due to the memory of pipe and sleeve, have the fitting ready before expanding.

Immediately push the correct sized fitting into the expanded pipe end.

8



Push fitting into pipe until it reaches the shoulder of the fitting. If the fitting is loose inside the pipe, over-expansion may take much longer to contract.



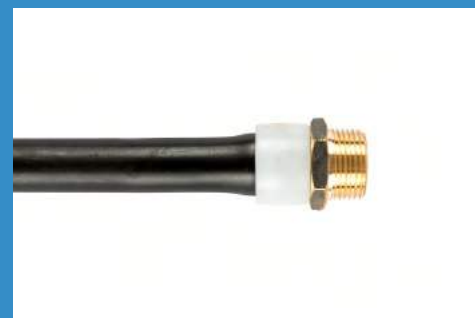
9



Hold the pipe in place for 5-8 seconds.



10



At completion of installation a pressure test must be carried out in accordance with AS/NZS 3500 and or any other requirements specified by local authorities.

FORZAPLAS INSTALLATION INSTRUCTIONS



Forza Pipe Cutters



ForzaPlas Expander Heads
Available in 16 and 20mm



ForzaPlas Expansion Tool



Forza Pex pipe and FORZAPLAS fittings are guaranteed against manufacturing defects for a period of 25 YEARS when installed and used in accordance of the Australian Plumbing code and or the LOCAL or STATE Authority and when installed by a licensed PLUMBER.



Forza Pex pipe complies with the standards set out in AS/NZS 2492:2007 Cross Linked polyethylene (PE-X) pipes for pressure applications.

Licence No. WM 74616

FORZAPLAS FITTINGS comply to the standards as set out in AS/NZS 2537.2:2011 - Mechanical jointed for use with cross linked polyethylene pipe (XLPE) for hot and cold applications.

Licence No. WM 74797

a product by



Certificate of Currency

PUBLIC AND PRODUCTS LIABILITY POLICY

INSURED: Forza Global Pty Ltd
BUSINESS ACTIVITY: Import and wholesale of plumbing fixtures, pipes, valves and tools
POLICY NUMBER: BXLC-LIM-2018-002733
PERIOD OF INSURANCE: 22/01/20 to 22/01/21 At 4pm Local Time
LIMIT OF INDEMNITY:

	Limit	Excess
Public Liability	\$50,000,000 any one occurrence	\$2,500 each and every Claim (inclusive of costs and expenses)
Products Liability	\$50,000,000 any one occurrence and in the aggregate for all Injury or Damage occurring during the Period of Insurance	\$2,500 each and every Claim (inclusive of costs and expenses)
Special Excess	\$25,000 each and every occurrence (inclusive of costs and expenses) in respect of Injury to Contractors, Sub-Contractors or Labour Hire Personnel	

Signed for and on behalf of XL Insurance Company SE, Australia branch (ABN 36 083 570 441), trading as Brooklyn Underwriting:



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