



KemPex Crimp™

**DESIGN &
INSTALLATION
GUIDE**

PE-Xa
PRESS-FIT
CONNECTION
SYSTEM FOR
WATER





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WHY USE KEMPEX CRIMP™

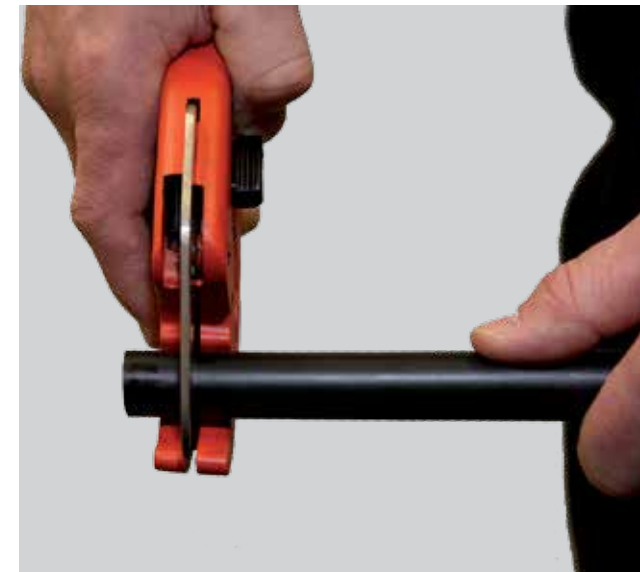
- PE-Xa is a robust and reliable piping system rated for normal operation at 1000kPa and 70°C, resulting in a service life of 50+ years, however the maximum operating temperature is 95°C.
- Solid DZR brass fittings with robust copper rings with inspection windows and the longest joining barb on the market ensures a water tight join every time.
- KemPex Crimp has no O-rings which results in increased bore size and better flow and removes the risk of installer error because of dirty, damaged or dislodged O-rings.
- Simple Press jointing system results in quick and simple installation.
- The KemPex Crimp system complies with Australian Standards AS2537 and AS2492 and is certified by SAI Global (licence no.s WMK25717 and WMK25757).
- KemPex Crimp DZR fittings are forged brass resulting in superior mechanical properties with greater fatigue resistance.
- KemPex carries a 25 year warranty and is covered by Kembla's comprehensive insurance cover.



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INSTALLATION

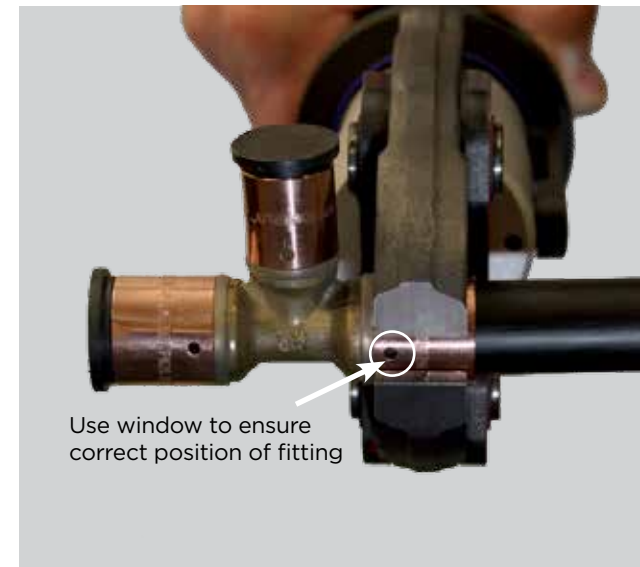
The following is a step by step guide to installing the KemPex Crimp™ System. For projects requiring maintenance and repair visually inspect the copper tube to ensure it is in reasonable condition with no signs of external corrosion.



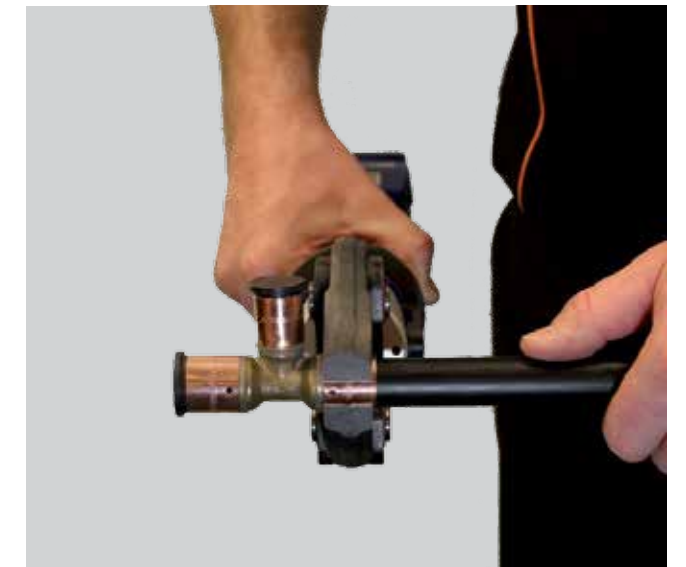
1. Cut pipe at right angle.



2. Insert fitting.

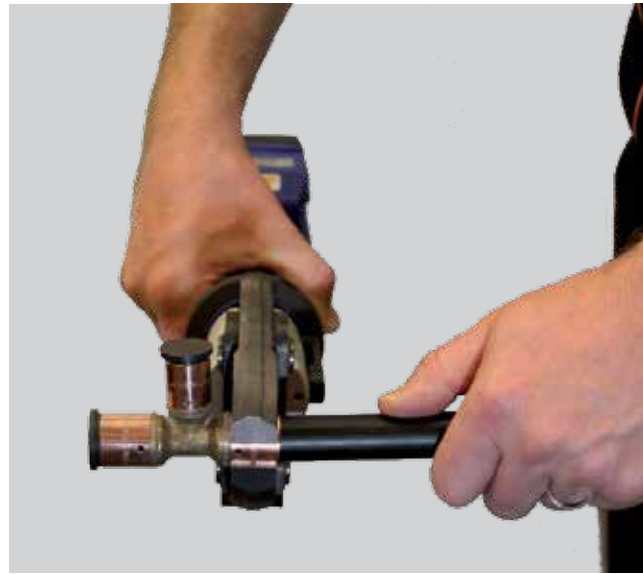


3. Observe window for correct position of fitting.



4. Position crimping tool.

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5. Crimp fitting.



6. Test with Kembla Press gauge.



Manual Crimping Tool



Kembla Battery Crimping Tool

Tooling • KemPex Crimp requires a crimp type tool to press the joints. KemPex Crimp has available two types of tooling including a battery tool. Other brands of press tooling may be suitable for KemPex Crimp, please consult your Kembla representative.

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PE-Xa PIPE TECHNICAL DATA

Water Quality

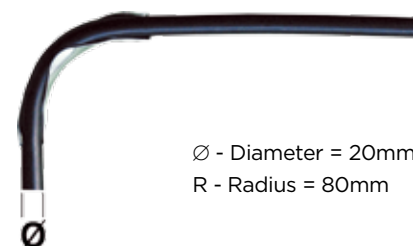
KemPex fittings are made from high quality DZR brass which provides good resistance to corrosive water conditions. However, if water conditions are outside the NZ drinking water guidelines of pH 6.5 - 8.5, KemPex DZR fittings should not be used without consulting Kembla.

Handling and Storage

- UV radiation can damage PE-Xa pipes, so always protect KemPex pipe from direct sunlight.
- Avoid damage to the pipe surface from dragging pipes across rough surfaces.
- Protect uninstalled pipes from ingress of harmful liquids.
- Protect DZR fittings from corrosion.



| | Potable Water PE-Xa - Black PN20 | Recycled Water PE-Xa - Lilac PN20 | Rain Water PE-Xa - Green PN20 |
|---|-------------------------------------|--------------------------------------|----------------------------------|
| Operating Pressure | 1000kPa | 1000kPa | 1000kPa |
| Operating Temperature | 70°C | 70°C | 70°C |
| Material | PE-Xa | PE-Xa | PE-Xa |
| Linear Thermal Expansion Co-Efficient | 0.15 | 0.15 | 0.15 |
| Thermal Conductivity | .35 W/mk | .35 W/mk | .35 W/mk |
| Pipe Roughness | .007mm | .007mm | .007mm |
| Maximum Bending Radius with preformed bend | 4 x Ø | 4 x Ø | 4 x Ø |
| Maximum Bending Radius without preformed bend | 8x Ø | 8x Ø | 8x Ø |



Minimum Bending Radius

A profile bend holds KemPex in a secure 4 x diameter bend, profile bends are recommended especially on hot lines to ensure that the tube does not kink. The maximum bend radius when not using a profile bend is 8 x diameter.

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PRESSURE LOSS - PE-Xa PN20 RATED PIPE

Cold Water at 25°C

| Peak Flow Rate Qs (l/s) 1.01 to 0.50 (kPa/m) | Ø 16mm 2.2mm wall Head Loss (kPa/m) | Ø 20mm 2.8mm wall Head Loss (kPa/m) | Ø 25mm 3.5mm wall Head Loss (kPa/m) | Ø 32mm 4.4mm wall Head Loss (kPa/m) |
|--|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 0.05 | 0.3467 | 0.1244 | - | - |
| 0.10 | 1.1655 | 0.4140 | 0.1431 | 0.0428 |
| 0.15 | 2.3941 | 0.8458 | 0.2904 | 0.0866 |
| 0.20 | 4.0088 | 1.4092 | 0.4821 | 0.1432 |
| 0.25 | 5.9970 | 2.1002 | 0.7165 | 0.2123 |
| 0.30 | 8.3508 | 2.9147 | 0.9910 | 0.2929 |
| 0.35 | 11.0641 | 3.8503 | 1.3059 | 0.3847 |
| 0.40 | 14.1323 | 4.9049 | 1.6594 | 0.4877 |
| 0.45 | - | 6.0771 | 2.0518 | 0.6021 |
| 0.50 | - | 7.3655 | 2.4814 | 0.7267 |

Hot Water at 60°C

| Peak Flow Rate Qs (l/s) 1.01 to 0.50 (kPa/m) | Ø 16mm 2.2mm wall Head Loss (kPa/m) | Ø 20mm 2.8mm wall Head Loss (kPa/m) | Ø 25mm 3.5mm wall Head Loss (kPa/m) | Ø 32mm 4.4mm wall Head Loss (kPa/m) |
|--|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 0.05 | 0.2913 | 0.1034 | 0.0357 | 0.0106 |
| 0.10 | 1.0003 | 0.3522 | 0.1205 | 0.0357 |
| 0.15 | 2.0807 | 0.7272 | 0.2476 | 0.0731 |
| 0.20 | 5.5178 | 1.2224 | 0.4143 | 0.1218 |
| 0.25 | 5.3035 | 1.8346 | 0.6187 | 0.1815 |
| 0.30 | 7.4333 | 2.5608 | 0.8606 | 0.2516 |
| 0.35 | 9.9032 | 3.4002 | 1.1395 | 0.3317 |
| 0.40 | 12.713 | 4.3513 | 1.4538 | 0.4223 |
| 0.45 | - | 5.4129 | 1.8041 | 0.5229 |
| 0.50 | - | 6.5847 | 2.1894 | 0.6330 |

Pipe Supports

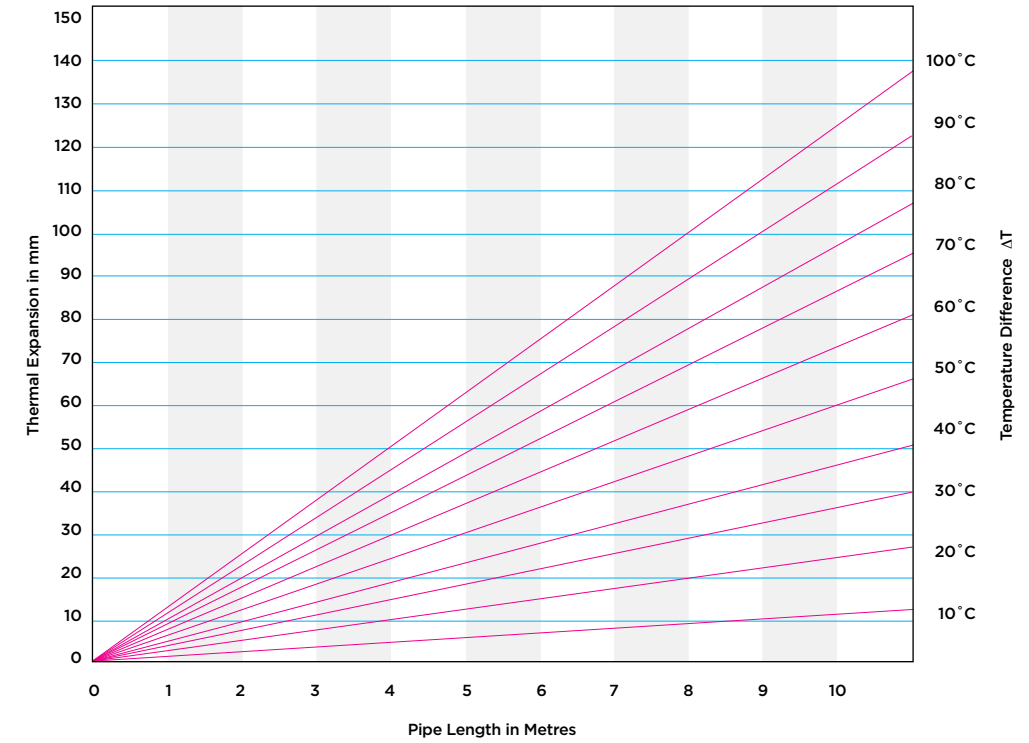
- Fixing of KemPex must comply with AS/NZS3500.
- Hot water lines must be fixed as to allow for thermal linear expansion.
- Never fix a clip directly onto DZR brass fittings.

Horizontal Pipes

| Clip Spacing | Pipe Ø | (metres) | Vertical Pipes | Clip Spacing | Pipe Ø | (metres) |
|--------------|--------|----------|----------------|--------------|--------|----------|
| | 16mm | 0.60 | | | 16mm | 1.20 |
| | 20mm | 0.70 | | | 20mm | 1.40 |
| | 25mm | 0.75 | | | 25mm | 1.50 |
| | 32mm | 0.85 | | | 32mm | 1.70 |

Horizontal hot water lines may require closer clip spacing to maintain straight lines and avoid sagging.

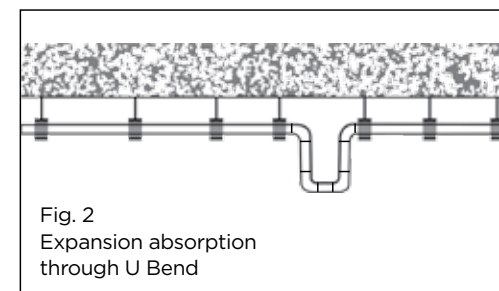
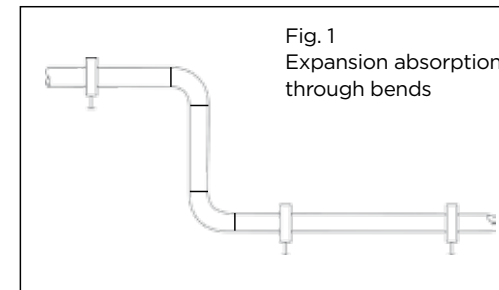
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EXPANSION AND CONTRACTION

Expansion

KemPex will expand with heat so allowance must be made for expansion in the system. The use of anchor points can ensure the expansion occurs in the desired direction. By securely clipping to one side of a fitting, expansion will occur in the opposite direction. All other clips and holes through which KemPex passes should allow the pipe to slide longitudinally. For long runs on the hot water service an offset bend Fig. 1 or U bend Fig. 2 may be required.



Thermal Insulation

Although KemPex has excellent insulating properties local authorities may require further insulation to reduce heat loss. KemPex should be insulated against freezing conditions to reduce the chances of damage to the pipe work. In extreme conditions it is not possible to prevent static water freezing, so if not in use the complete system should be drained.

Water heaters and Uncontrolled Heating Sources.

KemPex for potable water systems are designed to operate within a tempering valve controlled hot water system limited to max 70°C. Although KemPex has a maximum operating temperature of 95°C and will survive a short period of 100°C, this situation is not recommended and would only occur in the event of a tempering valve failing.

Connection of KemPex to a water heater must comply with AS3500 and connect via a minimum 1 metre of copper pipe. KemPex is not suitable for flow and return lines of solar panels as temperatures can reach 140°C.

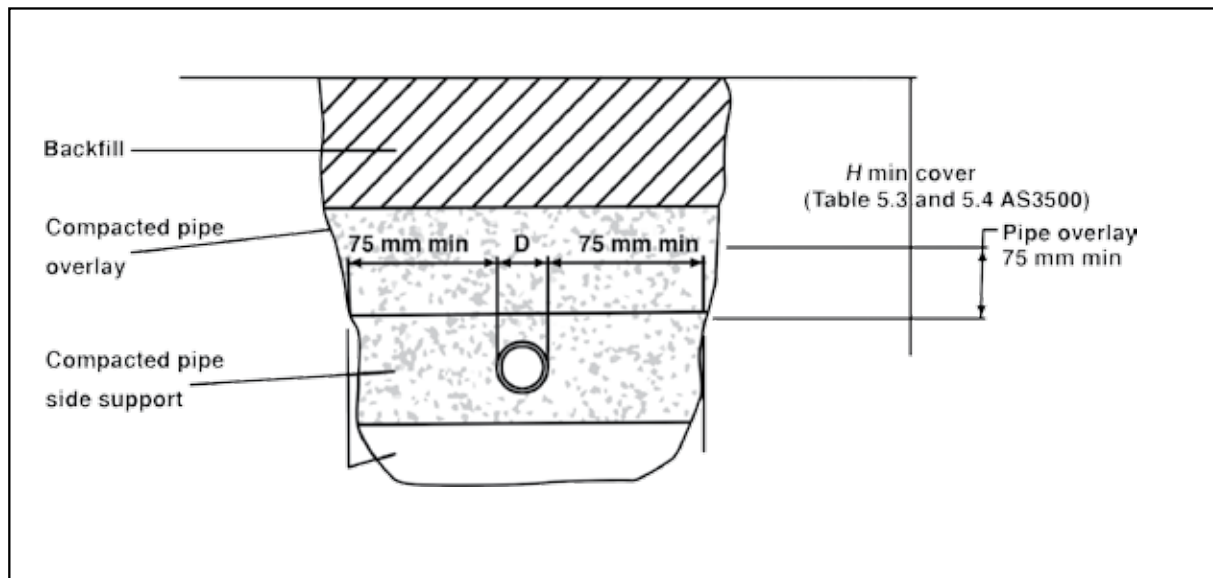
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In Ground Installation

KemPex has an excellent notch resistance and can be laid underground instead of standard PE water mains. Installations must comply with AS3500 and Local Authority requirements. KemPex must always be protected from UV radiation, frost, high temperatures and crushing. If KemPex fittings are installed underground they should be adequately protected from corrosive soil conditions and be buried a minimum of 300mm if freezing is a risk as per AS3500.



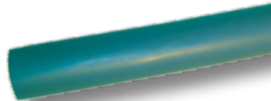
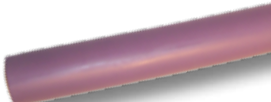


Pressure Testing Installations

- Testing of KemPex installed systems must comply with AS3500 and local body requirements.
- Check all fittings visually to ensure all rings are crimped, then test with KemPex Go-Nogo gauge.
- Pressure test the water filled system (without air pockets) at 1500kPa for 30 minutes.
- Ensure no pressure leakage has occurred.
- Inspect joints again visually.
- Flush pipes again thoroughly.



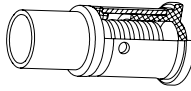
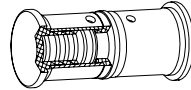
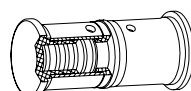
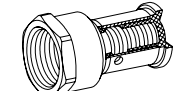
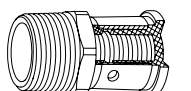
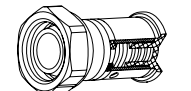
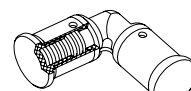
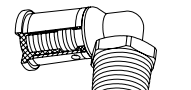
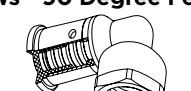
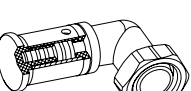
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KEMPEX PIPE & CONDUIT RANGE

| | Diameter | Wall | Length | Code |
|--|----------|---------------|------------|--------|
| Plumbing - Black Pex straights  | 16mm | 2.2mm | 5 meters | 100116 |
| | 20mm | 2.8mm | 5 meters | 100120 |
| | 25mm | 3.5mm | 5 meters | 100125 |
| | 32mm | 4.4mm | 5 meters | 100132 |
| Plumbing - Black Pex coils  | 16mm | 2.2mm | 100 meters | 100216 |
| | 20mm | 2.8mm | 100 meters | 100220 |
| | 25mm | 3.5mm | 50 meters | 100225 |
| | 32mm | 4.4mm | 50 meters | 100232 |
| Rainwater Pex Pipe - Green  | 16mm | 2.2mm | 50 meters | 100616 |
| | 20mm | 2.8mm | 50 meters | 100620 |
| Recycled Water Pex Pipe - Lilac  | 16mm | 2.2mm | 50 meters | 100516 |
| | 20mm | 2.8mm | 50 meters | 100520 |
| Pex Pipe in Conduit  | 16mm | 2.2mm | 50 meters | 100416 |
| | 20mm | 2.8mm | 50 meters | 100420 |
| | 25mm | 3.5mm | 50 meters | 100425 |
| | 32mm | 4.4mm | 25 meters | 100432 |
| Conduit for Pex Pipe  | 16mm | Fits 16mm Pex | 50 meters | 100016 |
| | 20mm | Fits 20mm Pex | 50 meters | 100020 |
| | 25mm | Fits 25mm Pex | 50 meters | 100025 |
| | 32mm | Fits 32mm Pex | 25 meters | 100032 |

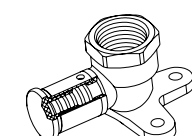
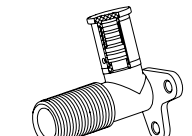
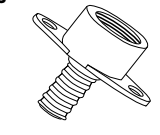
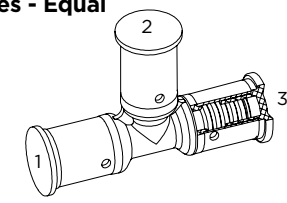
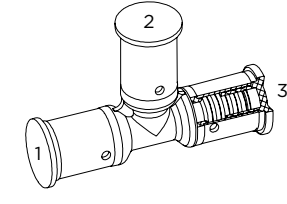


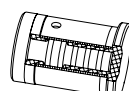

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KEMPEX CRIMP FITTINGS RANGE

| | Diameter | Pack quantity | Code |
|--|---------------|---------------|--------|
| Connecting Barbs  | 16mm | 10 | 151416 |
| | 20mm | 10 | 151420 |
| Connectors  | 16mm | 10 | 151016 |
| | 20mm | 10 | 151020 |
| | 25mm | 10 | 151025 |
| | 32mm | 10 | 151032 |
| Connectors - Reducing  | 20mm x 16mm | 10 | 156010 |
| | 25mm x 16mm | 10 | 156012 |
| | 25mm x 20mm | 10 | 156014 |
| | 32mm x 25mm | 5 | 156016 |
| Connectors - Female  | 16mm x 1/2" | 10 | 151116 |
| | 20mm x 3/4" | 10 | 151120 |
| | 16mm x 3/4" | 10 | 151117 |
| | 20mm x 1/2" | 10 | 151121 |
| Connectors - Male  | 16mm x 1/2" | 10 | 151216 |
| | 16mm x 3/4" | 10 | 151217 |
| | 20mm x 1/2" | 10 | 151221 |
| | 20mm x 3/4" | 10 | 151220 |
| | 25mm x 3/4" | 5 | 151227 |
| | 25mm x 1" | 5 | 151225 |
| | 32mm x 1" | 5 | 151233 |
| | 32mm x 1 1/4" | 5 | 151232 |
| Connectors - Crox Swivel Nut  | 16mm x 1/2" | 10 | 151516 |
| | 20mm x 3/4" | 10 | 151520 |
| | 25mm x 1" | 5 | 151525 |
| | 32mm x 1 1/4" | 5 | 151532 |
| Elbows - 90 Degree  | 16mm | 10 | 155016 |
| | 20mm | 10 | 155020 |
| | 25mm | 5 | 155025 |
| | 32mm | 5 | 155032 |
| Elbows - 90 Degree Male  | 16mm x 1/2" | 10 | 155216 |
| | 20mm x 3/4" | 10 | 155220 |
| | 20mm x 1/2" | 10 | 155221 |
| | 25mm x 1" | 5 | 155225 |
| Elbows - 90 Degree Female  | 16mm x 1/2" | 10 | 155116 |
| | 20mm x 3/4" | 10 | 155120 |
| Elbows - Swivel Nut  | 16mm x 1/2" | 10 | 155516 |
| | 20mm x 3/4" | 10 | 155520 |

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KEMPEX CRIMP FITTINGS RANGE

| | Diameter | Pack quantity | Code |
|---|-----------------------------|---------------|--------|
| Wingbacks - Female  | 16mm x 1/2" | 10 | 158716 |
| | 16mm x 3/4" | 5 | 158717 |
| | 20mm x 1/2" | 5 | 158721 |
| | 20mm x 3/4" | 5 | 158720 |
| Wingbacks- Male  | 16mm x 1/2" - 65mm threaded | 5 | 158865 |
| | 16mm x 1/2" - 90mm threaded | 5 | 158890 |
| Hose Plates  | 16mm x 1/2" | 10 | 158616 |
| Tees - Equal  | 16mm | 10 | 157016 |
| | 20mm | 10 | 157020 |
| | 25mm | 5 | 157025 |
| | 32mm | 3 | 157032 |
| Tees - Reducing  | 20mm x 16mm x 20mm | 10 | 157211 |
| | 25mm x 20mm x 25mm | 5 | 157219 |
| | 25mm x 16mm x 25mm | 5 | 157215 |
| | 32mm x 25mm x 32mm | 5 | 157227 |
| | 20mm x 20mm x 16mm | 10 | 157213 |
| | 25mm x 25mm x 20mm | 5 | 157223 |
| | 25mm x 25mm x 16mm | 5 | 157221 |
| | 20mm x 16mm x 16mm | 10 | 157209 |
| | 25mm x 20mm x 20mm | 5 | 157217 |
| | 32mm x 25mm x 25mm | 5 | 157225 |
| Profile Bends  | 16mm | 10 | 103916 |
| | 20mm | 10 | 103920 |
| | 25mm | 10 | 103925 |
| Crimp Ring Assemblies  | 16mm | 20 | 158916 |
| | 20mm | 20 | 158920 |
| | 25mm | 10 | 158925 |
| | 32mm | 10 | 158932 |
| End Plugs  | 16mm | 20 | 158016 |
| | 20mm | 10 | 158020 |
| Open Clips  | 16mm | 100 | 103016 |
| | 20mm | 100 | 103020 |
| | 25mm | 100 | 103025 |



Quality Piping Systems Since 1916

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