

Heating, ventilation, and air conditioning (HVAC) are essential components of industrial structures as they maintain a pleasing working environment in large commercial facilities, entertainment stadia, hospitals, schools, and other public locations.

A vital component of maintaining large infrastructure is the upkeep of the heating and air conditioning system. If not, the system can suffer from corrosion and chemical attack, erosion by impingement, mechanical damage, and aging. Internal surfaces, joints, pipes, fan blades, and shafts can all deteriorate as a result of these problems.

To ensure that the HVAC systems remain operational to provide a safe and pleasing working environment, Belzona has engineered a range of cold-applied, solvent-free coatings and repair composites. In comparison to a replacement or some traditional repair methods, Belzona's solutions are quick and easy to apply, safe and cost-effective, and reduce downtime.

Belzona solutions can be applied in-situ to solve problems in several areas of the HVAC systems, including but not limited to:

- **Air Handler**
 - Shafts
 - Leaks
 - Ducts
- **Cooling Tower**
 - Pipe Leak Sealing
 - Fan Blades
 - Fan Shafts
 - Joints and Seams
 - Basins and Sidewalls
- **Heat Exchanger**
 - Tube Sheets
 - Water Boxes and End Covers
- **Pumps**
 - Flanges
 - Impellers
 - Shafts and Keyways
 - Casings



Belzona Is a Global Manufacturer of Repair Composite Materials & Industrial Coatings.



View the HVAC Solution Map



For more information, please contact your local Belzona® representative:



PROVIDING REPAIR AND MAINTENANCE SOLUTIONS TO HVAC

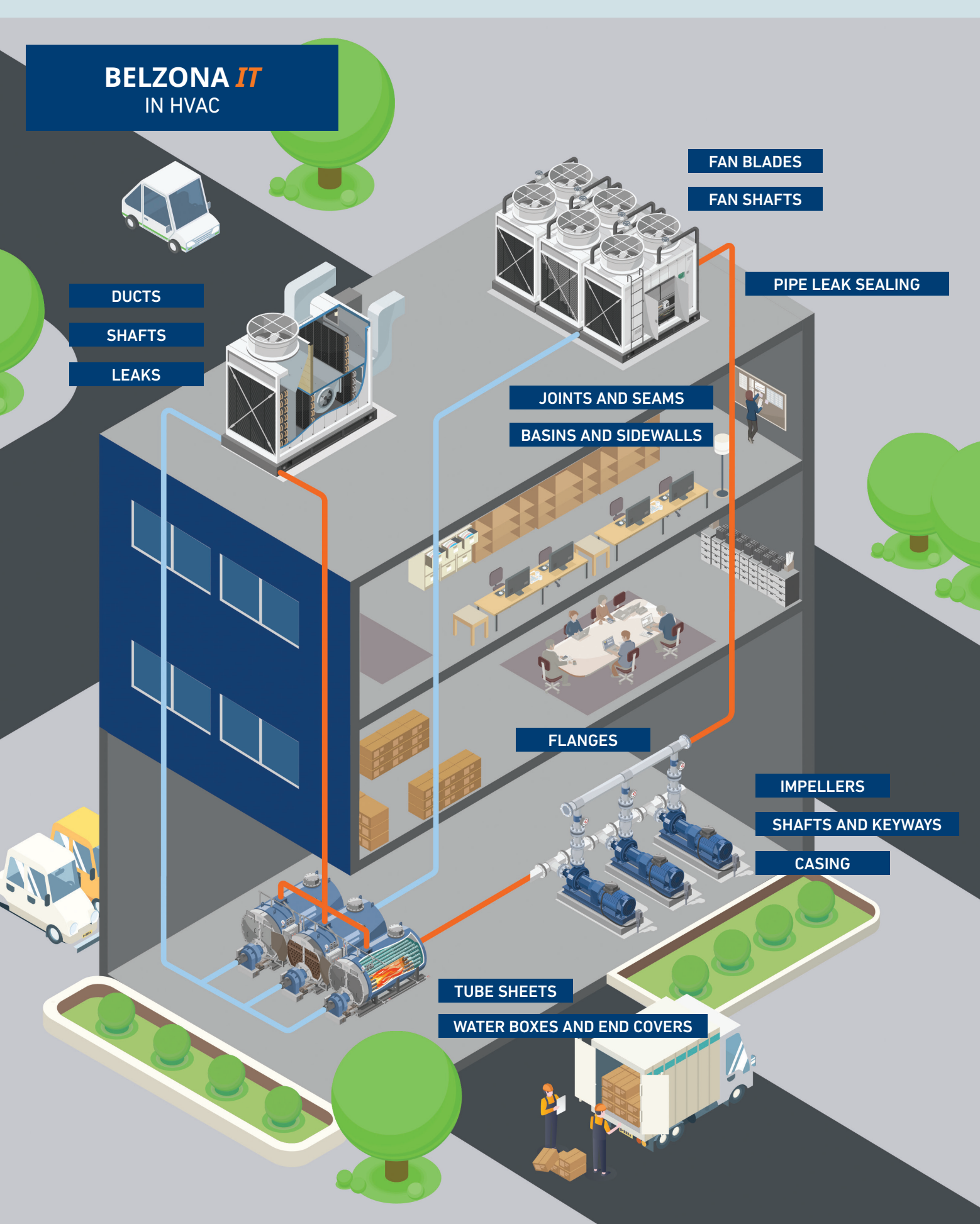


ISO 9001:2008
Q 09335
ISO 14001:2004
EMS 509612

US • UK • Canada • China • Thailand
belzona.com

Copyright © Belzona International Limited 2023

BELZONA 17 IN HVAC



This diagram of a typical HVAC systems is designed based upon data retrieved from various sources. It is to be used as general guidance only. It describes the most common repair and maintenance problems found in HVAC systems together with Belzona solutions which could potentially help mitigate such problems. It does not aim to supersede any drafted process flow charts in use at these facilities. It is strongly recommended that each user of this guide contact the local Belzona representative to discuss the specific needs and operation conditions of their HVAC systems.

<p>SHAFTS</p> <p>TYPICAL PROBLEMS: Damage to shafts at bearing locations, and metal loss due to corrosion and chemical attack.</p> <p>POTENTIAL SOLUTIONS: Belzona 1000 Series fluid- and paste-grade 100% solids composites and coatings for erosion and corrosion protection, and the restoration of the original profile of shafts.</p>	<p>LEAKS</p> <p>TYPICAL PROBLEMS: Corrosion, general wear and tear, and metal loss lead to leakage of water from air handling units.</p> <p>POTENTIAL SOLUTIONS: Belzona 1000 Series paste-grade 100% solids repair composites for stemming leaks. Belzona 3000 Series waterproofing membranes for sealing the leaking areas and protecting them from future corrosion damage.</p>	<p>DUCTS</p> <p>TYPICAL PROBLEMS: Corrosion on internal surfaces can lead to several issues, including metal loss resulting in thin walls and through-wall defects, internal microbiological growth, joint and seam deterioration, air leaks, water ingress, and corrosion under insulation.</p> <p>POTENTIAL SOLUTIONS: Belzona 2000 and 3000 Series flexible and weatherproofing membranes for the restoration of deteriorated joints and seals. Belzona 5000 Series solvent-free coatings for protecting internal surfaces of the ductwork.</p>	<p>PIPE LEAK SEALING</p> <p>TYPICAL PROBLEMS: Corrosion leading to metal loss, thin-wall defects, and failure of the pipe joints.</p> <p>POTENTIAL SOLUTIONS: Belzona 1000 Series fluid- and paste-grade materials for stemming the live leaks and wrapping pipes for additional protection.</p>
<p>FAN BLADES</p> <p>TYPICAL PROBLEMS: Erosion of the leading edge, cracks, flaking of the trailing edge, and reduction of overall efficiency.</p> <p>POTENTIAL SOLUTIONS: Belzona 1100 paste-grade 100% solids repair composites for restoration of damaged areas subject to erosion. Belzona 1300 fluid-grade coating for erosion and corrosion protection.</p>	<p>FAN SHAFTS</p> <p>TYPICAL PROBLEMS: Scored and worn shafts due to poor maintenance such as lack of bearing lubrication, loose pulleys, and fan hubs.</p> <p>POTENTIAL SOLUTIONS: Belzona 1000 Series fluid- and paste-grade 100% solids composites and coatings for restoration of the original profile of shafts, and erosion and corrosion protection.</p>	<p>JOINTS AND SEAMS</p> <p>TYPICAL PROBLEMS: Corrosion leading to metal loss and thin-wall defects. Failure of conventional sealants.</p> <p>POTENTIAL SOLUTIONS: Belzona 2000 Series flexible sealing materials and Belzona 3000 Series waterproofing and weather-proofing membranes for the repair of failed joints and leaks, and prevention of future water ingress due to corrosion.</p>	<p>BASINS AND SIDEWALLS</p> <p>TYPICAL PROBLEMS: General corrosion leading to metal loss and holes in the basins. Failure of joints in the sidewalls leading to water ingress and structural issues.</p> <p>POTENTIAL SOLUTIONS: Belzona 1100 paste-grade 100% solids repair composites for the restoration of damaged areas subject to erosion. Belzona 3000 Series weatherproofing and waterproofing membranes for sealing seams and joints of sidewalls. Belzona 5000 Series fluid-grade environmental coatings for overall corrosion protection.</p>
<p>TUBE SHEETS</p> <p>TYPICAL PROBLEMS: The deterioration of the tube sheet ligaments caused by electrolytic corrosion allows the fluid systems to leak across the tube sheet. Cracking of ligaments due to impairment by electrolytic corrosion.</p> <p>POTENTIAL SOLUTIONS: Belzona 1100 paste-grade composites for in-situ repair and rebuilding of damaged tube sheets. Belzona 1300 fluid-grade coatings for the protection against erosion, corrosion, and resistance to chemicals. Belzona 4300 coatings for maximum chemical resistance.</p>	<p>WATER BOXES AND END COVERS</p> <p>TYPICAL PROBLEMS: Leakage between passes due to erosion and corrosion of division bars resulting in reduced efficiency.</p> <p>POTENTIAL SOLUTIONS: Belzona 1100 paste-grade repair composites for in-situ repair and rebuilding for damaged division bars, water boxes, and end covers. Belzona 1300 fluid-grade coatings for the protection against erosion, corrosion, and resistance to chemicals. Belzona 4300 coatings for maximum chemical resistance.</p>	<p>FLANGES</p> <p>TYPICAL PROBLEMS: Water leakage due to cracks in flanges caused by the pressure from pump systems.</p> <p>POTENTIAL SOLUTIONS: Belzona 1100 paste-grade composites for in-situ repair and rebuilding for damaged flanges. Belzona 1300 fluid-grade coatings for the protection against erosion, corrosion, and resistance to chemicals.</p>	<p>IMPELLERS</p> <p>TYPICAL PROBLEMS: Rapid metal loss can be experienced due to impingement, cavitation, or erosion from the pumped fluid. Mechanical damage can also occur due to entrained solids, which leads to a severe loss of efficiency.</p> <p>POTENTIAL SOLUTIONS: Belzona 1100 paste-grade composites for in-situ repair and rebuilding for damaged impellers. Belzona 1300 fluid-grade coatings for the protection against erosion, corrosion, and resistance to chemicals. Belzona 2141 designed for cavitation and erosion resistance.</p>
<p>SHAFTS AND KEYWAYS</p> <p>TYPICAL PROBLEMS: Gland packing and bushing damage, together with sand abrasion and seawater exposure, can lead to severe erosion and corrosion on shafts and keyways.</p> <p>POTENTIAL SOLUTIONS: Belzona 1100 and 1200 paste-grade composites for in-situ repair and rebuilding of damaged shafts and oversized keyways.</p>	<p>CASINGS</p> <p>TYPICAL PROBLEMS: Localized erosion or mechanical impact. A holed or cracked casing will allow loss of fluid and environmental contamination. If not addressed properly, loss of structural integrity can lead to complete failure.</p> <p>POTENTIAL SOLUTIONS: Belzona 1100 paste-grade composites for in-situ repair and rebuilding for holed casing. Belzona 1300 fluid-grade coatings for the protection against erosion, corrosion, and resistance to chemicals.</p>		