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## VISIT YOUR NEAREST SPIRAX SARCO TODAY!

Whether it is for some advice or a discussion on optimising your steam plant, you are most welcome to visit any of our Spirax Sarco offices and approved distributors.

With over 40 Spirax Sarco trained professionals in this region ready to volunteer their expertise and services, we are confident that you will find the consultation with us greatly rewarding and beneficial to your company.

Website: [www.spiraxsarco.com/sg](http://www.spiraxsarco.com/sg) Email: [spiraxsin@sg.spiraxsarco.com](mailto:spiraxsin@sg.spiraxsarco.com)

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# STEAM EXPRESS

Knowledge, Service & Products

## Steam system conditioning combats the corrosion menace

Corrosion is the hidden enemy that can reduce the life of your steam equipment and lead to problems such as leaks. But you may be surprised to learn that the impact of corrosion can be felt throughout the steam system. Below are some practical steps on how to prevent corrosion.

### Watch your pH

A pH of 8.5 or above is advisable for boiler feed-water. At or above this pH, carbon dioxide is absent in significant quantities, reducing the corrosion potential.

In the boiler, maintaining a pH level of between 10.5 and 12 will also help avoid corrosion problems by providing stable conditions for the formation of a film of iron oxide (called magnetite). The oxide forms a dense layer on the metal surfaces, protecting them from corrosive attack. Sodium hydroxide is normally added to raise pH in the boiler.

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## Oxygen out

Oxygen is the main cause of corrosion in boilers and steam systems. Any water exposed to air naturally absorbs oxygen, so it's almost inevitable that some will find its way into the system.

For example, air is present within steam pipes and steam equipment at start-up. Even if the system is filled with pure steam (steam without air in it), while it's up and running, the condensing steam causes a vacuum and draws air into the pipes during a shutdown.

Air also enters the system dissolved in the feed-water. And because the solubility of oxygen is roughly twice that of nitrogen, the 'air' that dissolves in water contains nearly one part of oxygen to two of nitrogen, rather than the one part to four parts in atmospheric air. Carbon dioxide has an even higher solubility, roughly 30 times greater than oxygen. And if you've got dissolved carbon dioxide as well as oxygen, it will make the water more acidic and speed up the corrosion process even further.

The result is pitting-type corrosion, where deep penetration and perforation can take place very quickly. Spirax Sarco normally advises using combination of chemical and physical remedies to eliminate the dissolved oxygen.

The first step is to heat the feed-water in the hot-well to between 85°C and 90°C, which drives off dissolved gases to leave an oxygen content of around two parts per million.

Operation at higher temperatures than this at atmospheric pressure is difficult because it can cause cavitation in the feed pump, but the addition of an oxygen scavenging chemical, such as sodium sulphite, hydrazine or tannin, should mop up the remaining oxygen.

## Water water everywhere ...

Wet steam can also open the door to corrosion, so follow some simple rules to prevent it.

Eliminate foaming in the boiler, because it can carry water over into the steam system. Foaming is caused by contamination, and can usually be controlled with an effective blowdown regime that keeps the level of dissolved solids under control.

Ensure effective condensate removal by checking your system traps regularly to make sure they're working properly to avoid corrosion-causing condensate building up in the pipework.

**To keep corrosion at bay and help to maintain your steam system in tip-top working order, contact your nearest Spirax Sarco office (contact details on the back page).**

## Double isolation in a single valve

The concept of double block and bleed allows for a section of a plant to be isolated safely for maintenance to take place. The new Spirax SafeBloc Double Block and Bleed (DBB3) valve makes maintenance safer and easier than ever before.

Spirax SafeBloc integrates two bellows-sealed globe isolation valves and an optional bleed port into a compact rapid-fit product. Significant plant space is saved, with the Spirax SafeBloc taking up only a third of the pipeline length compared with conventional arrangements. This enables double block and bleed to be installed in spaces where it may otherwise be impossible.

With a carbon steel body and stainless steel internals, Spirax SafeBloc is available from DN15 to DN100 and flanged to PN40 or ANSI300. Spirax SafeBloc can be used on general steam plant as well as other fluid systems, such as hot water.



*A traditional Double Block and Bleed system*



*Spirax SafeBloc Double Block and Bleed (DBB3) valve*

## 2008 Customer Satisfaction Survey

Thanks for your continued support and feedback so that we can grow with your success. We have received good response for our 2008 customer satisfaction survey. We have the lucky winners for the early bird draw. Congratulations if you are the lucky one and you will receive the Spirax Sarco MP3 via our offices in your region.

Company	Respondent
Asian Alcohol Corp	Alfonso Tibon
Dynea Singapore Pte Ltd	Kyaw Minn
Excelsior Hotel	Kim Leung
Jacobs Engineering Singapore Pte Ltd	Melinda Tham
Makati Shangri-la Hotel	Demetrius
Monde Nissin Corp	Wendy Antioqjua
Nestle Phils Inc	Alfredo Ocampo
Nestle Phils Inc	Edwin Flores
Petron Corp	Ronnie Rodriguez
PT Bintang Toedjoe	Didit Nashrulli H
PT Bukit Kapur Reksa	Joni Rusli
PT Charoen Pokphand Indonesia	Firdaus Zuhri
PT Cheil Jedang Indonesia Pasuruan	Wily Satria
PT Coca Cola Bottling Indonesia	Yustinus Suhartanto
PT Danone Dairy Indonesia	Risnandar
PT Darya-Varia Laboratoria, Tbk	Rusli Wen
PT Ferron Par Pharmaceuticals	Firman Ardi
PT Hindoli	Anton B Asmara
PT Indofood Sukses Makmur, Tbk	Syahtrimentha Bangun
PT Indorama Synthetics Tbk	Zurendra Yudestir
PT Kievit Indonesia	Dendy Marhendra
PT Konimex	Bayu Widiananto
PT Nubika Jaya	Dodik Suyanto
PT Oleochem Soap & Industri	Mulyadi

PT Perfetti Van Melle Indonesia  
 PT Riau Prima Energi  
 PT Soho Industri Pharmasi  
 PT Sumatera Hakarindo  
 PT Sumber Graha Sejahtera  
 PT Swedish Match Cigars Indonesia  
 PT Tetra Pak Stainless Steel Equipment  
 PT Ultrajaya  
 PT Unican  
 PT Unilever Indonesia  
 PT Wings Surya  
 PT WRP Buana  
 Ruttonjee Hospital  
 Sevilla Candle Factory Inc  
 Shangri-la's Mactan Resort & Spa  
 Shin Nippon Air Technologies Co Ltd  
 Sultan Hotel  
 Tai Ah Eng Co.  
 Techniques Air-Conditioning  
 & Engineering Pte Ltd  
 Total Automation Ltd  
 United Pulp & Paper Co Inc  
 Universal Robina Corp  
 Universal Robina Corp  
 Vogue Laundry Service Ltd  
 Western Feedmill Corp  
 Wyeth Nutritionals (Singapore) Pte Ltd

Anggit Darianto  
 Indra Sakti  
 Bima Hersatriyawan  
 Erwin F  
 Kayadie  
 Slamet Supriyadi  
 Arenal  
 Ricardi Wennas  
 Yohanes Ali  
 Daryanto  
 Kunta Digdatanaya  
 Peggy  
 William Ho  
 Cris Werner Sevilla Uy  
 Paul Bruce  
 Edison Magsino  
 Suratno  
 Sung C H  
 Vivian Tan  
  
 Francis Ng M J  
 Francis Pura  
 Edwin Vigilia  
 Eheric Salvo  
 Carlos Leung  
 Annabelle Go  
 Kwong Chee Nyen



## Non-Intrusive Measures

During our course of work with engineers and plant managers, it is not uncommon to discuss and/or to ascertain condensate flow-rates and the amount of condensate produced by a heating equipment.

Quite often than not, the figures of these vary from individual to individual but more significantly, no one can really put a finger to it.

If you find yourself in a similar situation, have no fear – Spirax is here.....with a cool tip for you.

The Spirax-Emco Sono-Trak® is a transit time ultrasonic flowmeter that measures liquids. It is capable of measuring flow without having to cut the pipeline and inserting a meter or transducer.



Although not as accurate as an in-line meter, it can achieve typical accuracy of  $\pm 2\%$  of rate. The main advantages of this measuring instrument are that it is non-intrusive and there are no wetted parts involved. It is a cool solution when one requires a fairly accurate but quick information of the flowrate through a particular pipeline or equipment. On top of this, the meter can be set up within minutes and there is absolutely no down-time.

For more information, please contact your Spirax Sarco engineer today!

Dear TC :

**Q.** We are using float type drain traps for our compressed air system. Some of the traps get choke up and require maintenance/cleaning.

Please advise solution.

**A.** It is most likely that your compressor is of the reciprocating type.

This type of compressors has a tendency of oil being carried over into the distribution pipe line. When the oil mixes with condensation, a thick slimy fluid - known as emulsion - becomes present.

This then leads to choking or obstructing the valve and seat of the drain trap.

In this situation, we would recommend the use of the Spirax Airodyn – a thermodynamic type of compressed air drain trap.



This drain trap is designed for use where compressed air is contaminated with an oil and water mixture; as it has the ability to "blast off" condensate and dirt when it opens.

However, where the air is ultra-clean or of instrument-suited quality, the Airodyn S version should be considered. The S-version comes with a fine lapped disc to prevent the drain trap from "motor-boating" or operating too frequently.



In this column, we feature customers' questions and answers provided by our Technical and Training Manager, Mr Chng Poh Beng.

Simply send your questions marked "Dear TC" to StephanieCheong@sg.spiraxsarco.com or to fax number 65-6459 6854. Kindly indicate if you do not wish to have your name and/or your company's name published. We reserve the right to edit the questions and not to publish them. If your question is published in Steam Express, you will receive a corporate gift.