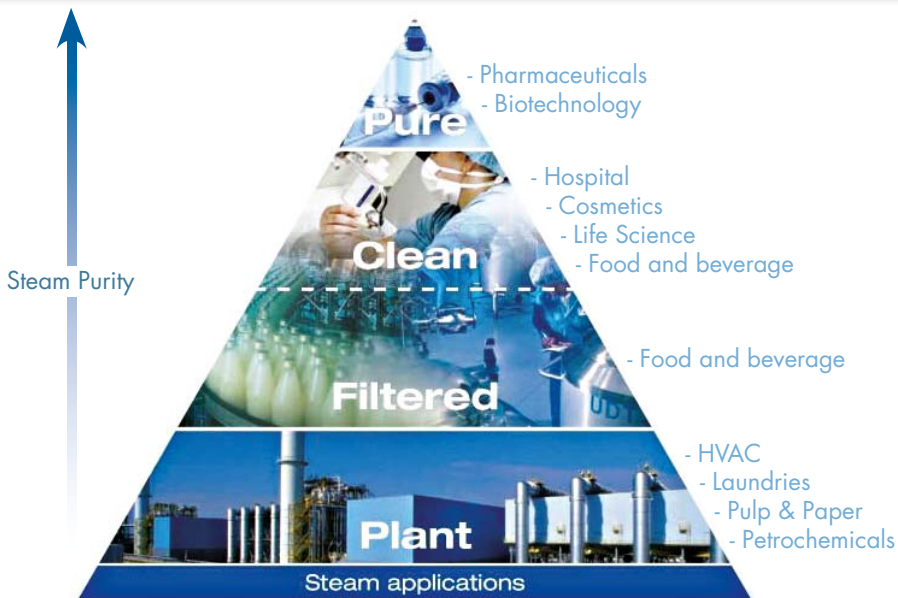


STEAM EXPRESS

Expertise • Solutions • Sustainability



Is your steam clean?

There are many ways to transfer heat, but steam is the most energy efficient, reliable, clean and sterile form. Steam is used in many different areas to make our lives more comfortable and convenient, from the packaging and processing of food and drinks that we consume daily to the sterilization of surgical instruments.

For many applications, there is little harm for plant steam to contain small quantities of boiler feedwater chemicals, traces of pipeline scale and also rust and corrosion particles. However, there are increasingly more and more applications in the industry that require steam of a higher level of purity in order to reduce risk of contamination. Thus, more attention is now given to what is commonly known as 'Clean Steam'.

Clean steam can be produced in a variety of purities. Two of the examples are firstly, pure steam for the pharmaceutical, biotech and microelectronic industries and secondly, filtered steam (culinary steam) for the food industry.


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Now, it all boils down to one question, what is Clean Steam?

In general, it is simply a kind of steam that is cleaner and purer than plant steam. The term clean steam covers a wide range of steam qualities and is commonly used as a general description to cover the three basic types which are “Filtered Steam”, Clean Steam” and Pure Steam”.

- 1 • **Filtered Steam**, which is also known as culinary steam, is produced by filtering plant steam using a fine and high efficiency stainless steel filter. A typical specification would call for the removal of all particles greater than 5 microns. Although a 5 micron stainless steel filter will remove 95% of all particles larger than 2 microns, it does not treat chemicals or volatiles entrained within the steam. It will only remove particles, bacteria, organics, and contaminants larger than the element rating.
- 2 • **Clean Steam** is produced by a secondary generator and often from water that is deionized and distilled. Clean steam, is often used for sterilization. With an increase in importance of minimizing contaminants, the food-manufacturing sector is also starting to engage the use of clean steam. Also, clean steam is used to humidify clean rooms in pharmaceutical and microelectronics productions.
- 3 • **Pure Steam**, which is very similar to clean steam, but is always produced from distilled, deionized or pyrogen-free water. Pure steam is water that has been heated above 100°C and vaporized in a manner that prevents source water entrainment. Whether the steam is pure depends on whether its condensate matches the regulatory specifications governing Water for Injection. In other words, the steam is deemed as pure if it can be injected into the human body without any adverse effect. Pure Steam is intended for use where the steam or its condensate comes in contact with the article or the preparation. Pure Steam quality is difficult to assess in its vapour state; therefore the attributes of its condensate are used to test its quality. The process used to create and collect the condensate for analysis must not adversely impact these quality attributes.

Steam quality selection and control is an essential part of the manufacturing process and is not something that should ever be left to chance. If in any doubt, please contact our Spirax Sarco engineer today! 

The 2nd Regional Sales Conference



The inaugural Spirax Sarco regional sales conference was held in 2008. Following that first success, the second "family" reunion was conducted on the 24 and 25 March 2011 at Siloso Beach Resort, Sentosa, Singapore. It ended with a resounding success as well.

The 55 participants were made up of delegates from Singapore, Indonesia, Philippines, Hong Kong and Vietnam. This diverse mix allowed us to share and learn the different market experiences and knowledge.

The main objective of the conference was to drive our business forward to a new position - First for Steam Solutions.

The main highlight of the conference was the grouping of the delegates into specific industrial groups namely Food, Beverage, Pharmaceutical, Hotels & Hospitals, OPC, Pulp Paper & Palm Oil / Sugar Mill and Service.

This enabled the teams to focus on the exchange of expertise and solutions within the industrial groupings via activities like workshops, presentations and games.

The participants brought home with them lots of motivation and drive. They are now geared up to service and deliver the 'First for Steam Solutions' to our valued customers with their new-learned knowledge and experience.



PRODUCT highlights

High Pressure Sight Glass – SGC40 & SGS40

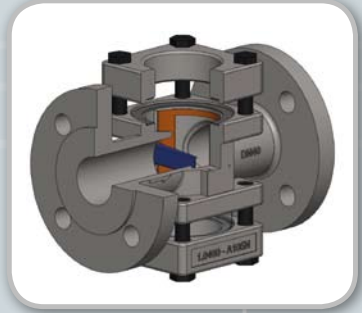
A sight glass provides a method of observing fluid flow in a pipeline. It has two main functions:

- **Indication** - Sight glasses are used to indicate if fluid is flowing correctly. They are used to detect blocked valves, strainers, steam traps and other pipeline equipment, as well as to detect if a steam trap is leaking steam.
- **Inspection** - Sight glasses can be used to observe the color of a product at different stages of the production process.

The current ranges of sight glasses available from Spirax Sarco are limited to 25 barg. Due to the demand for a higher-pressure range, Spirax Sarco is pleased to release the new high pressure sight glass – SGC40 & SGS40 in carbon steel and stainless steel.

The design is based on the proven SG253 sight glass that has been in service for many years without problem. They provide a solution for easy visual detection of flow and are offered with the following options:

- Mica inserts for steam and high pH applications.
- Flow indicator flap for enhanced flow indication.



Features	Benefits
<ul style="list-style-type: none">• Pressure rating increased to PN40 / ASME 300	<ul style="list-style-type: none">• Wider range of applications providing increased sales opportunities
<ul style="list-style-type: none">• Design incorporates:<ul style="list-style-type: none">- Double window- Large viewing area- Unique design creating additional turbulence	<ul style="list-style-type: none">• Allows easy inspection of flow media
<ul style="list-style-type: none">• Optional flow indicator flap	<ul style="list-style-type: none">• Enhanced flow indication
<ul style="list-style-type: none">• Borosilicate glass windows	<ul style="list-style-type: none">• High level of safety and integrity
<ul style="list-style-type: none">• Optional Mica insert for steam, condensate and high pH applications	<ul style="list-style-type: none">• Additional protection of glass for steam, condensate and high pH applications

TVA Steam Flowmeter

This month sees the launch of the Spirax TVA (Target-Variable Area) flowmeter which is designed for use on saturated steam. It will be replacing the highly successful DIVA flowmeter.

A steam flowmeter is paramount for good steam housekeeping - it provides the knowledge of steam usage and cost which is vital to an efficiently operated plant or building. The main benefits for using steam metering are:-

- Monitoring plant efficiency
- Justifying energy efficiency savings
- Process control
- Costing and custody



TVA measures all your steam consumption - Energy savings from targeting and monitoring initiatives require accurate measurement across the minimum and maximum steam flowrate. Steam applications often have widely fluctuating loads due to seasonal or process variation and measuring steam under these conditions presents two distinct challenges. The first is having the ability to measure at both the minimum and maximum flowrates. The second is compensating for the changes in steam density. For some technologies these are challenges that are beyond them or can only be overcome at great cost.

Key feature	Key reasons	Key benefit
High Accuracy	<ul style="list-style-type: none"> • Profiled cone produces linear signal output for high turndown. • In line density compensation. 	Measures all steam consumption and ensures better data for targeting energy savings.
Quick and easy installation	<ul style="list-style-type: none"> • Integrated electronics gives a single point of pipe entry. • Flow stream is automatically conditioned by the cone; consequently no long lengths of straight pipe are required. 	Reduces the cost of installation and valuable plant downtime.
Easily integrated with a host control system	<ul style="list-style-type: none"> • Choice of digital ModBus, • 4-20mA and pulse outputs. 	An easy addition to monitoring and reporting systems.
Easy to commission	<ul style="list-style-type: none"> • A local LCD display and keypad with intuitive menu, allow all parameters to be fully configured and displayed. 	Quick to commission, reducing commissioning costs and valuable plant downtime.
Long operating life	<ul style="list-style-type: none"> • Designed for steam by steam experts. • Large profiled cone area with no sharp edges, consequently the high impact energy of steam is dispersed. • Once calibrated, the TVA rarely needs to be adjusted. 	Set and forget.
ownership	<ul style="list-style-type: none"> • High accuracy. • Quick and easy installation and commissioning. • Long operating life. 	achieve higher profits.

COOL TIPS for Hot Issues

BIGGER is not better

Have you ever come across an article or news report where accidents in plants - e.g.: boiler explosion, occur due to faulty safety valves? The only function of safety valves is to protect people and property when things go wrong and should never be the cause of an accident. Therefore it is vital to ensure that the correct safety valve is selected and fitted correctly.

Majority of the engineers would recognize that undersizing a safety valve is dangerous. But did you know that oversizing can also lead to other problems?

An oversized valve is similar to that as having a small inlet pipe to a large safety valve. This may lead to chattering problem when the pressure is very near or close to set pressure. It is important not to oversize a safety valve. Bigger is definitely not better in this case because a larger than required valve could also cause leakage and premature failure of safety. An oversized valve also wastes money by cycling more frequently, providing for a high cost of ownership.

Factors to note when sizing:

- Two-phase flow
- Coefficient of discharge
- Overpressure
- Critical and subcritical flow
- Back pressure
- Coefficients and correction factors



Q We are currently using plate heat exchanger for our CIP process and have to replace gaskets frequently due to leakage. Do you have any recommendations for us to solve this leaking issue?

Zhang SJ
Super Continental

A Replacing leaking gaskets is a costly process and this includes the downtime, labour & cost of spares. In the past, the shell & tube heat exchanger would have been a solution for this problem because they do not have any gaskets. Unfortunately they have a larger heat transfer surface area and have a big foot print which results in suffering from other disadvantages.

More recently the strong aspects of the plate heat exchanger and the shell and tube HE have been combined into one unit, the corrugated shell & tube heat exchanger. It contains precision made corrugated single pass tubes which fit into the compact body. The corrugated tubes promote optimum turbulent conditions which greatly increases the rate of heat transfer compared to a standard shell & tube HE and greatly reduces the effects of scaling. This single pass HE also provides the flexibility of vertical installation to reduce the foot print.

Sizing is critical to performance so Spirax takes this headache away by offering a single engineered Heat Exchange Package where each component is carefully matched to offer the most efficient performance.

If you would like to have a discussion / find out more on this, please do not hesitate to contact our heat exchanger expert, Chng Poh Beng, at poh-beng.chng@sg.spiraxsarco.com !



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 Reyers.Wang@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.

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Spirax Sarco Customer Experience Improvement is a channel for **YOU**, our valued customer, to share your views on your experience in partnering us. We welcome views on any facet of our business.

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