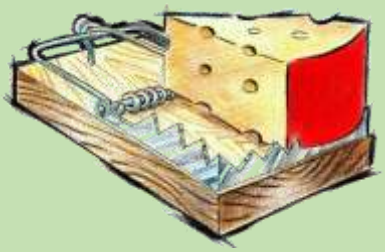
Why Chart Industries Has Over 2500 GSSs Installed

1) Many customers report our patented Gas Saver System (***GSS***) provided shielding gas savings of up to 50+%;

2) Numerous fabricators don't understand they have a shielding gas waste problem or how our simple, low cost ***GSS*** works and can fix it;

3) From my observation, the following are some reasons Chart, a customer since 2013 with over 2500 ***GSS***s continues to buy systems for new welders and for newly acquired fabricating companies:

First Reason: They know they were wasting shielding gas!

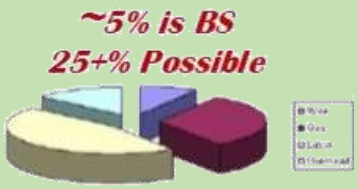


A customer recently said, *"I can't understand why every MIG welder doesn't use your great, low cost Gas Saver System (**GSS**)? Like the saying, Build a Better Mouse Trap and People Will Beat a Path to Your Door."*

Told him, *"That only fits if they know they have MICE!" LOL*

I recall some years ago the VP of a major fabricator said he would load his pockets with quarters before visiting and touring one of their many plants. He'd toss them on the ground and welders would scurry to pick them up. The plant manager, conducting the tour, would ask, ***"What are you doing?"*** He'd say, ***"That is what you're doing every day- wasting shielding gas!"***

WHAT % OF WELD COST IS GAS?



A Praxair engineer stated in an industrial magazine that the average fabricator uses three to five times the amount of shielding gas they should (see Reference 1.) A friend, working for Praxair at the time, said their customer market surveys of shielding gas use showed gas waste was that awful!

Your gas supplier may say gas cost, ***"is only ~5% of weld cost"*** using a deceptively plausible calculation: ***Flow Rate CFH X Arc On Time!*** That is bogus- and they know it! Using published data, it can be over 25%! ***Add up your cost of tank/cylinder rent, delivery cost and cost of gas to define your real cost!***

Second Reason: **Chart's very knowledgeable, PhD Corporate Welding Engineer's calculations showed significant more shielding gas was being purchased than they should be using at their many fabricating plants.**

He found our product on the Net and knew their fabricating plants would have to prove to themselves our *GSS* was cost effective. The initial plants that tried the product purchased prefitted hose as sold on our website. (*Note:** *Lengths up to 25 feet are listed but we can supply prefitted hose 50 feet long and on occasion have made them 100 feet long.)*

The Chart Welding Engineer, after tests showed significant shielding gas waste reduction, had all plants install the product. There are 12 locations with over 2500 welding systems using *GSS*s and saving gas waste year after year as no there are no moving or wear parts!

A key benefit is the *GSS* does not limit the welders steady state flow setting, which they still control with any quality flow control device. Many welders see and appreciate the reduced spatter starts.

Third Reason: **The Chart Welding Engineer also understood that leaks in pipeline gas supply can be a significant cause of waste. He has a methodology similar to what we outline in our "Self Learning Program," Lean Welding Manufacturing.**
http://netwelding.com/Lean_Mfg._Tools.htm

Shielding Gas Use and Eliminating Waste" (part # LWM-SG) is a 71-page, inexpensive program, that can be used as a self-study leaning program. It includes a method of making a spreadsheet providing a way of quantifying and monitoring leak rates.

References:

1) **Weber, R., How to Save 20% on Welding Costs. Trailer/Body Builders, Volume 44, Number 3, January 2003.**

2) **Lyttle, K. and Stapon, G., Simplifying Shielding Gas Selection. Practical Welding Today, Vol. 9, No. 1, Jan/Feb 2005.**

APPENDIX A

Case Examples of *GSS* Saving Shielding Gas

A number of fabricators have reported their ***GSS*** testing results. The following summarizes data from a just a few who have quantified test data:

Truck Body Builder

Double A Body Builders knew they were wasting shielding gas and wanted to reduce the high cost. Ken Ard, President, set up a test using two of his 23 MIG welders that were both welding with the same 0.035 wire and the same welding conditions. He started the test with one welder using their standard 25-foot gas delivery hose and the other with an equal length ***GSS***. Both welders operated at the same current. He also started with new coils of wire on each machine. When both cylinders were empty, he weighed the coils of wire. The one with the ***GSS*** had used twice as much wire. Since both welders were doing the same job, the one with the ***GSS*** also welded about twice as long! Needless to say, Ken purchased systems for all 23 MIG welders. When he expanded his business 2 years later, he purchased 20 additional systems.

OEM Exhaust Manufacturer

This company was conducting a Black Belt Lean Manufacturing study to reduce costs. They only had 6-foot gas delivery hose from their gas pipeline to their 126 MIG robotic welders. They purchased four 6-foot ***GSS***'s to test all their various weldments. Since the robots repeated each joint with precision, their test data is very accurate. Although on pipeline gas supply, they used cylinders for the tests. Since their pipeline operates at 50 psi they made sure, they used regulator/flowmeters that matched that pressure. Since they make many of the same parts, they could easily count the number of parts made with a full cylinder of gas and their standard hose and with the ***GSS***. After testing all their weldments, they found savings ranging from a low of 25% to in excess of 40%. They purchased systems for all 126 robots! Several other exhaust system fabricators have also installed ***GSS***s.

APPENDIX A (continued)

Pipe Fabricator

A pipe fabricator tested the ***GSS*** for gas savings. They again used cylinders to define a fixed amount of gas usage. In their case, they used flux-cored wire and on one job with their standard gas delivery hose, they welded 32 pounds of wire with one cylinder. Just substituting the ***GSS*** with no other changes in welding conditions or gas flow; they used 53 pounds of flux-cored wire with a full cylinder. That equates to a 41% shielding gas savings. They initially purchased 114 systems and added another 80 when they installed more welding machines in a shop they acquired.

Chiller Manufacturer

A company in Mexico conducted tests for their production of chillers. They purchased a 12-foot ***GSS*** and found savings ranged from 30% to a high of 42% easily justifying the investment. Since some of their applications use longer hoses than the 12-foot system tested, their savings will be even higher. Remember it's the excess gas volume stored in the gas hose that causes waste and excess turbulence on each weld start. They initially purchased 60 ***GSS***'s, after a year in use expanded their operation, and purchased an additional 55 systems.

Truck Box Fabricator Tests *GSS*

A fabricator of truck boxes had 25 MIG welders. They knew they were using excess gas and wanted to try our ***GSS*** as a possible solution. They use pipeline gas supply but to test the ***GSS*** they purchased two gas cylinders with the same gas mixture they employ. They purchased a flowmeter that utilized a 50-psi regulator similar to their pipeline pressure. A part was selected that they made by the thousands, truck box doors. *With their standard gas delivery hose* and normal welding conditions, gas flow etc. they installed one of the full cylinders and proceeded to *welded 236 doors until the cylinder was empty.* Only replacing their gas delivery hose with the small volume *patented* ***GSS,*** *they used the same welder, same welding conditions, and the same shielding gas flow setting. The new cylinder was able to make 632 doors before it was empty! That was 63% less gas used.* Or 2.7 cylinders would be needed to weld 632 doors with their old system! After about a year using the 25 ***GSS***'s purchased, they expanded their operation and added 10 more welding machines. They called and asked for 10 more of the "Magic Hose!"