

WA Technology

Excessive Flow Rates Waste Gas and Cause Turbulent Shielding.

THE PROBLEM:

Excessive flow rates waste gas and cause turbulent shielding. Turbulent flow pulls air into the MIG gas shield creating excess weld spatter and inferior weld quality. Flow rates causing turbulent shielding can be as low as about 40 CFH depending on nozzle size!



A CONTRIBUTOR TO EXCESS FLOW

Typical flowmeters (photo above) incorporate a needle valve to control gas flow rates. A wide flow adjustment range is possible. Unfortunately welders often use the adage that; *"If some is good more must be better,"* when setting gas flow rates. This not only wastes gas but creates a turbulent shielding gas stream allowing air to mix with the shielding gas and enter the arc.

FLOW RATE LIMITER

The patent pending **WA Technology Flow Rate Limiter (FRL)** has a billet aluminum body with a permanently affixed stainless steel *PIN*. When clamped to the flow control knob, the *PIN* contacts the flowmeter body limiting the amount it can be turned. Controlling the counterclockwise movement restricts the maximum flow. When installed, the **FRL** can be set to the maximum flow desired then turned to a lower level. The amount it can be decreased depends on the specific flowmeter model and can range from having the ability to lock the flow to one setting to a range of 25 CFH.

To assure the settings are not altered, a *Flow Limiting Lock* is available. It consists of a stainless steel *Blocking Bar* that slips into holes in the **FRL** and prevents access to the set screw. The small solid brass *Lock* provided is inserted into a hole in the *Blocking Bar* to prevent its removal.

USING THE FLOW RATE LIMITER

To Use the *"Flow Rate Limiter"* Simply:

1. Set maximum flow rate desired.
2. Slip *"Flow Rate Limiter"* over control knob so Pin limits increases.
3. Tighten set screw.
4. Locking system blocks set screw access.

BOTTOM LINE

The **WA Technology Flow Rate Limiter** is simple to use and fits most flowmeters employed on gas pipelines and regulator/flowmeters used on cylinder gas supply. The system can be purchased with or without the locking device depending on the specific need.

Flow rates can be controlled within the limits defined in Welding Procedure Specifications (WPS's). Payback can be measured in weeks from gas savings with improved weld quality a bonus.

A perfect complement to the *Flow Rate Limiter* is the **WA Technology Gas Saver System** that reduces the gas surge at the weld start that typically contributes to a gas waste of from 25 to 60%. Combine both products for a significant reduction in shielding gas use and improved weld starts and overall quality. See Web Site.

TEXAS HYDRULICS SAVES 35% SHIELDING GAS WITH FLOW RATE LIMITERS

Texas Hydraulics utilizes MIG welding to fabricate hydraulic cylinders with bores ranging from 1 inch to 15 inches; with some 20 feet long. Doug Watkins, Welding Engineer for their Texas plants, found their welders were able to adjust flowmeters at any time at a shielding gas flow beyond the range of their Welding Procedure Specification (WPS). Some were found with the flow measurement ball pinned to the top of the flow tube. Mr. Watkins indicates,



“We have found with our flowmeters that can mean a flow rate of 100 CFH or higher is being used. In addition to the gas waste, any flow setting beyond about 50 CFH with our electrode extension pulls air into a turbulent gas shield. That air creates weld spatter and possibly internal (or even external) weld porosity.”

By installing 30 WA Technology Flow Rate Limiters (WAT-FRLL) and limiting the maximum flow that can be set, they assured a quality shielding gas stream and eliminated gas waste. The maximum flow rate is now set at 40 CFH and this setting locked-in. After an

initial gas use audit, the calculated shielding gas savings was measured at 25%. With follow up audits the actual savings exceeds 35%.

Texas Hydraulics also has begun changing its shielding gas delivery hoses to **GSS**'s. During their initial testing they showed an 18% reduction in shielding gas use with less initial gas surge.

According to Mr. Watkins, “By using the Flow Rate Limiters we are building a quality product and controlling our consumable cost which continues to be more valuable every day. By switching to the new **GSS**'s we expect to show greater than 20% additional savings due to the frequent starts and stops. Doug sent us this email; *“I really appreciate your companies’ assistance; it helps me do better at my job. WA Technologies has contributed directly to helping us control our cost in welding consumables and help us remain competitive in our effort to provide the best product for the right price.”*

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Flow Rate Limiter is covered by Patent #7,462,709

Gas Saver Systems covered by one of the following US Patents;

6,610,957; # 7,015,412 or # 7,019,248

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