

## Advantages of a M BRAUN Circulating Weld Chamber

M BRAUN supplies an inert gas welding chamber that has two modes of operation, purge and circulation. The ability to circulate the weld chamber continuously through an O<sub>2</sub> scrubber results in an operating cost of \$14.40 per day, which in comparison to continuous argon purge system is almost free. The difference in cost between the two types is so dramatic, that a M BRAUN circulating weld chamber can pay for itself in a matter of a few short months, saving the end user thousands of dollars in wasted argon. Some examples of the operating costs of each type of system are listed below.

- **Cost on initial purge (start-up)**

The circulating Work Cell only needs an initial purge from room air to 50ppm where as a purge unit needs to be purged from room air to 10ppm. Below is the cost to commission a circulating glove box from room air to 50ppm.

Cost to purge weld chamber from room air to 50 ppm.

Volume of welding cell	28.3 ft <sup>3</sup>
Number of exchanges	32
Total gas consumption	900 ft <sup>3</sup>
Cost of gas*	\$26.00 per 100 ft <sup>3</sup>
<b>Total costs of initial purge</b>	<b>\$234.00</b>

- **Cost to run M BRAUN circulating weld chamber**

Recommended

After the initial purge we begin to circulate the weld chamber through a purifier with O<sub>2</sub> scrubbers that help maintain an atmosphere of <1ppm at all times. The cost to maintain this atmosphere is minimal, consisting of only electricity to run the system. These savings become more and more drastic as new cells are installed. Below is the cost calculation to run the M BRAUN chamber.

Cost to have system maintain less than 1ppm O<sub>2</sub>. The only cost in this operating mode is the cost of electricity to run the system. The system uses 15 kw/hr.

Electricity Consumption	15 kw/hr
Cost per kw*	.05026
Total cost per hour	.75
Operating costs per day	\$6.00
<b>Operating costs per year</b>	<b>\$2,496.00</b>

SAVE \$

In addition to these advantages, a circulating system will constantly maintain the specified Welding environment without regard to the specific leak rate.

- **Cost of continuous Argon purge operation**

After a level of 10ppm is obtained, a constant purge is required continuously to maintain the integrity of the welding environment. Although **M BRAUN** can offer these types of systems, we urge our customers to investigate the advantages of a circulating system. Below is an example of the cost to run a continuous purge system.

Purge rate	425 ft <sup>3</sup> / hour
Gas cost*	\$26.00 per 100 ft <sup>3</sup>
Gas cost / hour	\$110.50
Gas cost / day	\$884.00
Gas cost / week	\$4,420.00
<b>Gas cost / year</b>	<b>\$229,840.00</b>

**WASTED ARGON!**

- \* Average cost for gas and energy.
- These calculations are examples based on average usage during an eight hour shift, five shifts per week, and fifty-two weeks per year.