

# Water Injection Option

## For the m3 Plasma™ system



ESAB's m3 Plasma's Water Injection module extends the range of capabilities for the m3 Plasma system. Water injection cutting improves cut quality, increases speed, and reduces cost when cutting stainless steel and aluminum from 1/8 inch up to 3 inch thick.

Using water to constrict the arc provides lower operating cost compared to cutting with Argon-Hydrogen, and yields exceptional cut quality due to the water's quenching and "scrubbing action". Water injection can cut up to 70% faster than some gas-shielded methods, and eliminates the use of specialty gases for cutting thick stainless steel and aluminum.

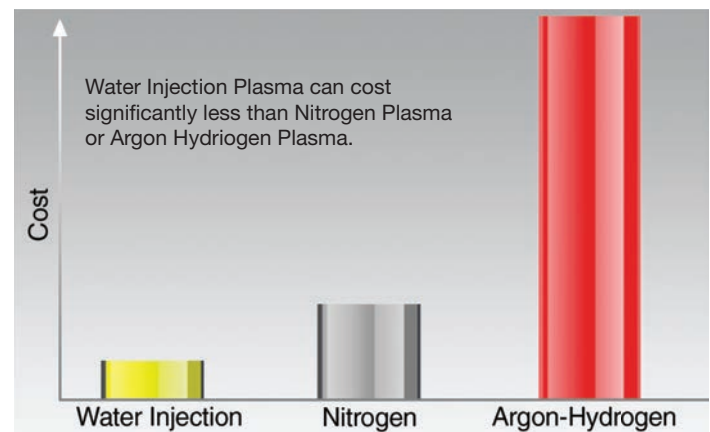
- Allows both Water Injection and Dry Plasma cutting with the same system. Cooling effect of water minimizes plate deformation and heat affected zone.
- Scrubbing action of the water produces high quality cut face. Faster cutting speeds when cutting thick stainless steel or aluminum.
- Water is less expensive than specialty gases, reducing both process cost and consumable cost. Quickly and easily change between water injection mode and dry cutting mode; fast switching between cutting and marking modes.
- Changing consumables is fast and easy when switching from dry to water injection mode. Does not required de-ionized water.
- Available with any m3 Plasma system. Systems available from 200 A to 720 A.

### Industry

- Steel Cutting Centres
- Aerospace
- Energy
- Petrochemical
- Nuclear



Visit [esab.com](http://esab.com) for more information.



# Water Injection Option

## m3 Plasma Water Injection Performance

Stainless Steel			Aluminum		
Thickness (inch)	Current (Amps)	Cutting Speed (in/min)	Thickness (inch)	Current (Amps)	Cutting Speed (in/min)
0.125	125	225	0.125	125	190
0.250	125	70	0.250	125	130
	200	175		200	150
0.375	125	50	0.375	400	180
	200	105		125	80
0.500	250	120	0.500	200	115
	200	80		250	140
0.625	360	100	0.625	200	90
	400	120		250	110
0.750	200	60	0.750	200	75
	360	82		250	95
0.875	400	95	0.875	600	116
	400	70		200	55
1.000	600	100	1.000	400	80
	360	45		600	100
1.125	400	57	1.125	200	32
	600	85		400	70
1.250	600	60	1.250	600	90
	600	45		600	70
1.375	720	57	1.375	600	55
	600	32		600	35
1.500	720	33	1.500	720	47
	600	23		600	35
1.625	720	23	1.625	720	36
	720	13		720	20

The above chart is only a sampling of the numerous cutting conditions available with the m3 Plasma water injection system. For brevity, many available cutting conditions are not shown.

Cutting speeds are dependent on the material type and grade, gas pressure, gas combination, as well as the consumables selected.

### 1" Stainless Steel

#### Nitrogen Plasma

- Darkened Surface
- Tenacious Dross
- Top Rounding
- Low Cost



#### Argon-Hydrogen Plasma

- Shiny Reddish Surface
- Less Dross
- Straight Edge
- High Cost



#### Water Injection Plasma

- Smooth Clean Surface
- Little Dross
- Straight Edge
- Low Cost



When compared to Nitrogen Plasma or Argon-Hydrogen Plasma, Water Injection cutting creates a smoother, cleaner edge finish with minimal dross and less heat-affect zone.



Water injection plasma cutting of stainless steels and aluminum alloys offers exceptional cut quality including a highly desirable cut edge surface with little or no dross.



ESAB / esab.com

