

# Brenner Einstell- und Wartungsprotokoll



Datum:

- Erst-Inbetriebnahme
- Wartung (nach jeweils 6 Monaten)

Brennertyp:   
 Gasart:

Auftrags-Nr.:   
 Heizwert Hi:  kWh/m<sup>3</sup> (Anlagenbetreiber fragen)

## 1. Sollwerte Leistungen

Flamme:  kW

Flameless:  kW

## 2. Prüfung (ggf. Ausbau) der Dicke der Distanzscheiben an der Primärluftdrossel:

Dicke:  mm (für Flameless Leistung)

(siehe auch BA ECOMAX LE)

Gasdruck Druckregelstrecke:  mbar  
 Gebläse-Luftdruck:  mbar  
 Differenz = Gasdruck - Luftdruck  mbar **muss >10 mbar sein**

Hinweis: Der Gasdruck der Gasdruckregelstrecke muss 10 mbar **höher** als der Gebläseluftdruck sein. Explosionsgefahr bei zu gering eingestelltem Gasdruck!  
 Falls Gasdruck der Druckregelstrecke < Gebläse-Luftdruck, dann kann Spülluft bei verstopfter Gaslanze in die Gasleitung strömen!

## 3. Einstellung / Prüfung aller Druckwächter (DW):

### für 2 DW Luft (Brennerbetrieb mit Leistungsprung Flamme/Flammenlos):

DW Luft 1 (bei Flamme) als Luftmangelsicherung auf z.B. 80%\* vom Differenzdruck-Ist-Wert an der Gesamtluftblende einstellen und Auslösewert in Tabelle notieren.  
 DW Luft 2 (bei Flameless) als Luftmangelsicherung auf z.B. 80%\* vom Differenzdruck-Ist-Wert an der Gesamtluftblende einstellen und Auslösewert in Tabelle notieren.

### für 1 DW Luft (mit konstanter Leistung Flamme / Flammenlos):

Mittels der Luftklappe für beide Betriebsarten Flamme und Flameless einen identischen Luft-Differenzdruck an der Gesamtluftblende einstellen.  
 DW Luft als Luftmangelsicherung auf z.B. 80%\* vom Differenzdruck-Ist-Wert an der Gesamtluftblende einstellen und Auslösewert in Tabelle notieren.

Betriebs-Art:	Flamme							Flameless							Ejektor	Stopp
	$\Delta p$ Gas	$\Delta p$ Luft	DW Luft 1	Signal	O2	CO	NOx	$\Delta p$ Gas	$\Delta p$ Luft	DW Luft 2	O2	CO	NOx			
Soll-Werte 1:				> 10										Unterdruck Abgas	Spülluftdruck Gaslanze	
Soll-Werte 2:				> 10												
IST-Werte:	mbar	mbar	mbar	$\mu A$	%	ppm	ppm	mbar	mbar	mbar	%	ppm	ppm	mbar	mbar	
Brenner 1																
Brenner 2																
Brenner 3																
Brenner 4																
Brenner 5																
Brenner 6																
Brenner 7																
Brenner 8																
Brenner 9																
Brenner 10																
Brenner 11																

\* 80%-Druckwert gültig für Brennereinstellung bei 3% O2 im trockenen Abgas; für andere Einstellungen Druckwert prüfen und ggf. anpassen.

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Betriebs-Art:	Flamme							Flameless							Ejektor	Stopp
	$\Delta p$ Gas	$\Delta p$ Luft	DW Luft 1*	Signal	O2	CO	NOx	$\Delta p$ Gas	$\Delta p$ Luft	DW Luft 2*	O2	CO	NOx			
Soll-Werte 1:				> 10										Unterdruck Abgas	Spülluftdruck Gaslanze	
Soll-Werte 2:				> 10												
IST-Werte:	mbar	mbar	mbar	$\mu A$	%	ppm	ppm	mbar	mbar	mbar	%	ppm	ppm	mbar	mbar	
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# Burner setting and maintenance report



date:

- first commissioning
- maintenance (every 6 month)

burner type:  order no.:   
 gas type:  calorific value Hs:  kWh/m<sup>3</sup> (ask plant operator)

## 1. setpoints capacities

flame:  kW flameless:  kW  
 thickness:  mm (for Flameless capacity)

## 2. Check (dismantling) thickness spacer washer at primary air restrictor:

(see operation instructions ECOMAX LE)

gas pressure control system:  mbar  
 blower air pressure:  mbar  
 difference = gas pressure - air pressure  mbar **has to be > 10 mbar**

**Note:** The gas pressure of the gas pressure control system has to be 10 mbar **higher** than the blower air pressure. Risk of explosion if the gas pressure is set too low!  
 If gas pressure of pressure control system < blower air pressure, purging air can flow into the gas pipe if the gas lance is blocked!

## 3. Setting / check of all pressure switches (DW):

### for 2 DW air (variable capacity in Flame/Flameless mode):

Set DW Air 1 (at flame) as air flow monitoring to e.g. 80% \* of the actual differential pressure value on the total air measuring orifice and note the trigger value in the table.  
 Set DW Air 2 (at flameless) as air flow monitoring to e.g. 80% \* of the actual differential pressure value on the total air measuring orifice and note the trigger value in the table.

### With 1 DW air (constant capacity flame/ flameless)

Use the air butterfly valve to set an identical air differential pressure on the total air measuring orifice for both operating modes flame and flameless.  
 Set DW Air as air flow monitoring to e.g. 80% \* of the actual differential pressure value on the total air measuring orifice and note the trigger value in the table.

operation mode	Flame							Flameless							Ejector	Stop
	Δp gas	Δp air	DW air 1	signal	O2	CO	NOx	Δp gas	Δp air	DW air 2	O2	CO	NOx			
setpoint 1:				> 10										negative pressure	purge air press. gas lance	
setpoint 2:				> 10										flue gas		
actual values:	mbar	mbar	mbar	μA	%	ppm	ppm	mbar	mbar	mbar	%	ppm	ppm	mbar	mbar	
burner 1																
burner 2																
burner 3																
burner 4																
burner 5																
burner 6																
burner 7																
burner 8																
burner 9																
burner 10																
burner 11																

\* 80% pressure value valid for burner setting at 3% O2 in the dry flue gas; check pressure value for other settings and adjust if necessary.

# Burner setting and maintenance report

date:

burner type:

order no. :

- first commissioning
- maintenance (every 6 month)



operation mode	Flame							Flameless						Ejector	Stop
	$\Delta p$ gas	$\Delta p$ air	DW air 1*	signal	O2	CO	NOx	$\Delta p$ gas	$\Delta p$ air	DW air 2*	O2	CO	NOx	negative pressure flue gas	purge air press. gas lance
setpoint 1:				> 10											
setpoint 2:				> 10											
actual values:	mbar	mbar	mbar	$\mu A$	%	ppm	ppm	mbar	mbar	mbar	%	ppm	ppm	mbar	mbar
burner															
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# Burner setting and maintenance report

date:

- first commissioning
- maintenance (every 6 month)



burner type:   
 gas type:

order no. :   
 calorific value Hs:

BTU/SCF (ask plant operator)

## 1. setpoints capacities

flame:  BTU/hr

flameless:  BTU/hr

## 2. Check (dismantling) thickness spacer washer at primary air restrictor:

thickness:  inch (for Flameless capacity)

(see operation instructions ECOMAX LE)

gas pressure control system:  inch wc

blower air pressure:  inch wc

difference = gas pressure - air pressure  inch wc **has to be > 4.0 inch wc**

**Note:** The gas pressure of the gas pressure control system has to be 4.0 inch wc **higher** than the blower air pressure. Risk of explosion if the gas pressure is set too low!  
 If gas pressure of pressure control system < blower air pressure, purging air can flow into the gas pipe if the gas lance is blocked!

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setpoint 1:				> 10										negative pressure	purge air press. gas lance	
setpoint 2:				> 10										flue gas		
actual values:	inch wc	inch wc	inch wc	$\mu A$	%	ppm	ppm	inch wc	inch wc	inch wc	%	ppm	ppm	mbar	inch wc	
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setpoint 1:				> 10											
setpoint 2:				> 10											
actual values:	inch wc	inch wc	inch wc	$\mu A$	%	ppm	ppm	inch wc	inch wc	inch wc	%	ppm	ppm	mbar	inch wc
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