

Log wood  
+  
pellets



Benefit from the many years' experience  
of the leader on the combination boiler market!

**SOLARFOCUS** makes you independent

**thermi<sup>n</sup>ator<sup>II</sup> - Combi boiler**



# thermi<sup>nator</sup> II ● combi boiler ● outstanding

**YOUR COST BENEFIT:** All boilers are  
- the functionality of all components is tested - delivered

EcoStahl  
10  
Jahre  
Garantie-Pass

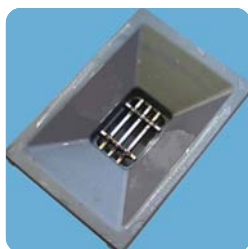
+  
Vollgarantie  
5  
Jahre  
Garantie-Pass

advanced technology



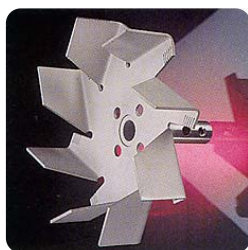
## (1) The lambda sensor:

As the **first user** of the lambda sensor in boiler engineering (since 1981) SOLARFOCUS has constantly extended its technological advance. It is only by siting the lambda sensor inside the combustion chamber (patented) that the best combustion values and especially a long service life of the lambda sensor can be achieved.



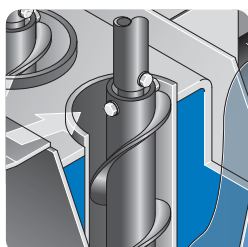
## (2) Hopper grate:

The patented, funnel-shaped chrome-plated steel grate provides the greatest heat volume at the smallest surface (lower losses).



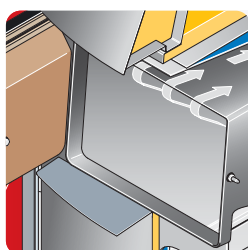
## (3) The ID fan:

The combustion air needed in the various areas is sucked in by the speed-controlled induced draft fan. It is controlled by the microprocessor which is built into the control system by the measuring values determined by the lambda sensor.



## (4) Heater exchanger cleaning:

Endless screws that operate in the “meat grinder principle”, clean the walls of the heat exchangers at set intervals. The endless screws are closely tangential to the heat exchangers and carry off any deposits to the ash chamber.



## (5) Carbonisation gas extraction:

The carbonisation gas extraction system guarantees that when you open the loading doors, that no smoke emerges, even while the system is heating. The extractor fan extracts the carbonisation gas directly to the flue.



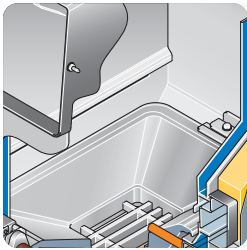
## (6) Automatic ignition:

The boiler is automatically ignited by a hot air fan at the times you set.  
Requirement: Request from heating circuit control system.

# Technology ● down to the smallest detail

are electrically installed at the factory

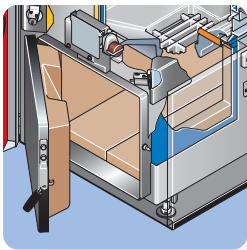
and delivered "ready for use" for easy and cost-effective fitting.



## (9) Stainless steel loading chamber:

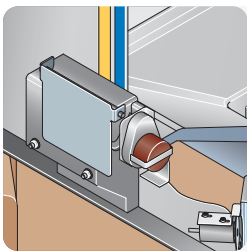
The cone-shaped stainless steel loading chamber (56 cm - maximum length), designed to take 1/2 meter long billet wood ensures long burning times in stock wood mode.

10-years guarantee on loading chamber.



## (10) Generous ash chamber:

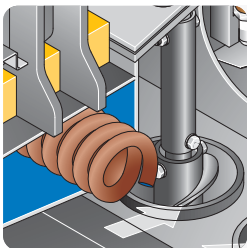
In the therminator II we have placed emphasis on designing a particularly generous ash chamber, in order to achieve longer emptying intervals.



## (14) Secondary air regulator with servo motor:

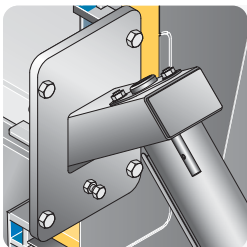
Air is fed in to the flame tips as required through the secondary air flap. This makes it possible to burn different biomass fuels while achieving excellent emissions values (especially when the operating conditions are modulated).

The air quantities are preset by the Lambda sensor.



## (15) Backup battery:

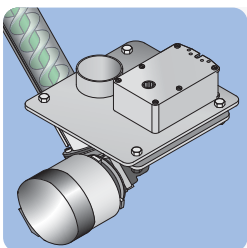
The task of the back-up battery is to prevent overheating in stock wood mode in the event of a power failure.



## (17) Flange for automatic loading:

Pellet flange optional left or right.

Also available with blind flange - so that you can switch later to pellet operation if you wish.



## (18) Pellet feeder screw:

The feeder screw automatically conveys the pellets to the boiler plate. Complete with motor and tested back-burn safety cut-out.



# Details to your advantage!

# ● Combi boiler ● technology for sustainable

Heating is fun - **Highly efficient**

## ● The technology and combustion principle of the **thermi<sup>nator</sup> II**

Metered combustion to fire a variety of solid fuels with unsurpassed combustion quality. The unique technology of the **thermi<sup>nator</sup> II** offers the option of loading the same loading chamber manually, or automatically.

The **thermi<sup>nator</sup> II** only reaches a fraction of the permitted emissions even in the partial load zone.

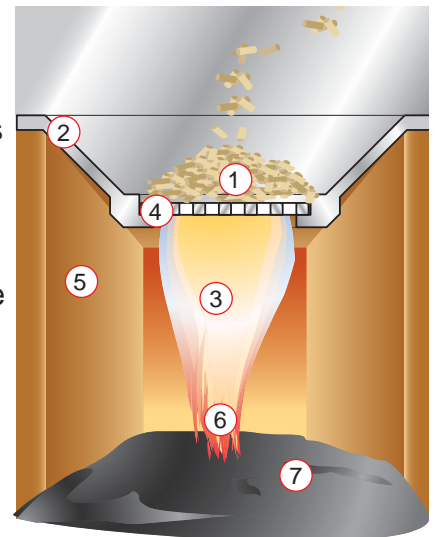
## ● Air flow

The lambda-controlled secondary air mixture makes it possible to achieve unsurpassed combustion quality with the highest efficiency ratios, even when burning idifferent biomass fuels (pellets, stock wood, residue wood,...)

## ● The down burn technique

The unique feature of down burning is that the burning flame points downwards. The fire bed (1) is not destroyed. The methane gas from the fuel used is released into the patented, hopper shaped chromium steel grate (2) (wood gasification) and the burning methane gas is sucked through the boiler plate by the speed-regulated ID fan.

Temperatures of up to 1,200 °C (6) are created in the combustion chamber. This ensures that the fuel is used up with no residues. The final residues of combustible items, in the ash (7) are also burned up.



## **YOUR benefits:**

- 1 The capacity and firing control optimises the burner fully automatically.
- 1 The down burn technology guarantees optimum Fuel utilisation - NO "campfire remains", NO moving parts in the combustion chamber, NO charred remains in the ashes.
- 1 Compact, space-saving construction.
- 1 Tested for both operating modes (stock wood + pellets)
- 1 25 years' experience of lambda sensor technology.
- 1 market leader in combi boilers!

● YOUR benefits



# Renewable fuels ● ONE combustion chamber

## Advanced wood gasification technology

Operating efficiency when using stock wood up to: **92,9%**

Operating efficiency when using pellets up to: **95,4%**

### **Heating is fun:**

25 years of experience in developing wood gasification boiler provide you with a perfect, advanced product.

### **Heating is fun:**

The unique construction of the therminator II makes it possible to heat pellets and stock wood in a single combustion chamber. The generously sized stainless steel loading chamber (with 10 year guarantee) is designed for 1/2 meter billet wood, and you do not need to give up the convenience of long combustion periods when using stock wood. Pellet operation is automatic.

### **Heating is fun:**

Perfect combustion thanks to downward burn technology, combined with the Lambda sensor and the electronically controlled suction fan. Maximum operating efficiency with minimum emissions, causing less strain on your wallet and on our environment.

### **Heating is fun:**

The large ash chamber means less time between emptying the ashes. Easy to service with the individually fitted, highly compressed refractory brick plates. No concrete core!

### **Heating is fun:**

The heat exchangers are cleaned cyclically and fully automatically (standard feature).

### **Heating is fun:**

The boiler is equipped with an automatic ignition system. This means that: ignition is automatic not just in automatic mode with pellets, but also if you load your boiler with suitable stock wood, ignition can be automatic at your preset time.

### **Heating is fun:**

The carbonisation gas extraction ensures that smoke does not emerge when you open the loading doors. The extractor fan extracts the carbonisation gas directly to the flue.

### **Heating is fun:**

Your boiler is regulated using the latest regulator and combustion designs, with very easy-to-use operating system.

# compact structure ● so easy to operate

## controlled, nothing wasted!

The **eco**manager provides individual adjusting options.

The control system is particularly important in providing your daily comfort. You determine when and how warm it will be.

It takes into account the changing outdoor temperatures as well as your personal living preferences.



THERMINATOR 2 vs.090 Di, 6.09.05  
Stückgut 13:26  
Rauchgastemperatur: 26.1 °C  
Kesseltemperatur: 26.1 °C  
Lambda: 7.40  
Kessel ausgeschaltet!

Solarkreis-Istwerte:

1  
Status : Pumpe aus  
Speichertemp.: 64.8 °C

Trinkwasserspeicher Istwerte  
64°  
Boilersolltemp.: 65 °C  
Hysteresetemp.: 10 °C  
akt. Freigabe: immer Ein  
Boilerpumpe: Aus

Heizkreis 1 Istwerte

23.4 °C  
Raumtemperatur: 21.0 °C  
Aussentemp.: 0.0 °C  
Vorlaufsolltemp.: 32.5 °C  
akt. Freigabe: Blockweise 2

Wärmemengenzähler-Istwerte:

Durchfluss: 200 l/h  
akt. Leistung: 3.2 kW  
Ertrag: 1062 kWh  
Sie haben ca. 216 kg  
46.3 Pellets eingespart  
32.1

### The **eco**manager controller:

- 1 full graphic display with background lighting
- 1 Very easy to operate:  
Just turn the knob to select menus and make settings
- 1 Clear graphic illustration of the system settings (system settings are graphically displayed).
- 1 Integrated solar control
- 1 Weather-controlled heating circuit regulation for 2 separate heating circuits. (can be expanded (option) to 4 or 6 heating circuits)
- 1 32 Bit processor
- 1 Fully digital combustion control
- 1 Remote monitoring and system control and system update via ISDN connection possible
- 1 Approx. 5 Watt power consumption in standby operation
- 1 Control panel can be fitted to boiler or in living area





Choose the system

## Pellets the fuel with future!

### What are pellets

- 1 Pellets are compressed pellets made from the natural chip residues from the wood working industry.
- 1 Pellets are compressed under high pressure in industrial units.
- 1 Pellets are made without glue or additives.
- 1 Pellets have a diameter of 6 mm and are 5 - 30 mm long.



### Pellet deliveries

- 1 Pellet deliveries are very straightforward. The pellets are blown into your storage container directly from the specially equipped tanker vehicles, through a hose system, in a completely odourless operation.
- 1 Hose lengths up to 30 meters.
- 1 Invoiced on actual weight of pellets supplied.
- 1 Calibrated on-board weighing system is standard.

### Specifications

- 1 Pellets have a bulk weight of 650 kg / m<sup>3</sup>
- 1 Water content: Maximum 10%
- 1 Dust proportion: After blow-in max. 10%
- 1 Ash proportion: Maximum 1%
- 1 Composition: 100% wood with max 15% bark content
- 1 Compression aid: 0 - maximum 1%

### Energy content of pellets - compared with oil

- 1 Pellets have an energy content of 4,9 kWh / kg
- 1 Guide value: 2 kg pellets replace 1 litre of fuel oil
- 1 Consumption: 4.000 - 5.000 kg pellets heat a single-family house (up to 150 m<sup>2</sup>).

### Important note: Only use pellets from certified manufacturers

You will find a certified pellet manufacturer near you. Ask your fitter or dealer. Only use certified pellets from known manufacturers, certified to ÖNORM 7135 or DINplus - this is the only way to achieve optimum heating values, and to protect your system.

ire

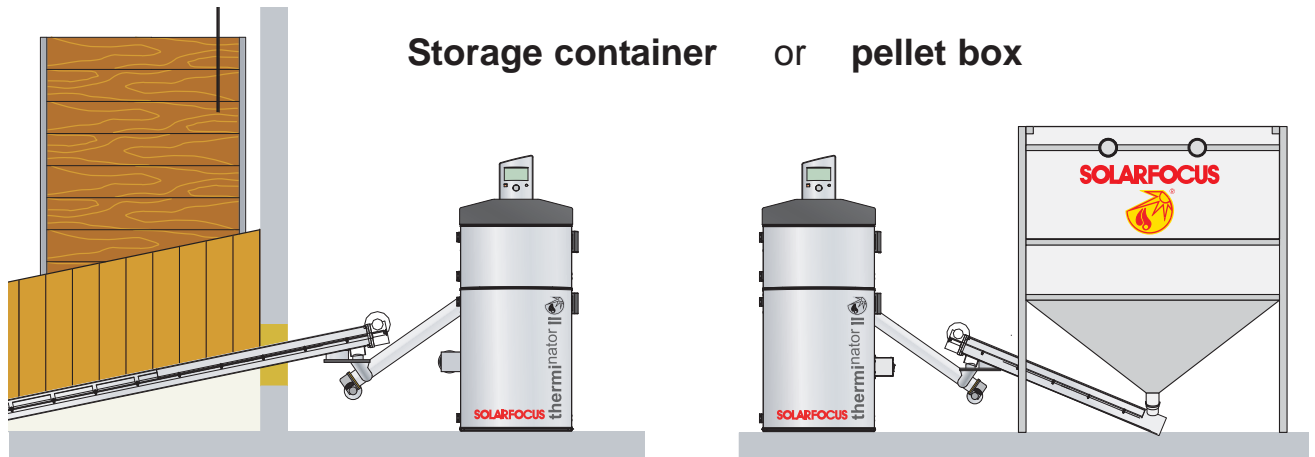


# 3 varieties of feeder

system to suit you!

## Pellet delivery conveyor worm to feed from your storage facility

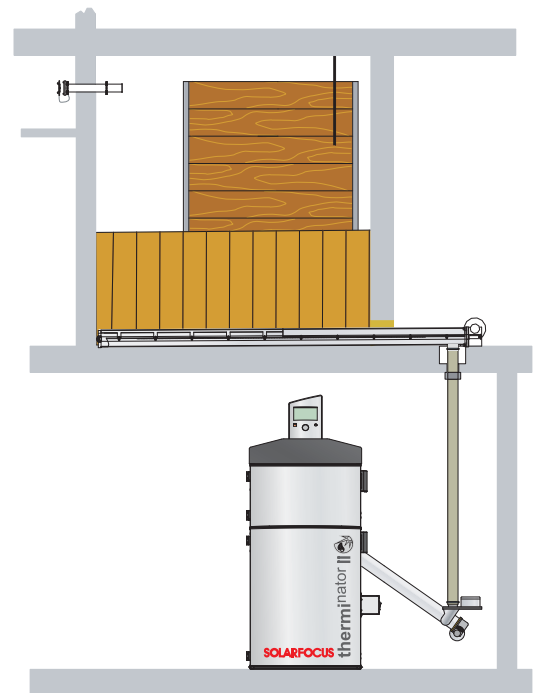
(Optional left or right)



## Pellet system with a down pipe system

Insert: Optional left or right.

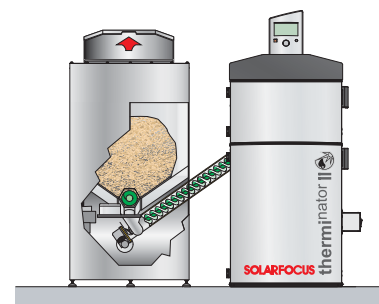
The boiler is fed automatically via the container feed and a down pipe system, from the storage area which is located above the heating chamber.



## Pellet storage container for manual loading

Storage container: Optional left or right.

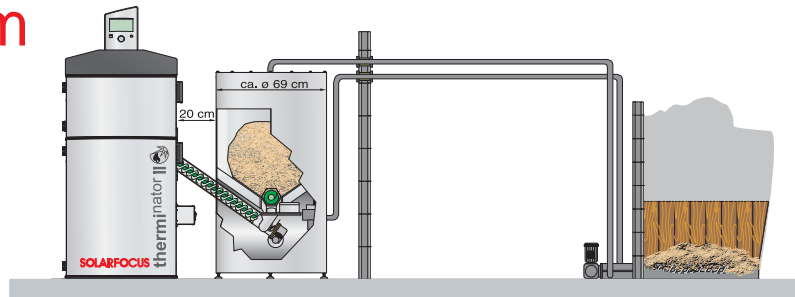
Used when stock wood is mainly used for heating.



**SOLARFOCUS** can be very helpful when you are

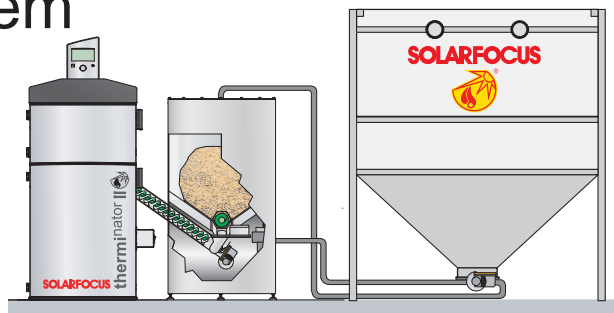
## Pellet worm conveyor for suction system

(Optional left or right)



## Pellet suction system with pellet box

(Optional left or right)



## Pellet box

The pellet box means that you can store pellets in your own cellar.

It is supplied by a suction system or a feeder system

### Advantages:

- 4 Variable container height for each room
- 4 Robust and durable

**Volume: from 3.500 l to 11.000 l**



## Ground tank

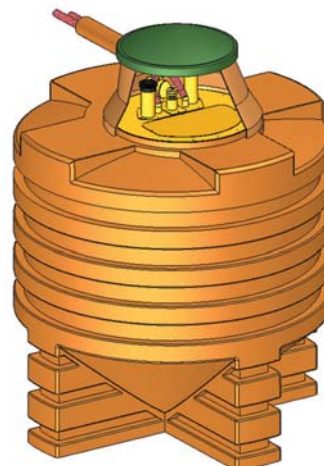
This solution makes it possible to store pellets outdoors (alongside the house).

### Advantages:

- 4 No dust, space saving
- 4 Conveyed by suction feed
- 4 Absolutely compatible and flexible
- 4 Robust and durable

**Volume: 8.000 l or 11.000 l**

Diameter: 2.350 cm  
Height: 2.400 cm or 3.200 cm



# varieties of feeder ● The planning service

## re planning and designing your system!

### Calculating the storage area volume\*:

With a floor at an 35° incline, the following formula applies:

$$V = (b \times (h - 0.5) - b^2 \times 0.15) \times l$$

b = storage chamber width

h = Height of storage area

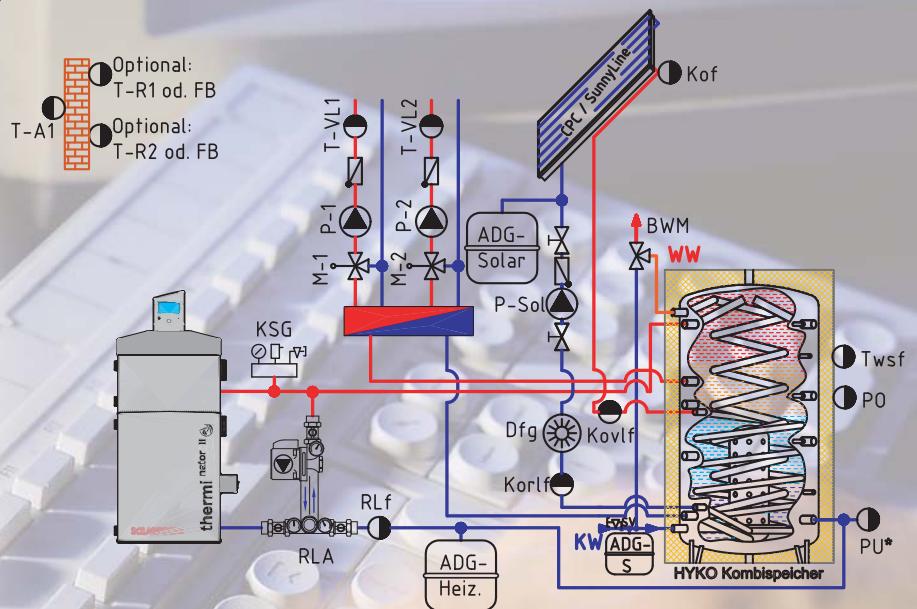
l = Length of storage area

V = Volume of storage area

\* You will find detailed information on planning your system in our planning guide

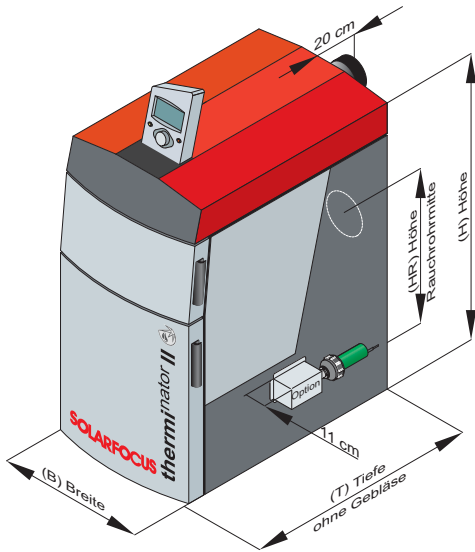
IMPORTANT NOTE: Please observe all local fire safety regulations

### We can provide a wide variety of hydraulic diagrams



# Technical data

# therminator II Combi boiler



Performance	[kW]	22	30	40	49	60
(D) Depth without blower	[cm]	102	102	130	152	152
(W) Width	[cm]	62	62	67	88	88
(H) Height	[cm]	130	130	140	145	145
DM flue tube	[cm]	13	13	15	20	20
(HS) Centre smoke flue height [cm]		78	78	85	90	90
Weight	[kg]	534	534	652	777	777
Water content	[l]	90	90	126	188	188
Loading chamber	[l]	145	145	186	290	290
Max length of wood	[cm]	56	56	56	66	66
Loading chamber cover	[cm]	37 x 27	37 x 27	42 x 27	56 x 27	56 x 27
Immersion sleeves for temp. sensors ["]		IG 1/2"	IG 1/2"	IG 1/2"	IG 1/2"	IG 1/2"
Evacuation	["]	AG 1/2"	AG 1/2"	AG 1/2"	AG 1/2"	AG 1/2"
KRL	["]	AG 1 1/4"	AG 1 1/4"	AG 1 1/4"	AG 6/4"	AG 6/4"
KVL	["]	AG 1 1/4"	AG 1 1/4"	AG 1 1/4"	AG 6/4"	AG 6/4"

# Technical report

# therminator II

Exhaust values in mg/m³ are referenced to 13% remaining oxygen

Data taken from test reports issued by the Federal Office of Agricultural Technology in Wieselburg.



	therminator II-22		therminator II 30		therminator II 40		therminator II 49		therminator II 60	
	Full load	Partial load	Full load	Partial load	Full load	Partial load	Full load	Partial load	Full load	Partial load
Operation	Automatic		Automatic		Automatic		Automatic		Automatic	
Performance [kW]	22,0	6,4	30,0	6,4	40,0	10,5	49,0	13,7	60,0	17,6
Boiler efficiency [%]	93,9	92,3	92,9	92,3	95,4	94,0	95,1	94,3	94,9	94,7
Water content [%]	6,7	6,7	6,7	6,7	5,2	5,2	5,6	5,6	5,6	5,6
CO <sub>2</sub> [%]	15,0	7,6	14,6	7,6	16,1	14,2	16,3	13,9	16,5	13,5
CO [mg/m³]	19,0	586,0	10,0	586,0	32,0	226,0	25,0	207,0	17,0	184,0
HC [mg/m³]	1,0	36,0	< 1,0	36,0	1,0	2,0	1,0	1,0	1,0	1,0
Dust proportion [mg/m³]	23,0	—	29,0	—	18,0	—	17,5	—	17,0	—
Draught requirement [Pa]	5	5	5	5	5	5	5	5	5	5
Mass flow of exhaust [g/s]	11,5	6,4	15,7	6,4	20,2	5,8	24,1	7,7	28,9	10,0
Exhaust temperature [°C]	127,5	77,1	147,2°C	77,1	108,5	63,4	114,0	68,0	120,7	73,4

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