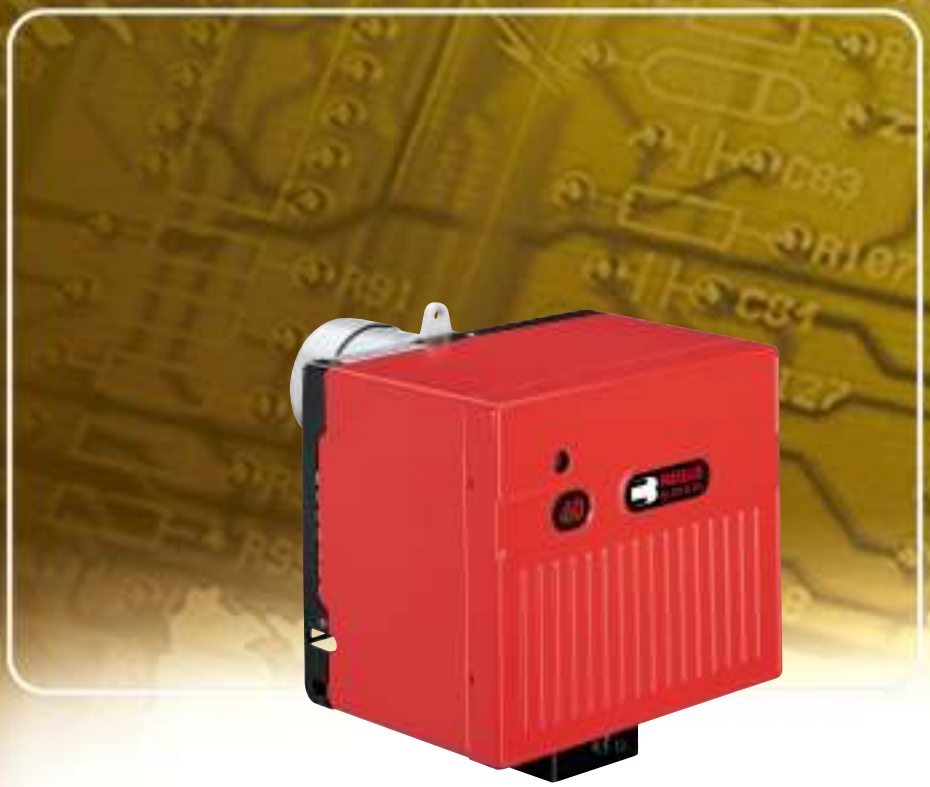
RIELLO BURNERS

CE

ONE STAGE HEAVY OIL BURNERS

RIELLO 40 N SERIES				
▸ **N10**	34	÷	102	kW
▸ **N20**	102	÷	217	kW



The Riello 40 N series of one stage heavy oil burners, is a range of products developed to respond to any request for home heating. The Riello 40 N series is available in two different models, with an output ranging from 34 to 217 kW, divided in two different structures. All the models use the same components designed by Riello for the Riello 40 N series. The high quality level guarantees safe working.
In developing these burners, special attention was paid to the ease of installation and adjustment, to obtaining the smallest size possible to fit into any sort of boiler available on the market.
All the models are conform to European Directives for EMC, Low Voltage and Machinery.
All the Riello 40 N burners are tested before leaving the factrory.

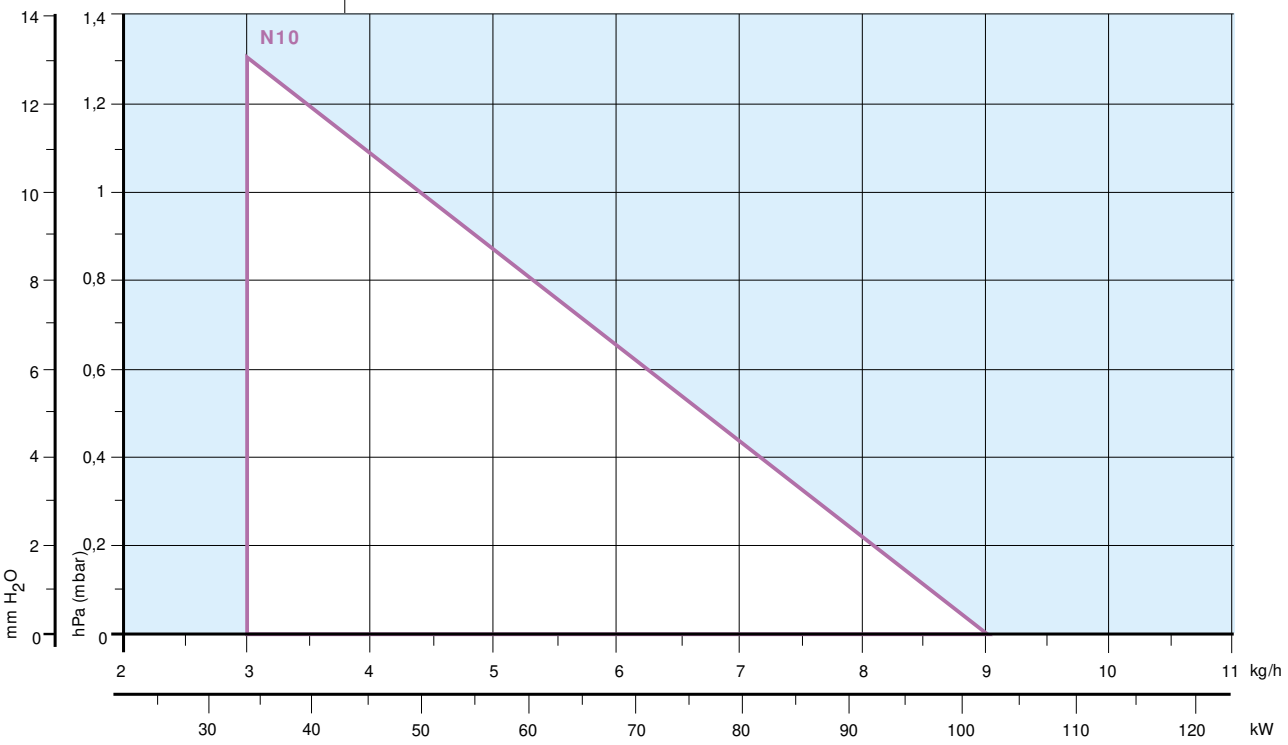
TECHNICAL DATA

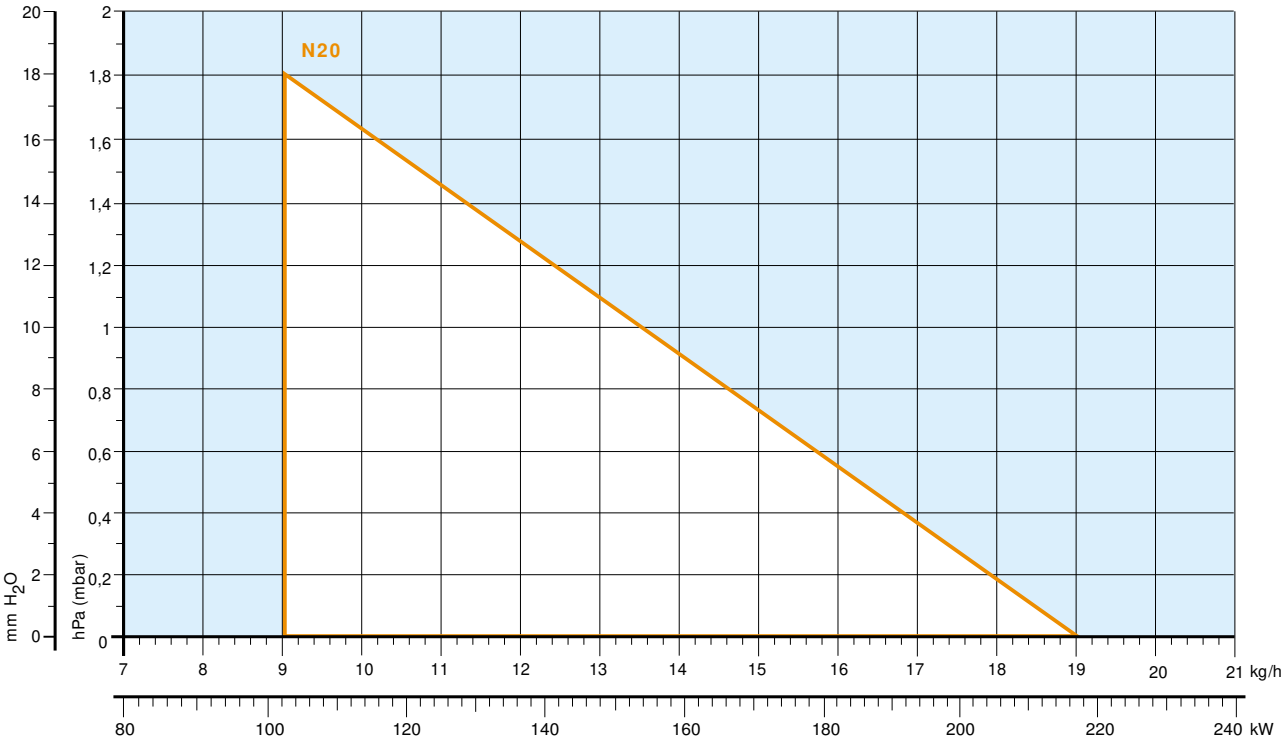
	Model		N10	N20
	Burner operation mode		One stage	
	Modulation ratio at max. output		--	
	Servo-motor type		--	
	Servo-motor run time	s	--	
	Heat output	kW	34 - 102	102 - 217
	Heat output	Mcal/h	29,4 - 88,2	88,2 - 186,2
	Heat output	kg/h	3 - 9	9 - 19
	Working temperature	°C min./max.	0/40	
Fuel / air data	Net calorific value	kWh/kg	11,4	
Fuel / air data	Net calorific value	kcal/kg	9800	
Fuel / air data	Viscosity	mm^2/s (cSt)	25 - 50 (at 50°C)	
Fuel / air data	Pump type		SUNTEC	
Fuel / air data	Pump delivery	kg/h	45 (at 20 bar)	
Fuel / air data	Atomised pressure	bar	16-28	
Fuel / air data	Fuel temperature	max. °C	50	
Fuel / air data	Fuel pre-heater		NO	
Fuel / air data	Fan	type	centrifugal with forward curve blades	
Fuel / air data	Air temperature	max. °C	40	
Electrical data	Electrical supply	Ph/Hz/V	1/50/230±10%	
Electrical data	Auxiliary electrical supply	Ph/Hz/V	--	
Electrical data	Control box	type	LANDIS LOA 22	
Electrical data	Total electrical power	kW	1,1	1,8
Electrical data	Auxiliary electrical power	kW	--	
Electrical data	Heaters electrical power	kW	--	
Electrical data	Protection level	IP	40	
Electrical data	Pump motor electrical power	kW	--	
Electrical data	Rated pump motor current	A	--	
Electrical data	Pump motor start up current	A	--	
Electrical data	Pump motor protection level	IP	--	
Electrical data	Fan motor electrical power	kW	0,14	0,30
Electrical data	Rated fan motor current	A	0,85	1,5
Electrical data	Fan motor start up current	A	3,5	6
Electrical data	Fan motor protection level	IP	20	
Electrical data	Ignition transformer	type	Incorporated in the control box	
Electrical data	Ignition transformer	V1-V2	5 kV	
Electrical data	Ignition transformer	I1-I2	30 mA	
Electrical data	Operation		intermittent (at least one stop every 24h)	
Emissions	Sound pressure	dB(A)	65	74
Emissions	Sound power	W	--	
Emissions	CO emission	mg/kWh	<60	
Emissions	Grade of smoke indicator	N° Bach.	4 - 6	
Emissions	C_xH_y Emissions	mg/kWh	<10 (after the first 20s)	
Emissions	NOx Emissions	mg/kWh	<600	
Approval	Directive		89/336/EEC, 73/23/EEC, 89/392/EEC	
Approval	Conforming to		--	
Approval	Certification		--	

Reference conditions:
Temperature: 20 °C
Pressure: 1013.5 mbar
Altitude: 100 m a.s.l.
Noise measured at a distance of 1 meter.

Since the Company is constantly engaged in the production improvement, the aesthetic and dimensional features, the technical data, the equipment and the accessories can be changed.

FIRING RATES





Useful working field for choosing the burner

Test conditions:
Temperature: 20°C
Pressure: 1013.5 mbar
Altitude: 100 m a.s.l.

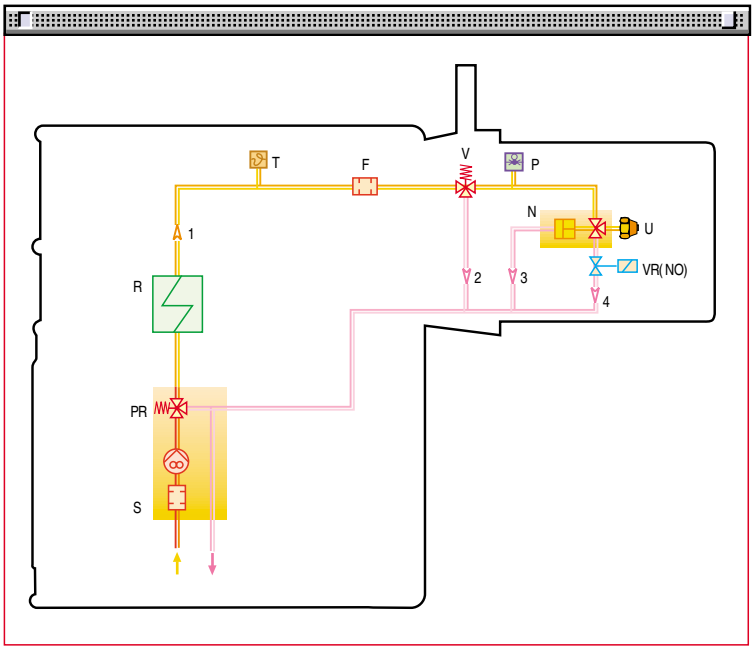
FUEL SUPPLY

HYDRAULIC CIRCUIT

All the burners have a Suntec geared pump with safety valve on the return circuit.

Fuel pump

N10 - N20



S	Pump with filter and pressure regulator on the delivery pipe
PR	Pressure oil regulator
R	Pre-heater
T	Thermostat
F	Filter
V	Degassing valve
P	Pressure gauge
N	Nozzle holder
U	Nozzle
VR(NO)	Oil return valve (usually open) on the delivery pipe
1	Oil input pipe to the nozzle
2	Oil return pipe from the degassing valve
3	Oil return pipe from the nozzle holder
4	Oil return pipe during pre-washing

Fuel feed to the burner can be from the right or the left side on all models.

HEAVY OIL PRE-HEATER

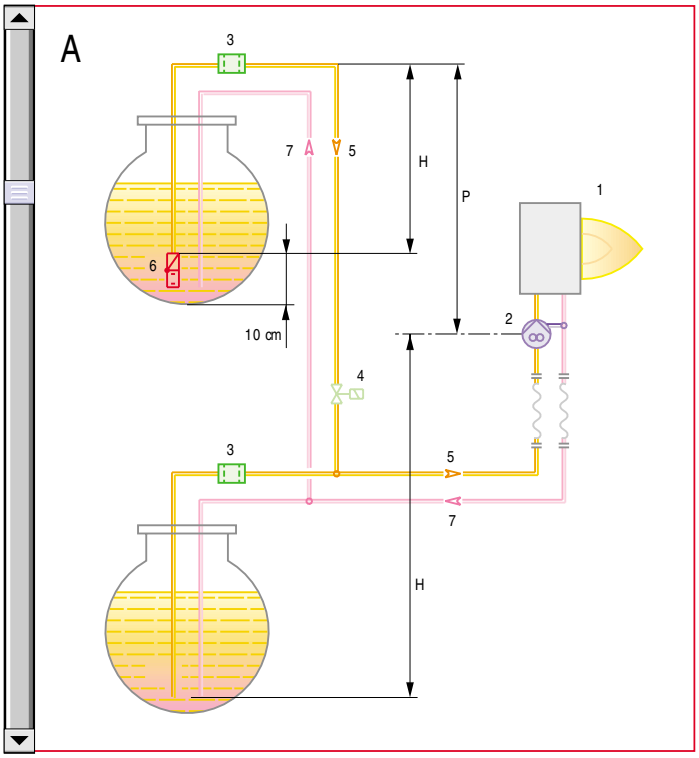
This burner series is provided with a electrical oil pre-heater included in the burner housing constantly on.

SELECTING THE FUEL SUPPLY LINES

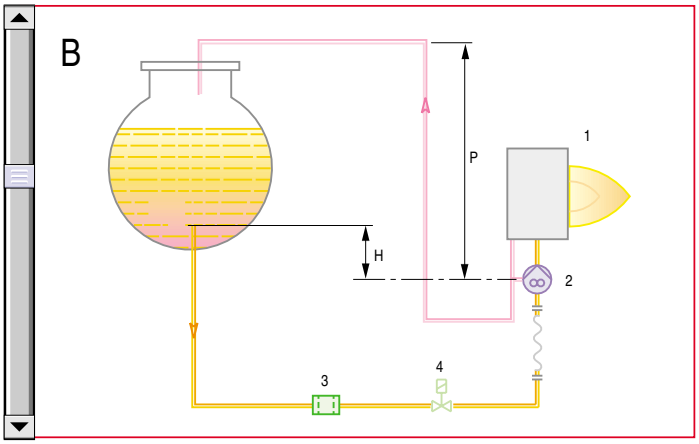
The fuel feed must be completed with the safety devices required by the local regulations in force.

The table shows the choice of piping diameter for the various burners, depending on the difference in the height between the burner and the tank and the distance between them.

MAXIMUM EQUIVALENT LENGTH OF THE PIPEWORK L[m]				
	Type A system		Type B system	
Pipe size	Ø 1 1/4"	Ø 1 1/2"	Ø 3/4"	Ø 1"
H (m)	Lmax (m)	Lmax (m)	Lmax (m)	Lmax (m)
0	22	45	10	20
0,5	19	39	14	26
1,0	16	33	18	32
1,5	13	27	22	38
2,0	10	21	26	44
2,5	7	15	-	-
3	0	8	-	-



Type of system that can be installed



H	Difference in height
Ø	Internal pipe diameter
P	Difference in height ≤ 10 m
1	Burner
2	Pump
3	Filter
4	Shut-off solenoid valve
5	Suction pipework
6	Bottom valve
7	Return pipework

VENTILATION

The ventilation circuits always ensure low noise levels with high performance of pressure and air delivery, inspite of their compact size.

Air suction

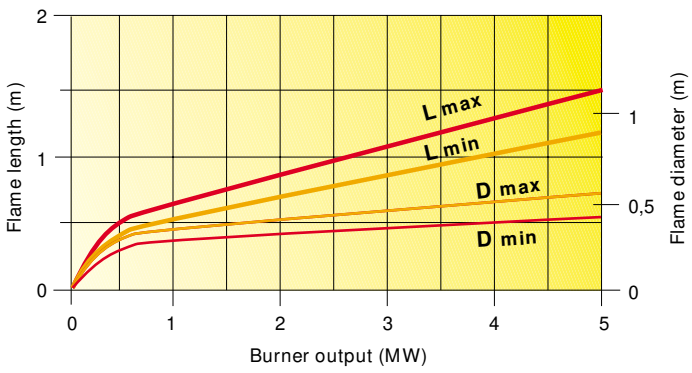
COMBUSTION HEAD

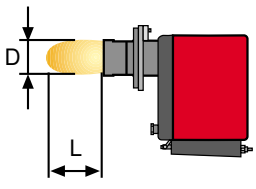
Simple adjustment to the combustion head allows adapting internal geometry of the head to the maximum rated output of the burner.

The following diagram shows the flame dimensions in relation to the burner output. The lenght and diameter shown in the diagram below should be employed for a preliminary check: it is required a more careful investigation if combustion chamber dimensions are much different from the above reported values.

Combustion head

Dimensions of the flame





Example:
Burner thermal output = 350 kW;
L_{flame} (m) = 1,2 m (medium value);
D_{flame} (m) = 0,6 m (medium value)

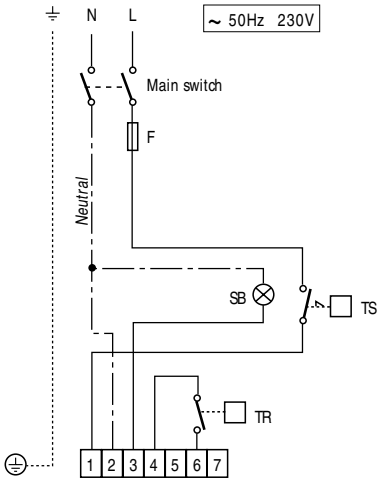
WIRING DIAGRAMS

Electrical connections must be made by qualified and skilled personnel, in conformity with the local regulations in force.

Control box and separated ignition transformer

"ONE STAGE" OPERATION

N10 - N20



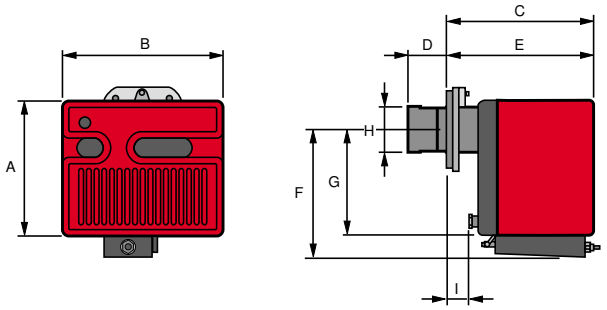
TR - Regulating thermostat
TS - Safety thermostat (with manual resetting)
SB - Remote lock-out lamp (230V 0,5A max)
F - Fuse

The following table shows the supply lead sections and types of fuse to be used.

Model	N10	N20
	230V	230V
F A	6	T6
L mm^2	1	1

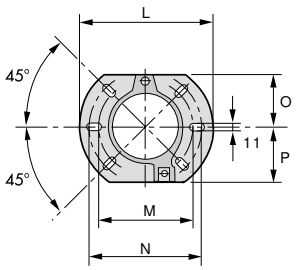
OVERALL DIMENSIONS (mm)

BURNER



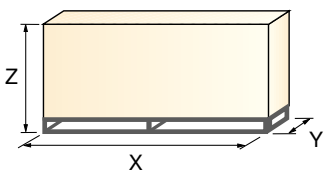
Model	A	B	C	D	E	F	G	H	I
N10	262	305	275	108	261	258	204	105	25
N20	298	350	-	118	295	280	230	125	35

BURNER - BOILER MOUNTING FLANGE



Model	L	M	N	O	P
N10	189	140	170	83	83
N20	213	160	190	99	99

PACKAGING



Model	X	Y	Z	kg
N10	395	307	375	26
N20	425	352	410	29