

High Efficiency & Superior Performance

# SUNRAY

日本轉杯式重油 / 柴油燃燒機



ROTARY OIL BURNER

## SUNRAY RBS 轉杯式燃燒機

為有效利用能源，SUNRAY 已有超過 50 年之經驗致力於製造燃燒設備。由於這些經驗，SUNRAY 成功發展出高效率的燃燒設備。RBS 型轉杯式燃燒機，可符合低污染環保要求並適用蒸汽鍋爐、焚化爐及熱風爐燃燒各種燃料油，藉由高速旋轉的霧化杯獲致良好霧化效果。

### RBS 型轉杯式燃燒機之特性

#### 1. 燃燒調節比率範圍大

燃燒調節範圍可得 1:4 至 1:10 適用高、低負荷頻繁變化之蒸汽鍋爐或其它設備。

#### 2. 精簡的設計及優越的噴霧性能

具有高速回轉及高效率的霧化空氣輪葉扇，不但燃燒機體積及耗電量小，而且燃油及空氣混合良好，促成完全燃燒，即使爐內壓高達 150mmAq 亦不必昇壓。

#### 3. 可適用高黏度燃料油

可適用低劣質且黏度高之燃料油 (Redwood NO.1 250-300 秒)

#### 4. 燃燒室容積縮小

能承受高火爐熱負荷，有利於設計狹小之燃燒室。

#### 5. 低過剩空氣率可低減熱能損失

藉由保焰板來促使燃料油與空氣充分混合，以保持低過剩空氣率減少熱損失。

## SUNRAY RBS ROTARY OIL BURNERS

TO UTILIZE EFFICIENTLY ENERGY RESOURCES, SUNRAY HAS MORE THAN FIFTY YEARS OF EXPERIENCE IN MANUFACTURING THE COMBUSTION EQUIPMENT. WITH THESE EXPERIENCES SUNRAY SUCCEEDED IN DEVELOPING THE HIGH EFFICIENCY OIL BURNERS. RBS- TYPE ROTARY OIL BURNERS HAVE BEEN UPGRADED TO MEET THE ENVIRONMENTAL DEMAND FOR LOW POLLUTION. AND THE SYSTEMS ARE SUITABLE FOR FIRING ALL LIQUID FUEL OIL ON STEAM BOILERS, INCINERATORS AND HOT AIR GENERATORS APPLICATIONS. AND IT CAN BE ACHIEVED MUCH FINE ATOMIZATION BY HIGH-SPEED REVOLUTION OF THE ATOMIZING CUP.

### FEATURES OF THE "RBS" BURNERS

#### 1. WIDE TURN-DOWN RATIO

HAVING A WIDE TURN DOWN RATIO RANGING 1:4 TO 1:10 THE SUNRAY RBS SERIES BURNERS ALWAYS OFFERS CONTINUOUS AND LINEAR CONTROL OF FUEL WITHOUT INTERRUPTION OF ON-OFF OPERATION EVEN AT LOW BOILER LOAD.

#### 2. COMPACT DESIGN & FINE ATOMIZATION

DUING TO HIGH-SPEED REVOLUTION AND HIGH EFFICIENCY OF THE PRIMARY AIR FAN, THE BURNER IS DESIGNED SMALLER IN DIMENSION AND LESS IN ELECTRIC CONSUMPTION, AND HIGH PRIMARY AIR PRESSURE ASSURES STABLE COMBUSTION THROUGH FINE ATOMIZATION AND PROPER MIXTURE OF FUEL MIST AND AIR. NO RAISING PRESSURE OF THE PRIMARY AIR IS REQUIRED FOR FURNACE PRESSURE UP TO 150 MMAQ.

#### 3. LOW GRADE FUEL OIL APPLICABLE

IT IS POSSIBLE TO USE LOW-GRADE FUEL OIL WITH HIGH VISCOSITY. (REDWOOD NO. 1 250-300secs)

#### 4. SMALL COMBUSTION CHAMBER

HIGHLY LOADED COMBUSTION GIVES ADVANTAGE OF DESIGNING COMBUSTION CHAMBER SMALLER.

#### 5. LOW EXCESS AIR RATIO

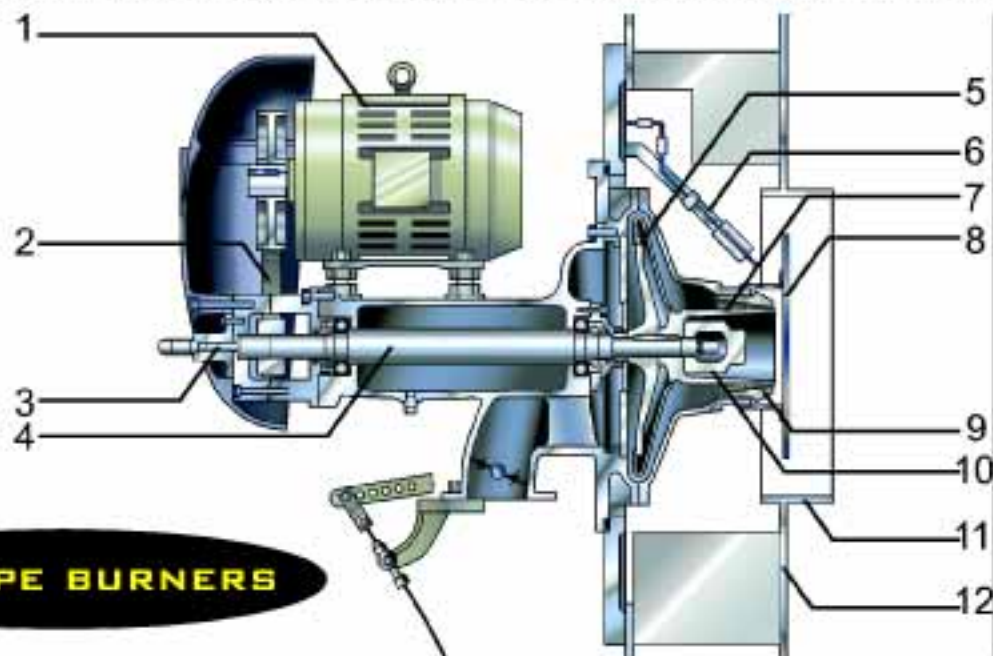
GOOD MIXTURE OF FUEL OIL WITH AIR IS ASSURED BY BAFFLE PLATE AND LOW EXCESS AIR RATIO IS KEPT FOR REDUCING HEATING LOSS IN BOILER.

## SUNRAY RBS 型轉杯式燃燒機之構造

燃料油由注油管(3)直接注入高速迴轉之霧化杯(7)，形成薄膜狀，藉由離心力噴出，經由一次高壓空氣霧化為霧狀。一次空氣由裝於主軸(4)上高性能輪葉風扇(5)來提供，其部份之空氣被導入霧化杯(7)內，以防止杯內成為負壓。燃燒空氣由強制送風機導入風箱(12)經由焚口環(11)週邊，以必要速度與微粒化油霧混合後開始燃燒。燃燒機點火時因點火裝置噴出之瓦斯火焰非常接近霧化杯，可迅速且容易點燃微粒化油霧。燃料除燃料油(相當於 ASTM NO.6 重油)，鍋爐油(相當於 ASTM NO.5 重油)，柴油(相當於 ASTM NO.2 輕油)外，粗劣油皆可燃燒，其黏度在 Redwood No.1 250-300 秒(相當 62-74 Centistokes (Cst))均可使用。

### CONSTRUCTION OF THE RBS ROTARY BURNERS

FUEL OIL IS SUPPLIED THROUGH THE OIL FEEDING TUBE (3) TO THE ATOMIZING CUP (7) DIRECTLY, AND THIN OIL FILM FORMING ON INNER SURFACE OF THE CUP IS SPOUTED OFF THE CUP EDGE BY CENTRIFUGAL FORCE THEN ATOMIZED BY THE STREAM OF PRIMARY AIR, WHICH ENTERS UNDER HIGH PRESSURE AND WITH VIOLENT WHIRLING MOTION. THE PRIMARY AIR IS SUPPLIED BY THE HEAVY-DUTY FAN IMPELLER (5) LOCATED ON THE BURNER SHAFT (4). MOST OF COMBUSTION AIR IS SUPPLIED TO THE FLAME AT THE REQUIRED SPEED THROUGH AN AIRPORT RING (11). AT THE SAME TIME A STREAM OF AIR IS CONVEYED TO THE CORE OF THE FLAME THROUGH THE ATOMIZING CUP (7). THE PILOT FLAME FOR STARTING THE BURNER IS VERY CLOSE TO THE ATOMIZING CUP AND IMMEDIATELY IGNITES THE OIL MIST WITHOUT CAUSING DETONATION. ALL TYPES OF FUEL (A, B, C GRADE HEAVY OIL AND TAR) CAN BE USED. THE OIL IS SUPPLIED TO THE BURNER AT A VISCOSITY FROM 250 TO 300 SECONDS REDWOOD No.1.(CORRESPOND TO 62-74 CST)



1 馬達	MOTOR	5 風扇	FAN IMPELLER	9 空氣噴嘴	AIR NOZZLE
2 平皮帶	FLAT BELT	6 瓦斯噴嘴	GAS NOZZLE	10 吐出口	CUP NUT
3 注油管	OIL FEEDING TUBE	7 霧化杯	ATOMIZING CUP	11 焚口環	AIR PORTRING
4 主軸	MAIN SHAFT	8 保優板	BAFFLE PLATE	12 風箱	WIND BOX

# RBS 燃燒機容量規格

## CAPACITIES OF RBS BURNER

燃燒機型式 BURNER TYPE		RBS-1	RBS-2.5	RBS-4	RBS-6.5	RBS-10	RB-16
相當蒸發量 E. EVAPORATION	KG/H	1700	3860	6180	10000	17500	24700
發熱量 HEATING CAPACITY	10 <sup>3</sup> KCAL/H	1078	2450	3920	6468	11150	15680
最大出力 Max. OUTPUT	KW	1253	2849	4558	7521	12965	18233
最大噴油量 MAX. BURNER RATING	L/H	120	270	430	710	1250	1950
最小噴油量 MIN. BURNER RATING	L/H	30	50	70	100	150	200
燃燒範圍比 TURN DOWN RATIO		1:4	1:5	1:6	1:7	1:8	1:10
風箱與爐內壓力差 PRESS. DIFFERENTIAL BETWEEN WIND BOX & FURNACE	mmAq	170	140	155	170	190	260
燃燒機馬達出力 BURNER MOTOR OUTPUT	KW	0.75	1.5	2.2	3.7	5.5	7.5
燃油泵浦馬達出力 GEAR P.P. MOTOR OUTPUT	KW	0.2	0.4	0.4	0.75	0.75	1.5
燃料種類 FUEL	柴油 DIESEL 或重油 HEAVY OIL						
燃料黏度 FUEL VISCOSITY	RED WOOD No.1, 250-300 SEC.						

上列規格僅供參考如有變更不另通知

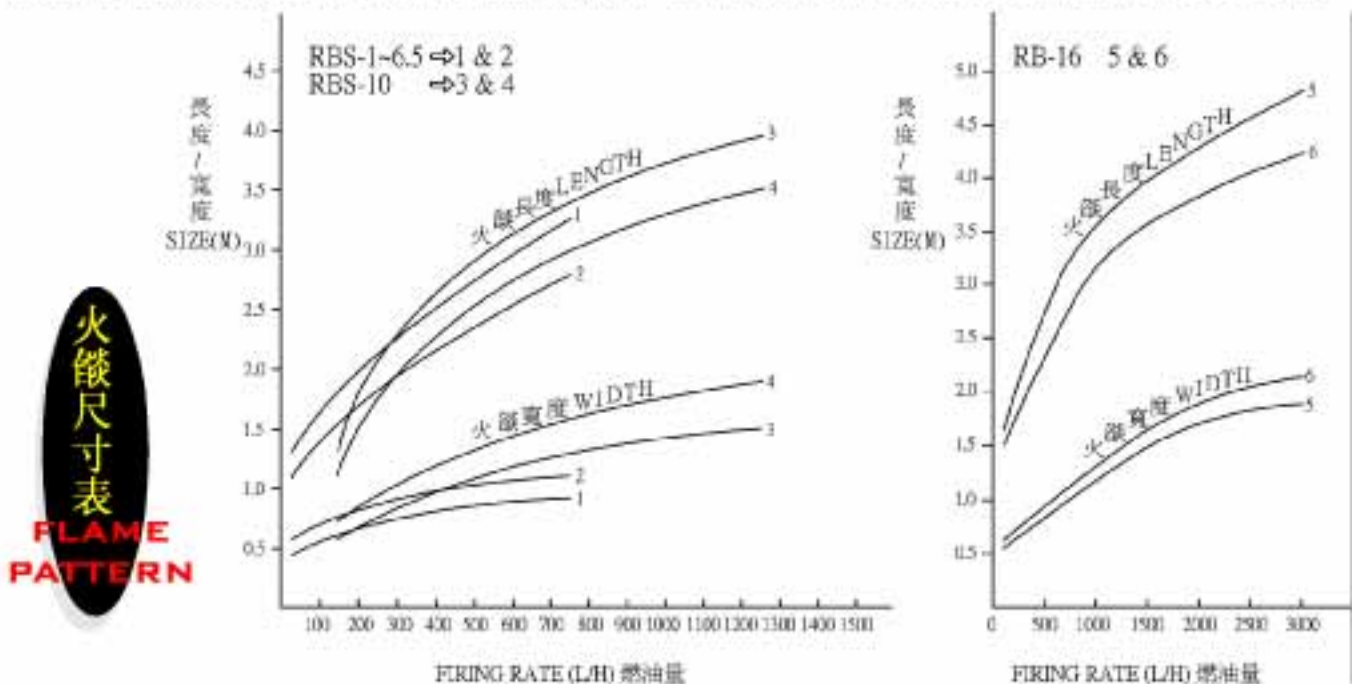
送風機出力基於海平面起至標高 800 公尺為準。標高超過 800 公尺，請與本公司洽商。

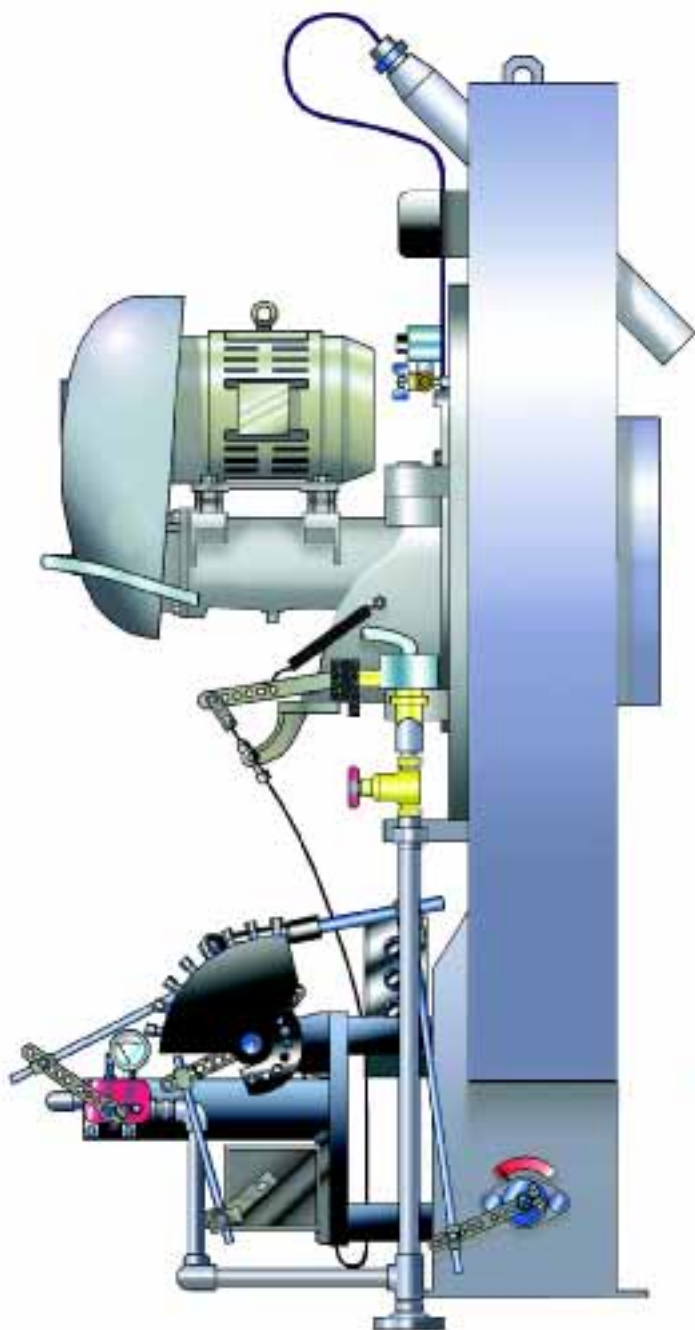
燃油量以重油(相當於ASTM NO.6 OIL)為計算基準。

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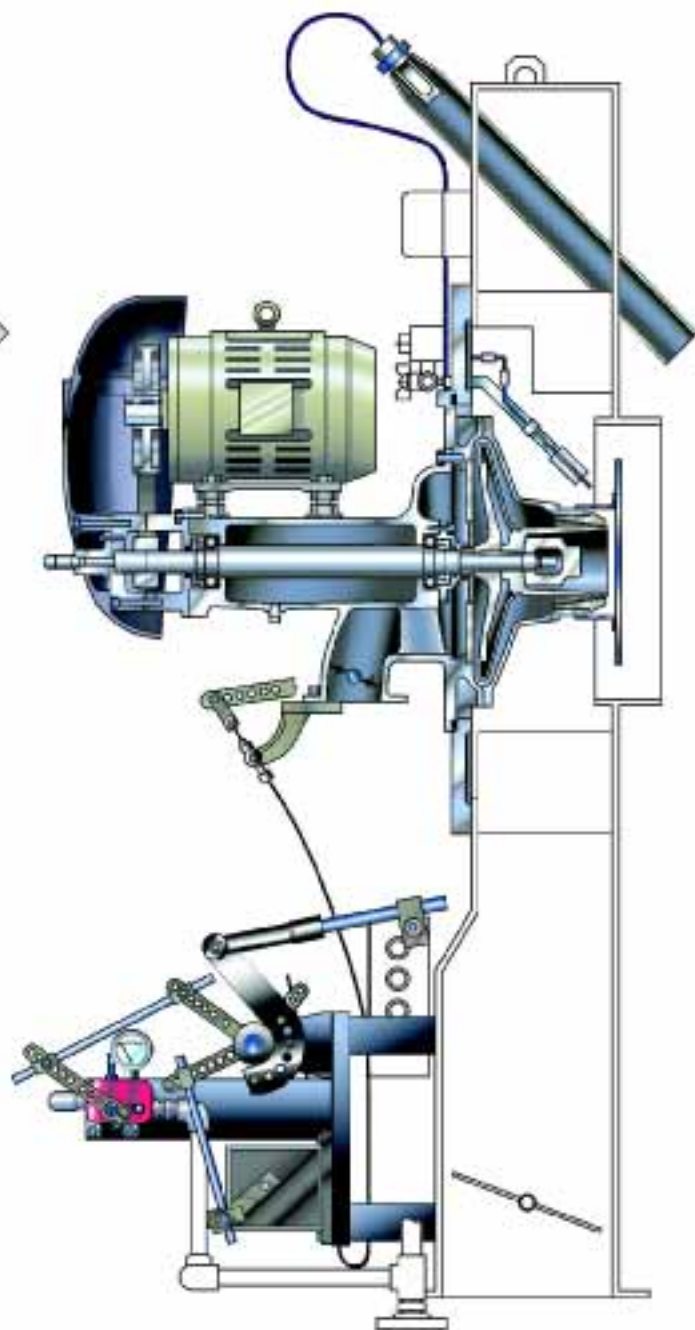
THE OUTPUT OF F.D.FAN IS BASED ON ALTITUDES UP TO 800 M. ABOVE SEA LEVEL. FOR HIGHER ALTITUDES, PLEASE CONSULT WITH OUR COMPANY.

ABOVE FIRING RATES BASED ON HEAVY OIL (CORRESPOND TO ASTM NO.6 OIL)





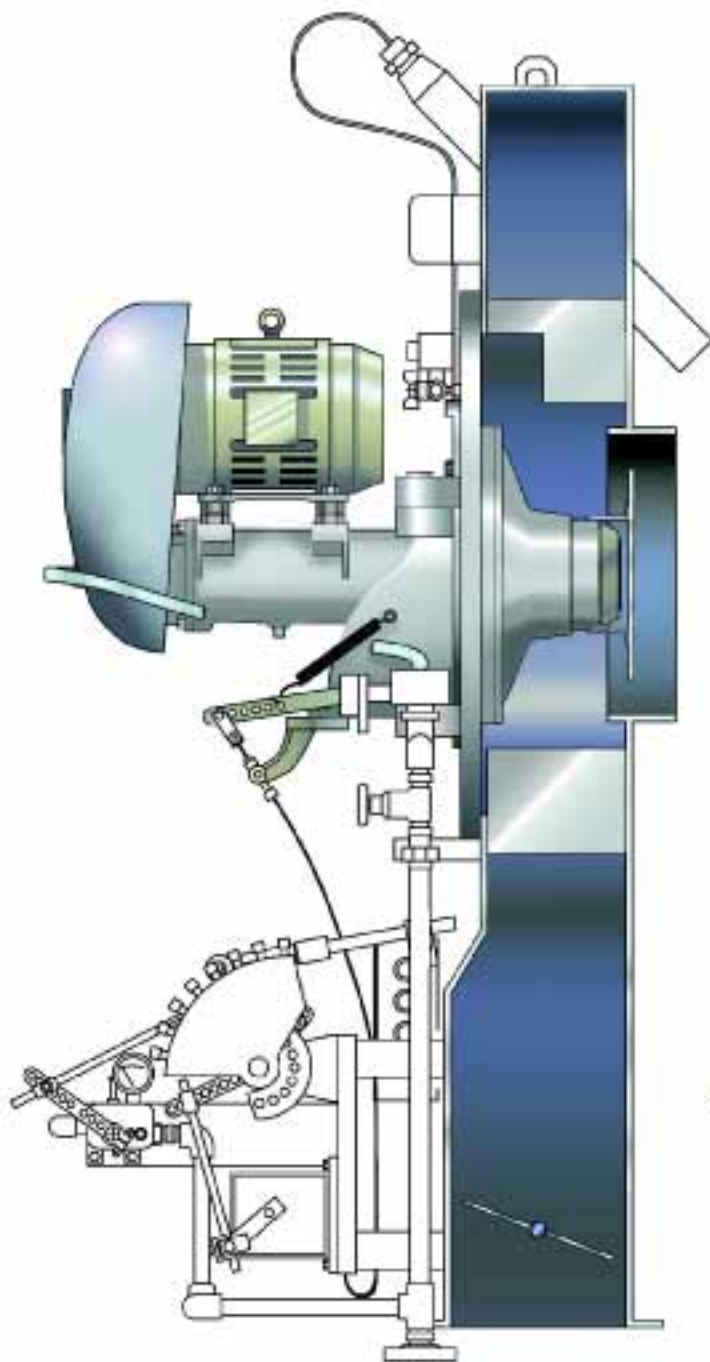
側立圖  
SIDE VIEW



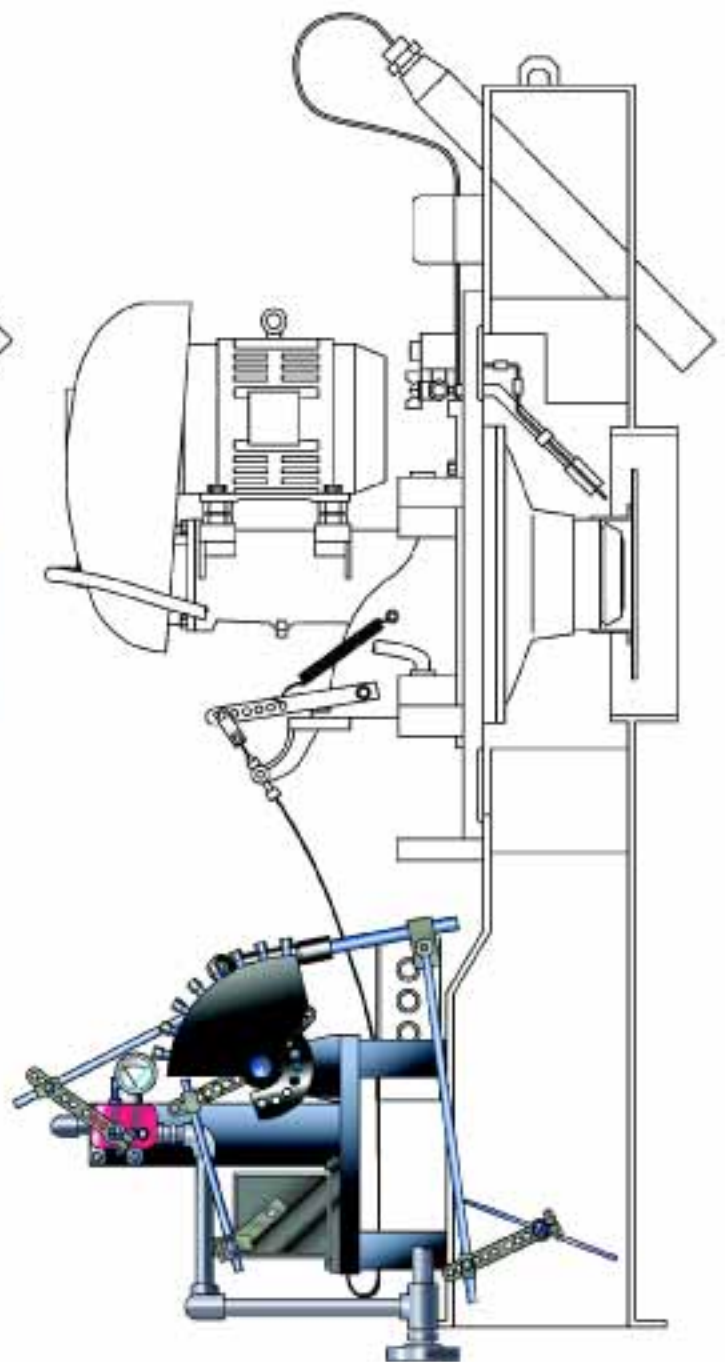
剖面圖  
SECTION VIEW

SUNRAY RBS 型燃燒機及相關配套組件，在設計上改善傳統轉杯式燃燒機之繁雜構造，力求精簡化，以便操作簡單、保養方便，且配合全自動比例控制，促使燃燒調節範圍大及高效率燃燒運轉。

SUNRAY RBS-TYPE BURNER WITH ITS RELATED ACCESSORIES HAVE COMPACT DESIGN FOR IMPROVING COMPLEX STRUCTURE ON TRADITIONAL ROTARY CUP OIL BURNERS SO THAT THE BURNERS CAN EASILY BE OPERATED AND MAINTAINED. FULLY AUTOMATIC MODULATING CONTROLS AND ALL NECESSARY SAFETY CONTROLS ARE HOUSED IN A CONTROL PANEL THAT HAVE A WIDE RANGE OF TURN-DOWN RATIO AND HIGH EFFICIENCY OPERATION.



風箱圖  
WIND BOX

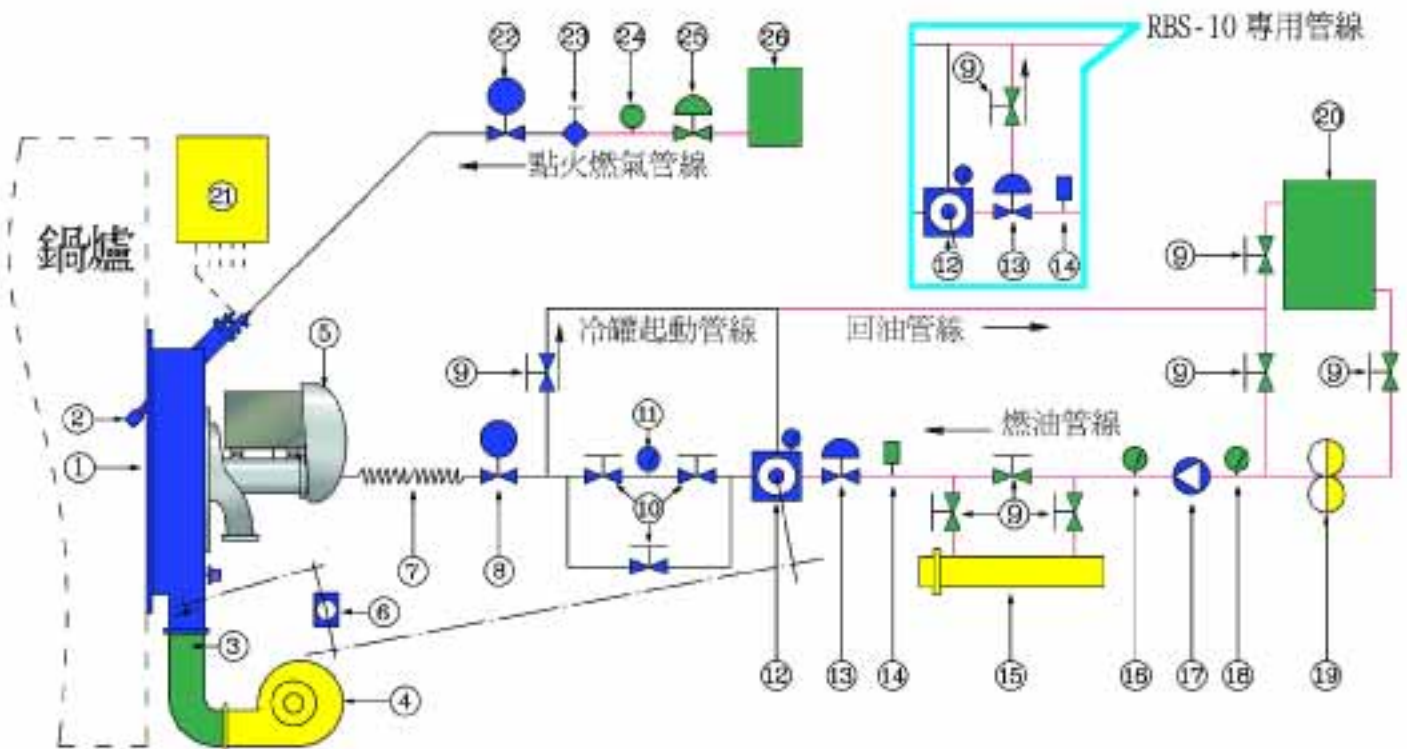


空燃比連桿裝置  
FUEL/AIR LINKAGE DEVICE

SUNRAY 所設計之空燃比連桿裝置，設有微調凸輪供比例控制，且能夠在任何燃燒位置點微調風箱內風門開度，以便燃燒空氣，流經風箱內多孔板、導流片，均勻通過精算之焚口環而導入爐內，促使空氣與燃油混合良好，穩定火燄燃燒，提昇燃燒效率。

SUNRAY'S FUEL/AIR LINKAGE CONTROL DEVICES ARE FITTED WITH A CAM TRIM FOR MODULATING CONTROL. IT CAN MODULATE THE DAMPER OPENING IN WIND BOX AT ANY COMBUSTION POSITION ENSURING THE COMBUSTION AIR DISTRIBUTION INTO WIND BOX THROUGH PUNCHING PLATE, GUIDE VANE & AIR PORT RING FOR MAKING A GOOD MIXTURE OF AIR WITH FUEL AND ASSURING STABLE COMBUSTION AND INCREASING COMBUSTION EFFICIENCY.

# 標準流程圖 FLOW CHART FOR RBS-2.5~10 OIL BURNER



備註 REMARK:

     SUNRAY 提供配件 SUPPLIED BY SUNRAY

     宏曠公司提供配件 SUPPLIED BY HONESTY

     業主提供配件 SUPPLIED BY OWNER

SUNRAY 安裝配管 SUPPLIED BY SUNRAY

現場安裝配管 INSTALLED BY OWNER

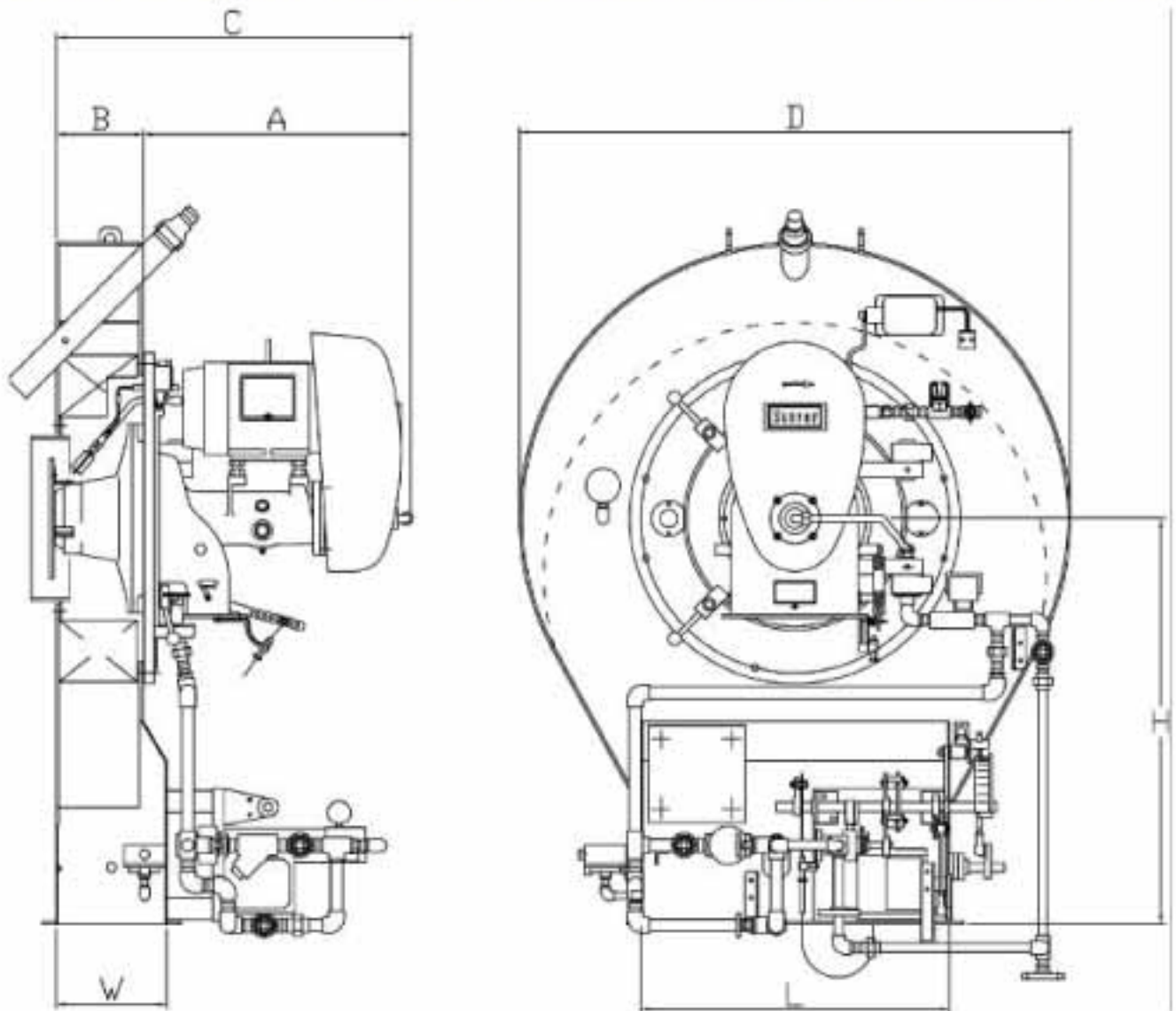
**註:使用柴油當燃料時,需使用2個燃油電磁閥(8),而不需燃油預熱器(15)及保溫線(7)**  
**FOR USE OF DIESEL, NO OIL PREHEATER (15) AND AUTO TRANCING HEATER (7) ARE REQUIRED, BUT TWO PIECES OF OIL SOLENOID VALVE (8) MUST BE MOUNTED IN SERIES.**

1	風箱	WIND BOX
2	瓦斯噴嘴	GAS NOZZLE
3	風管	AIR DUCT
4	送風機	F.D.FAN
5	燃油燃燒機	OIL BURNER
6	伺服馬達	CONTROL MOTOR
7	保溫線	AUTO-TRANCING HEATER
8	燃油電磁閥	OIL SOLENOID VALVE
9	手動閥	STOP VALVE
10	手動閥	STOP VALVE
11	流量表	OIL FLOW METER
12	油量調節閥	OIL REGULATING VALVE
13	減壓閥	OIL PREBBURE REGULATOR

14	溫度表	THERMOMETER
15	燃油預熱器	OIL PREHEATER
16	壓力表	PRESSURE GAUGE
17	燃油泵	OIL FEEDING PUMP
18	真空表	VACUUM GAUGE
19	燃油過濾器	OIL STRAINER
20	日用油櫃	OIL SERVICE TANK
21	控制箱	CONTROL PANEL
22	瓦斯電磁閥	GAS SOLENOID VALVE
23	瓦斯栓	GAS COCK
24	瓦斯壓力表	GAS PRESSURE GAUGE
25	瓦斯減壓閥	GAS PRESSURE REGULATOR
26	瓦斯桶	GAS HOLDER

## RBS-4~10 燃燒機參考尺寸圖

OUTLINE DIMENSION DRAWING ON RBS-4~10 FOR REFERENCE



**UNIT: MM**

EE 4T/H 用 RBS-4

EE 6T/H 用 RBS-4

EE 8T/H 用 RBS-6.5

EE10T/H 用 RBS-6.5

EE12T/H 用 RBS-10

EE15T/H 用 RBS-10

A	B	C	D	W	L	H
544	185	729	1050	210	500	855
544	185	729	1250	210	550	855
610	197	807	1250	250	700	900
610	197	807	1300	250	700	1000
681	220	901	1350	300	800	1150
681	220	901	1350	450	900	1150

上列規格僅供參考如有變更不另通知

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**15T/H 蒸汽鍋爐用 SUNRAY RBS-10 燃燒機**

SUNRAY OIL BURNERS RBS-10  
FOR 15T/H STEAM BOILER



**10T/H 蒸汽鍋爐用 SUNRAY RBS-6.5 燃燒機**

SUNRAY OIL BURNERS RBS-6.5  
FOR 10T/H STEAM BOILER

選購配件

**OPTION**



### 空氣 / 燃油比例設定器 FUEL-AIR POSITIONER

空氣 / 燃油比例設定器可操控數個控制馬達去各自調節風門、燃油調量閥及瓦斯調量閥，代替傳統式連桿凸輪裝置，它可顯示鍋爐運轉負載(%)、風門開度(%)且可接受輸入及輸出信號供中央控制系統遠隔操控。

THE AIR DAMPER, OIL REGULATING VALVE & GAS FLOW VALVE CAN BE MODULATED INDIVIDUALLY BY THREE SEVERAL CONTROL MOTORS THROUGH THE FUEL-AIR POSITIONER INSTEAD OF TRADITIONAL LINKAGE CAM TRIM DEVICE. AND IT WILL SHOW THE DAMPER OPENING DEGREE(%) AND BOILER LOAD(%) ON THE DISPLAY. IT ALSO CAN RECEIVE INPUT SIGNAL AND TRANSMIT THE OUTPUT SIGNAL TO DISTRIBUTOR CONTROL SYSTEM FOR REMOTE CONTROL.

# 營業項目

## BUSINESS LINES

ROTARY OIL BURNERS  
GAS BURNER  
OIL/GAS DUAL BURNERS  
INCINERATORS  
HOT AIR GENERATORS  
THERMAL OXIDIZERS

轉杯式重油 柴油燃燒機  
瓦斯燃燒機  
重油、柴油 / 瓦斯燃燒機  
焚化爐  
熱風爐 (白煙加熱器)  
脫臭裝置

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