

baltur

TECNOLOGIE PER IL CLIMA

CE

cn en

燃烧器说明手册

Instruction for burner

BTL 0 - 0H

BTL 4 - 4H

BTL 6 - 6H

BTL 10 - 10H

- - 启动燃烧器或进行维护保养前，请仔细阅读本说明手册。
- 燃烧器和设备上的操作只能由合格的工作人员执行。
- 开始在燃烧器上进行处理前，请先切断设备的供电电源。
- 如处理操作不当，有可能会引起危险事故。
- - The works on the burner and on the system have to be carried out only by competent people.
- Read carefully the instructions before starting the burner and service it.
- The system electric feeding must be disconnected before starting working on it.
- If the works are not carried out correctly it is possible to cause dangerous accidents.

版本 / Edition

2002/11

Cod. 0006080800

制造商声明

我司生产的气体、轻油、重油和混合(燃气 / 轻油或燃气 / 重油)燃烧器在制造上完全符合现行的CE - CEI - UNI标准。

- BALTUR(百得)公司只对装有BALTUR提供的“CE”气体组列和符合“CE”标准的气体附件(作为任选配件提供)的燃烧器提供“CE”证书。

备注: 就CE和UNI标准中有关气体燃烧器和混合(燃气 / 轻油或燃气 / 重油)燃烧器气体部分的规定, 当燃烧器没有按照CE和UNI标准订购, 并作上述标准中没有列出的特殊用途时, 本声明无效。

Manufacturer's declaration

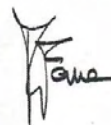
We hereby declare that our gas, light oil, heavy oil, and combination (gas/light oil or gas/heavy oil) burners are manufactured in conformance with current CE, CEI and UNI standards.

- BALTUR guarantees the “CE” certification provided that the burner is coupled to the “CE” gas train supplied by BALTUR and the “CE” gas line accessories (on request).

NOTE: this declaration is not valid with regard to EC or UNI Standards for gas burners or the gas part of dual-fuel burners (gas/light oil or gas/heavy oil) when such burners have been ordered in non-compliance with the EC Standard or Italian UNI Standard because they are to be used for special purposes not provided for in the above-mentioned standards.

0006080197 Rev.1

Managing Director
Dott. Riccardo Fava



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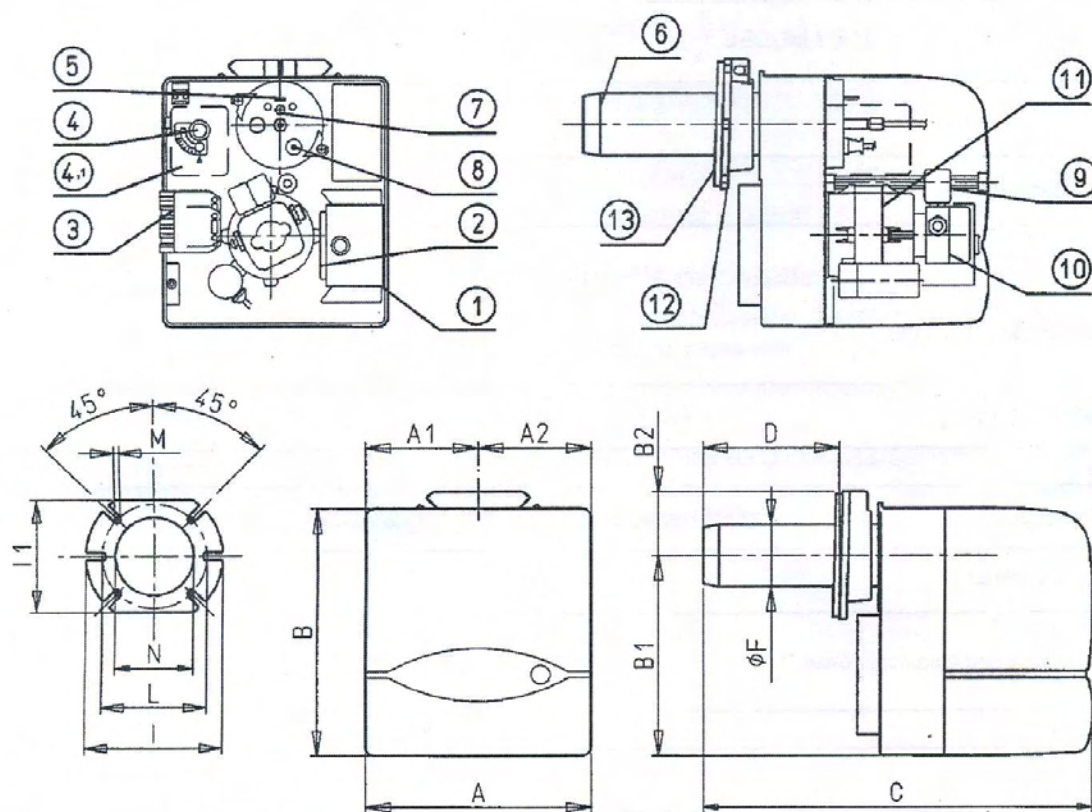
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型号 / MODEL		BTL 0	BTL 0H	BTL 4	BTL 4H
燃烧器输出 / Burner output	最小 kg/h	1.80	1.57	2.20	2.20
	最大 kg/h	3.6	3.6	4.7	4.7
热功 / Thermic capacity	最小 kW	21.3	18.6	26.0	26.0
	最大 kW	42.7	42.7	56.1	56.1
燃料最高稠度(轻油)		5.5 cst / 20°C			
Fuel max. viscosity (light-oil)		1,5 °E / 20°C			
电源 / Electrical feeding		1 ~ 230V ±10% - 50Hz			
电机 / Motor	kW	0.11			
预热器 / Pre-heater	W	--	60	--	60
变压器 / Transformer		30 mA - 2x10kV			
吸收电功*) / Absorbed electrical power *)	kW	0.150	0.260	0.150	0.260
重量 / Weight	kg	12			
运行 / Operation		ON / OFF			

型号 / MODEL		BTL 6	BTL 6H	BTL 10	BTL 10H
燃烧器输出 / Burner output	最小 kg/h	2.70	2.70	5.10	5.10
	最大 kg/h	6.3	6.3	10.0	10.0
热功 / Thermic capacity	最小 kW	31.9	31.9	60.2	60.2
	最大 kW	74.3	74.3	118.0	118.0
燃料最高稠度(轻油)		5.5 cst / 20°C			
Fuel max. viscosity (light-oil)		1,5 °E / 20°C			
电源 / Electrical feeding		1 ~ 230V ±10% - 50Hz			
电机 / Motor	kW	0.11			
预热器 / Pre-heater	W	--	240	--	240
变压器 / Transformer		30 mA - 2x10kV			
吸收电功*) / Absorbed electrical power *)	kW	0.150	0.390	0.150	0.390
重量 / Weight	kg	12			
运行 / Operation		ON / OFF			

*) 启动变压器接通的情况下，启动阶段的总吸收功率。

*) Total absorption at start with ignition transformer on.



	A	A1	A2	B	B1	B2	C	D	D	F	I	I1	L	L	M	N
								MIN	MAX				MIN	MAX		
BTL 0 - 0H	245	122,5	122,5	270	218,5	70	410	50	105	80	170	140	130	155	M8	85
BTL 4 - 4H	245	122,5	122,5	270	218,5	70	410	50	105	80	170	140	130	155	M8	85
✓ BTL 6 - 6H	245	122,5	122,5	270	218,5	70	455	50	150	90	170	140	130	155	M8	95
BTL 10 - 10H	245	122,5	122,5	270	218,5	70	480	70	158	90	170	140	130	155	M8	95

- 1) 控制盒
- 2) 变压器
- 3) 7极连接器
- 4) 空气调节螺栓
- 5) 圆盘头位置参考点
- 6) 燃烧头
- 7) 圆盘头调节螺栓
- 8) 光电阻
- 9) 电磁阀(BTL 3)
- 10) 油泵
- 11) 电机
- 12) 连接燃烧器用法兰
- 13) 绝缘密封垫圈

- 1) Control box
- 2) Transformer
- 3) 7 pole connector
- 4) Air-damper adjusting screw
- 5) Reference for disk head positioning
- 6) Combustion head
- 7) Disk head adjusting screw
- 8) Photo-resistance
- 9) Electrovalve (BTL 3)
- 10) Light-oil pump
- 11) Motor
- 12) Burner connection flange
- 13) Insulating gasket

标准配置附件 / *STANDARD ACCESSORIES*

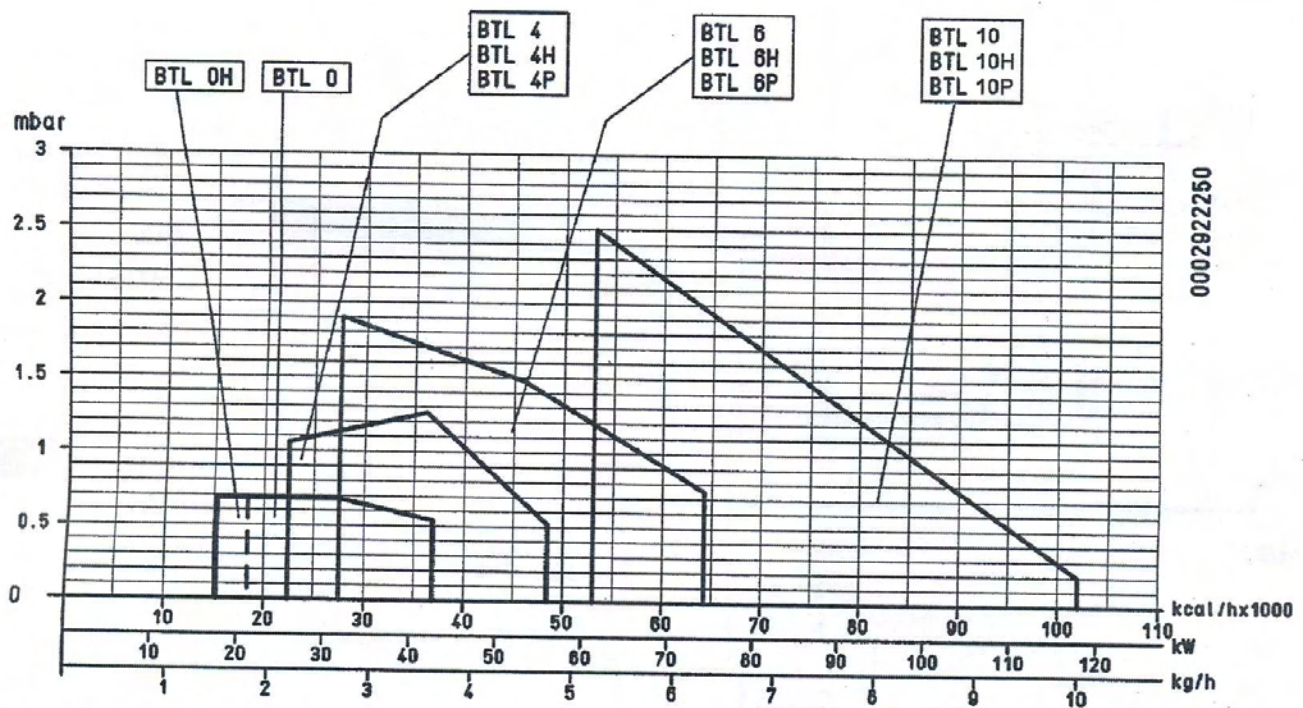
1个 绝缘密封垫圈
2条 软管
1/4" x 3/8" x 1200
4个 平垫圈 M8
4颗 TE螺栓 M8 x 40
1个 过滤器 3/8"
1颗 螺栓 M8 x 25
2个 螺纹接套 3/8"

n° 1 Isolating gasket
n° 2 1/4" x 3/8" x 1200
flexible hoses
n° 4 M8 flat washer
n° 4 TE M8 x 40 screws
n° 1 3/8" line filter
n° 1 M8 x 25 screw
n° 2 3/8" nipples

运作范围 / *OPERATING RANGE*

N° 0002922250

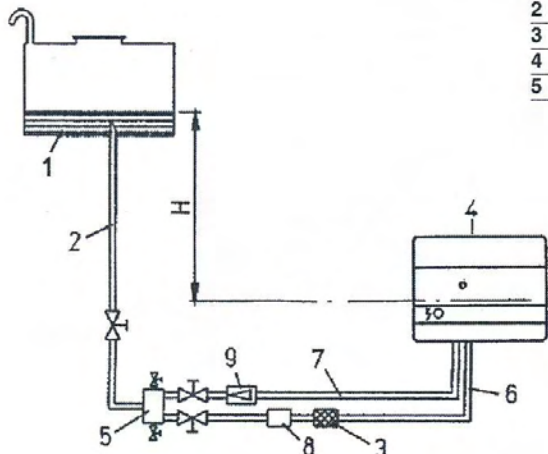
Rev. 15/05/01



油罐到燃烧器间的连接油管必须完全密封，我们建议使用直径相称的铜管或钢管连接。输油硬管的末端必须安装截油阀，过滤器要安装在阀门后的吸油管上，过滤器后面依次装上金属软管，油管的另一端则连接到燃烧器油泵的吸油口上。过滤器、软管和螺纹接套属于燃烧器的配置附件。油泵上备有检测器具(压力计和真空计)专用的连接口。为了安全和宁静运作，吸入负压不得超过35 cm Hg，等于0.46 bar。吸入和回油的最高压力为1.5 bar。

重力供油设备

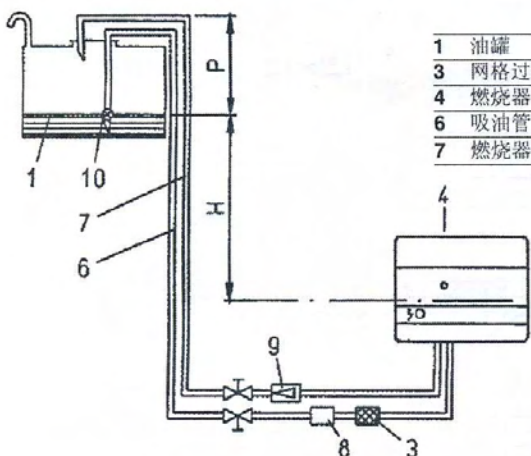
1 油罐	6 吸油管
2 供油管	7 燃烧器回油管
3 网格过滤器	8 燃烧器停止运作时用的自动截油装置
4 燃烧器	9 单向阀
5 除气器	



H 米	L. 总长 米 Ø i. 10毫米
1	30
2	35
3	40
4	45

油罐顶部重力供油设备

1 油罐	8 燃烧器停止运作时用的自动截油装置
3 网格过滤器	9 单向阀
4 燃烧器	10 底阀
6 吸油管	
7 燃烧器回油管	

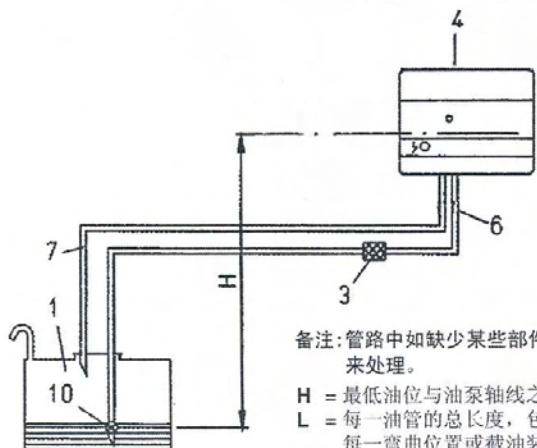


H 米	L. 总长 米 Ø i. 10毫米
1	30
2	35
3	40
4	45

距离P = 3.5米(最大)

吸力供油设备

1 油罐	6 吸油管
3 网格过滤器	7 燃烧器回油管
4 燃烧器	10 底阀



备注: 管路中如缺少某些部件, 请依照现行规定来处理。

H = 最低油位与油泵轴线之间的距离。

L = 每一油管的总长度, 包括垂直段。

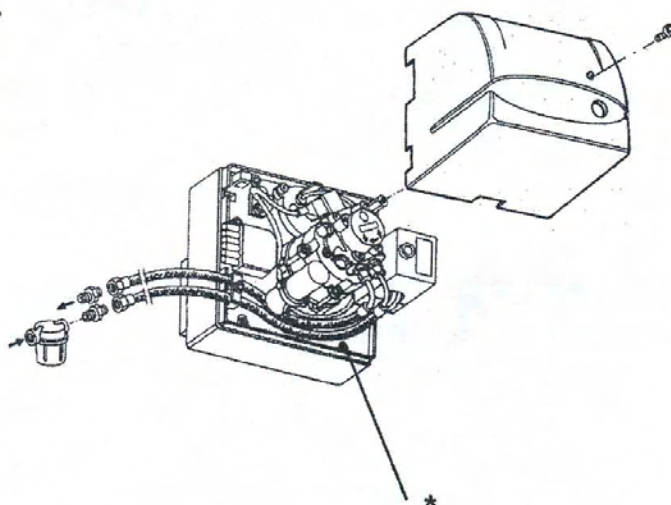
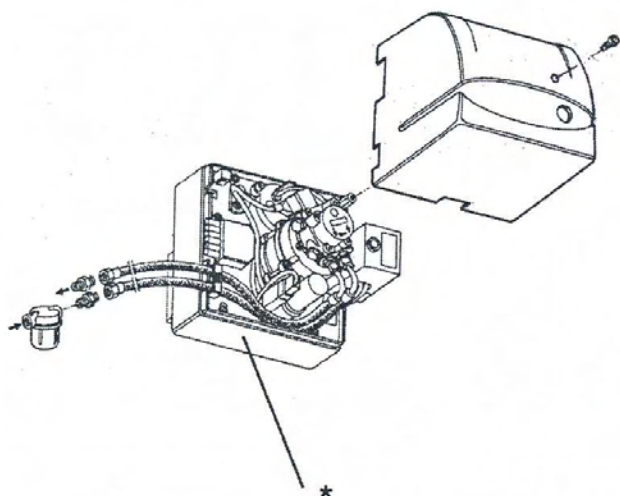
每一弯曲位置或截油装置应扣除0.25米。

Ø i = 管内径。

H 米	L. 总长 米	
	Ø i. 10毫米	Ø i. 12毫米
0,5	26	54
1	24	47
1,5	18	38
2	14	30
2,5	10	23
3	6	15
3,5	-	7

AACO 电机

SIMEL 电机

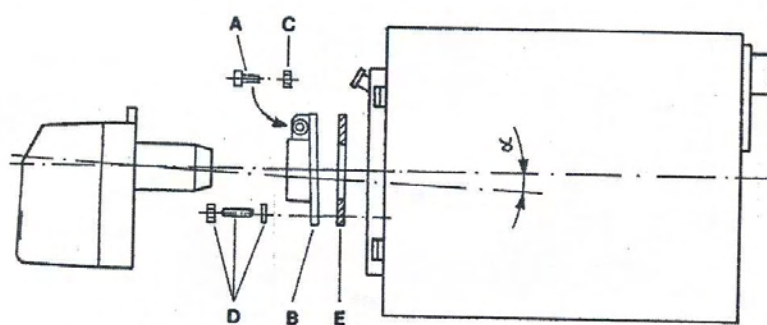


* 两条软管必须如图般定位，以免影响盖子的正确闭合；它们有可能从燃烧器的下方或左侧露出。

与锅炉的连接

N° 0002932940

Rev. 04/10/99



在法兰畅顺的前提下：

- 加上垫圈(E)，利用4颗螺栓(D)将法兰(B)固定在锅炉上；
- 将燃烧器套入法兰并拧紧螺母(C)来紧固螺栓(A)。

注意：在将燃烧器固定到法兰时，请如图般(α 角)定位燃烧头的轴线。

外来光线 / 提前点火

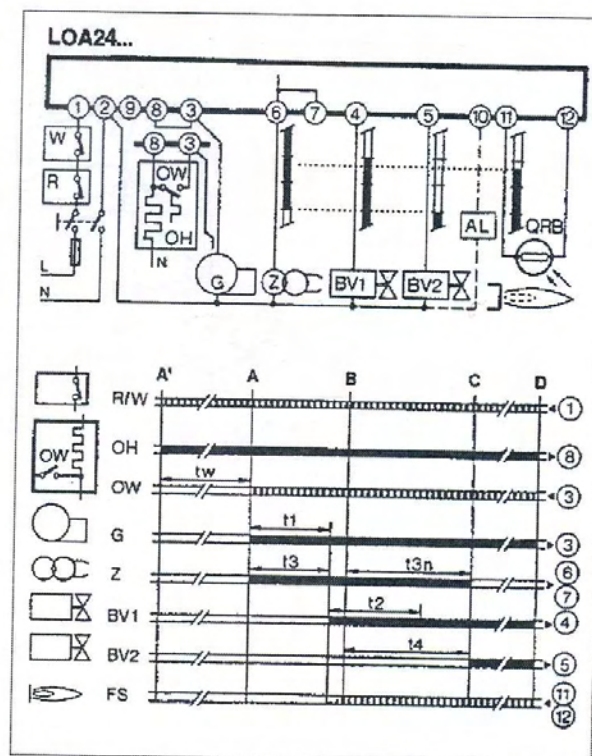
在预通风和 / 或预起动期间，不应存在任何火焰信号。但如果信号存在，例如由于电磁阀密封不良、外部光线、光电管或连接电缆短路，以及火焰信号放大器故障等而导致提前点火时，经过预通风和安全时间后，控制盒会锁定燃烧器并在安全时间内同样会阻止燃料的流动。

无火焰

如在安全时间过后仍然无火焰，控制盒会立即使燃烧器停止运作。

运行期间无火焰

如在运行期间无火焰，控制盒会切断燃料供给并自动重复一个新的起动程序：«t4»指示的时间过去后，起动程序就告结束。对于小于1秒的每个停机，接线端子3-8-11的电压就会被切断；依靠端子10，可以远程指示控制盒停机，在停机的50秒后才有可能将控制盒复位。



程序符号说明

■ 控制盒输出信号

□ 必须的输入信号

A' 带轻油预热装置“OH”的燃烧器的起动开始

A 不带轻油预热装置的燃烧器的起动开始

B 存在火焰

C 正常运行

D 通过“R”的调节停顿

tw 轻油预热时间，直至触点“OW”(最低温度恒温器)允许运行为止

t1 预通风时间

t3 预点火时间

t2 安全时间

t3n 后点火时间

t4 火焰存在与第二阀门介入到端子5的时间间隔

电压 V ~	类型	低压 安全	预通风 t1	预点火 t3	安全时间 t2max	后点火 t3n	时间间隔 BV1-BV2=t4
220/240	LOA 24.171B27	有	13 s	13 s	10 s	15 s	15 s

起动预备

要记住，1kg的轻油约等于10.200 kcal。确认油罐的回油管没有阻塞，包括截油阀和栓塞等。如有任何阻塞现象，有可能会造成泵轴密封件的损坏。合上电源总开关和锅炉恒温器，使电机和点火变压器进入运作。经过预通风时间后，电磁阀介入。在电磁阀介入的同时，光电管即暴露在光源下，直至燃烧器停机为止。管路充油完成(油从喷嘴流出)后，停止燃烧器的运作并将光电管放回原位。

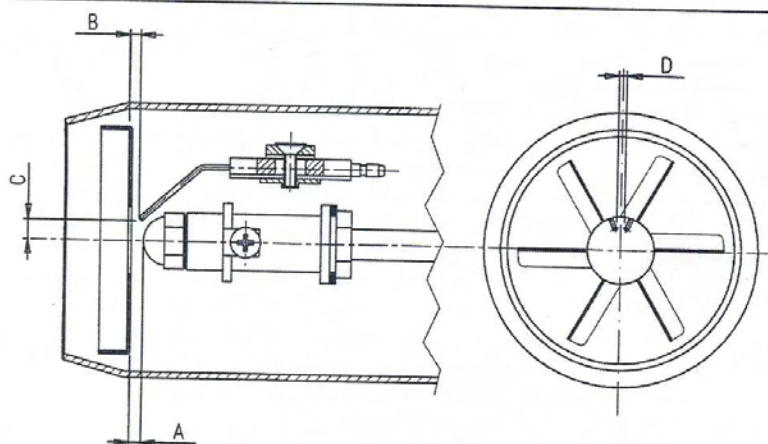
备注：有可能需要排除空气，此时可通过泵上的专用接头进行排气(请参阅BT 8930/1)。电磁阀介入前请勿将光电管暴露在光源下，否则控制盒会进入锁定位置。

调节螺栓“6”(请参阅0002933240)并将空气调节螺栓转到认为能满足燃烧器运行所需油量的位置上。

闭合总开关,以便启动燃烧器。如有需要,可转动吸气调节螺栓和火焰圆盘(可通过螺栓2调节,请参阅0002933230)的位置来校正燃烧气量。燃烧器备有火焰圆盘位置调节螺栓;该螺栓可通过减少或增加圆盘与燃烧头之间通过的气流来使燃烧达到理想。当减少供油量时,通常也需要减少(拧松螺栓2)圆盘与燃烧头之间通过的气流,该气流的流量当燃烧器在较高供油速度下运作时,则需要成比例地相对开启(拧紧螺栓2)较大。修改了火焰圆盘的位置后,通常需要调整空气调节螺栓的位置,之后应检查点火是否正常。BTL 0H-4H-6H-10H型燃烧器在喷嘴处配有燃油预热器,该装置可确保雾化最佳,也就是说燃烧可到达最理想。

空气调节和原理图 圆盘 - 电极设定

N° 000293351
Rev. 24/07/02



安装了喷嘴后,请按以下的距离(mm)检查圆盘与电极的正确定位。每次处理过燃烧头后,均应两者的距离。

备注: 为了避免损坏支座或预热器,进行喷嘴的安装和拆卸处理时,请使用扳手和对置扳手进行。

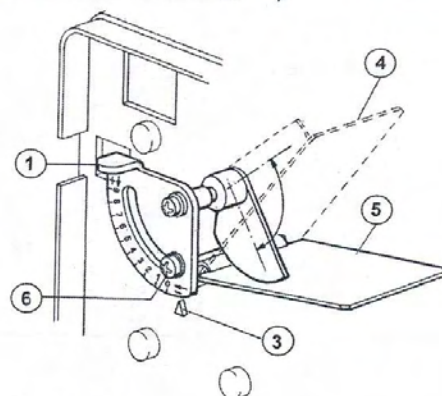
型号	A	B	C	D
BTL 0H - 4H	1	0	6	2,5
BTL 0 - 4	3	0	6	2,5
BTL 6/6H - 10/10H	3	1	6	3

备注: 取决于运作条件,可通过轻微校正电极的位置来改善点火。

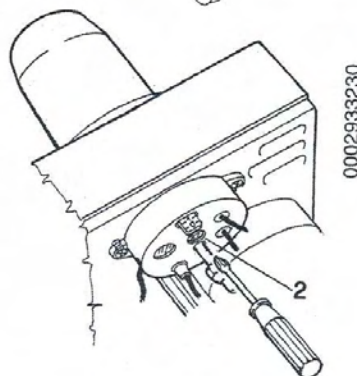
燃烧调节

N° 0002933240
Rev. 26/09/00

- 1 空气调节螺栓开度的调节
- 参考指示标记处于位置“0” 调节螺栓关闭
- 参考指示标记处于位置“9” 调节螺栓打开
- 2 火焰圆盘位置的调节
- 3 空气调节螺栓张度参考指示标记
- 4 空气调节螺栓于打开位置(9)
- 5 空气调节螺栓于关闭位置(0)
- 6 空气调节螺栓固定螺钉



DSV.2型预热器(“BTL 0H - 4H”型为标准配置)可有效地预热燃油,保证点火良好和运作稳定,甚至在环境温度较低的条件也同样安全可靠。预热器内置有截油电磁阀和防滴装置,无论在点火阶段或在燃烧器熄灭阶段,均可有效地破坏碳氢化合物(CxHy)。



燃烧器型号	调节参数				
	喷嘴型号	油泵压力	燃烧器输出流量	3 空气闸门调节	2 圆盘位置调节
	GPH	bar	kg/h	刻度数	刻度数
BTL 0H (带预热器)	1.00	12	3.90	5.5	4
	0.85		3.30	4.5	3
	0.75		2.90	4	3
	0.60		2.20	3	2
	0.50		1.80	2	1
	0.40		1.40	1.5	0.5
BTL 0 (不带预热器)	01:00	12	4.20	7	5
	0.85		3.50	6.5	3.5
	0.75		3.00	5	3
	0.60		2.40	4	2
	0.50		2.00	3.5	0.5
BTL 4H (带预热器)	1.35	12	5.20	6	5.5
	1.25		4.70	6	5
	1.10		4.30	5	4
	1.00		3.90	4.5	3.5
	0.85		3.30	4	3
	0.75		2.90	3	2
BTL 4 (不带预热器)	1.25	12	5.00	6.5	5.5
	1.10		4.70	6	5
	1.00		4.20	5.5	4
	0.85		3.60	4.5	3.5
	0.75		3.10	4	2.5
	0.60		2.50	3	1
BTL 6H (带预热器)	1.75	12	6.50	6.5	5
	1.65		5.80	5.5	4
	1.50		5.50	5.5	3.5
	1.35		5.00	5	3
	1.25		4.50	4.5	3
	1.10		4.20	4	2.5
	1.00		3.80	3.5	2.5
	0.85		3.20	3	1.5
BTL 6 (不带预热器)	1.65	12	6.50	6.5	5
	1.50		6.10	6	5
	1.35		5.60	5.5	3.5
	1.25		5.00	5	3
	1.10		4.70	4.5	3
	1.00		4.20	4	2.5
	0.85		3.60	3	2
	0.75		3.10	3	1
BTL 10H (带预热器)	2.50	12	9.20	7	6
	2.25		8.30	7	5.5
	2.00		7.70	6.5	5
	1.75		6.65	6	4
	1.50		5.50	5	2.5
	1.35		5.00	4.5	2.5
	1.25		9.20	7	6
BTL 10 (不带预热器)	2.00	12	8.50	7	5
	1.75		7.30	6.5	4
	1.50		6.10	5	3
	1.35		5.60	5	2.5
	1.25		5.60	5	2.5

备注:

表格中的数值是有关 12% 的 $\text{CO}_2(4.5 \text{ O}_2)$,
海平面高度及燃烧室压力 0.1mbar。

备注:

表格中的数值参考数值, 为了使燃烧
器获得最佳效能, 必须按照锅炉的实
际需求来调节。

备注:

建议使用喷嘴
DELAVAN 型号 W 45°
DELAVAN 型号 W 60°
DANFOSS 型号 S 45°

大部分部件均可通过拆下外壳来进行检测；为了检测，必须先拆下元件座板，该座板可悬挂在燃烧器体上的两个位置，以便于操作处理。电机、变压器和电磁阀是通过连接器连接，而光电管则为压入式连接。

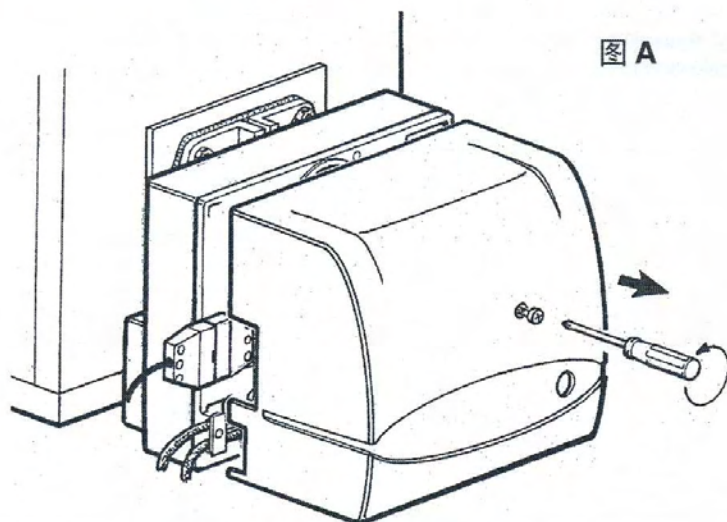


图 A

- 1) 拧松盖子上的螺栓并拆下盖子，以便接触燃烧器的内部。

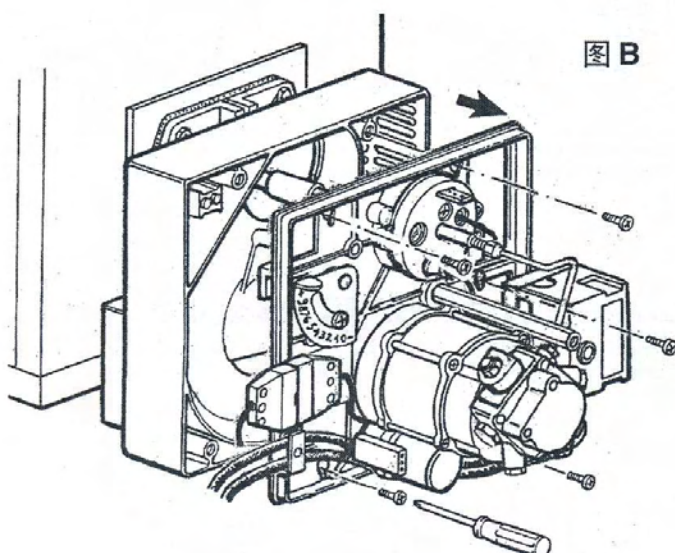


图 B

- 2) 如图般拧松座板上的4颗螺栓，以便能够接触喷嘴、电极及预热器。

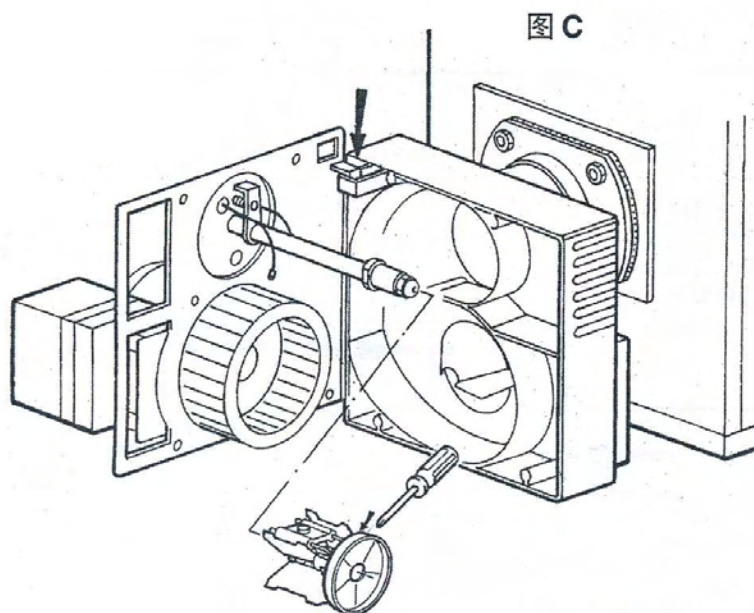
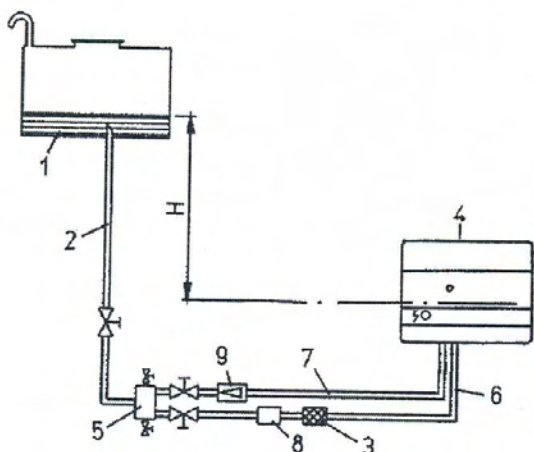


图 C

- 3) 座板必须如图C般挂住。

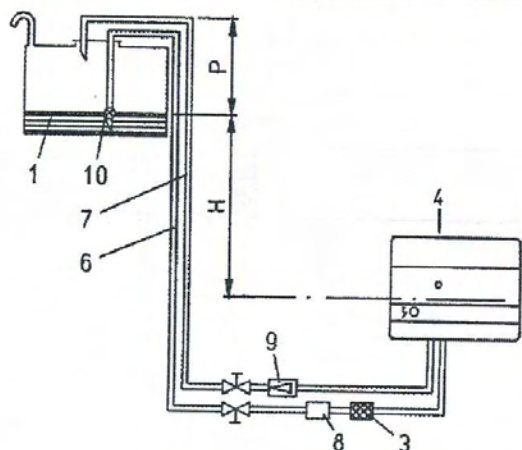
现象	原因	措施
控制盒在仍然有火焰的情况下停止运作(红色指示灯亮着)。故障受火焰控制器的限制。	1) 光电管断开或被油烟弄脏; 2) 锅炉肮脏; 3) 光电管电路故障; 4) 圆盘或喷嘴肮脏。	1) 清洁或更换光电管; 2) 检查锅炉或烟囱内的所有烟道; 3) 清更换控制盒; 4) 进行清洁。
控制盒在喷油但无火焰的情况下停止运作(红色指示灯亮着)。	1) 点火电路开路; 2) 点火变压器电缆向地线放电; 3) 点火变压器电缆连接不良; 4) 点火变压器断路; 5) 电极电桥间的距离错误; 6) 由于肮脏或绝缘受损, 电极向地线放电; 也请检查绝缘部件固定端子的下方。	1) 检查所有电路; 2) 更换电缆; 3) 检查将电缆正确连接; 4) 更换变压器; 5) 将距离调节好; 6) 进行清洁, 如有需要请更换之。
控制盒在没有喷油的情况下停止运作(红色指示灯亮着)。	1) 缺一相电; 2) 电机失效; 3) 轻油无法到达油泵处; 4) 油罐内无燃料; 5) 吸油管上的截油装置关闭; 6) 喷嘴堵塞。	1) 检查供电线路; 2) 进行维修或更换之; 3) 检查吸油管路; 4) 进行油料添充; 5) 将截油装置打开; 6) 拆开喷嘴并对每个部件进行清洁。
燃烧器无法起动。	1) 恒温器(锅炉或环境)或压力开关断开; 2) 光电管短路; 3) 总开关断开而断电、过载保护开关开路或供电线路根本无电; 4) 恒温器线路没有按照电路图连接或某些恒温器断开; 5) 控制盒故障。	1) 升高数值, 或等待由于温度或压力自然下降而触点闭合; 2) 更换光电管; 3) 将开关闭合或等待线路恢复供电; 4) 喷嘴检查连接和恒温器的状况; 5) 更换控制盒;
火焰不良, 带有火星。	1) 雾化压力偏低; 2) 燃烧中存在过度的空气; 3) 喷嘴由于肮脏或磨损而失效; 4) 燃料中含有水份。	1) 恢复预设的数值; 2) 较少燃烧中的空气量; 3) 清洁或更换喷嘴; 4) 利用一个适当的泵将水从油罐中除去(请勿用燃烧器的油泵进行此操作)。
火焰外形好, 有油烟。	1) 燃烧中的空气不足; 2) 喷嘴由于肮脏或磨损而失效; 3) 锅炉或烟囱的管路堵塞; 4) 雾化压力偏低。	1) 增加燃烧中的空气量; 2) 清洁或更换喷嘴; 3) 进行清洁操作; 4) 恢复预设的数值;

The pipes that connect the tank to the burner should be in perfect tight condition; we recommend the use of copper or steel pipes of an adequate diameter. Fuel gate valves should be fitted at the end of the rigid pipelines. Fit the filter to the suction pipeline after the gate valve. Connect the flexible fitting to this, which in turn should be connected to the suction of the burner pump. Connect the flexible fitting to the return pipe after the gate valve, and then connect it to the pump return. Filter, flexible pipes and relative connection nipples are standard burner accessories. The pump is provided with special connection points for the insertion of control instruments (manometer and vacuummeter). To ensure reliable and silent operating conditions, the vacuum in suction should not exceed 35 cm Hg equal to 0,46 bar. Maximum suction and return pressure 1,5 bar.

GRAVITY FEED FROM THE BOTTOM OF OIL TANK


1 Oil tank	6 Suction line
2 Feed line	7 Return line
3 Filter	8 Fire valve
4 Burner	9 Non return valve
5 Degasifier	

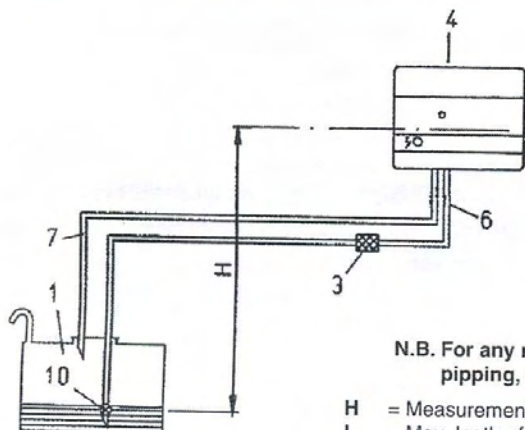
H meters	Total meters Ø i. 10mm
1	30
2	35
3	40
4	45

GRAVITY FEED OVER THE TOP OF OIL TANK


1 Oil tank	7 Return line
3 Filter	8 Fire valve
4 Burner	9 Non return valve
6 Suction line	10 Foot valve

H meters	Total meters Ø i. 10mm
1	30
2	35
3	40
4	45

Quote P = 3,5 m (max)

SUCTION FEED


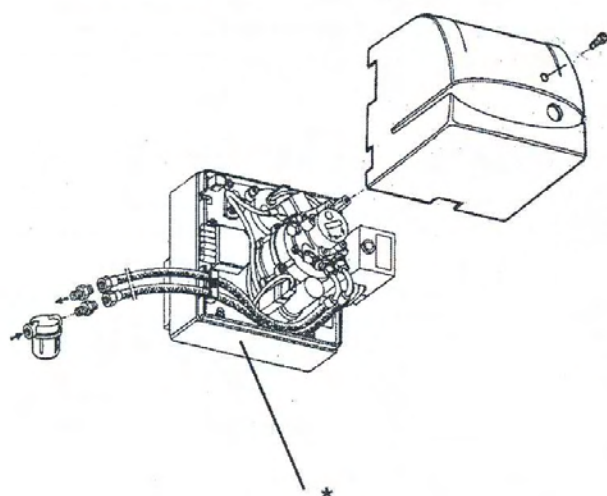
1 Oil tank	6 Suction line
3 Filter	7 Return line
4 Burner	10 Foot valve

H meters	Total meters	
	Øi. 10mm	Øi. 12mm
0,5	26	54
1	24	47
1,5	18	38
2	14	30
2,5	10	23
3	6	15
3,5	-	7

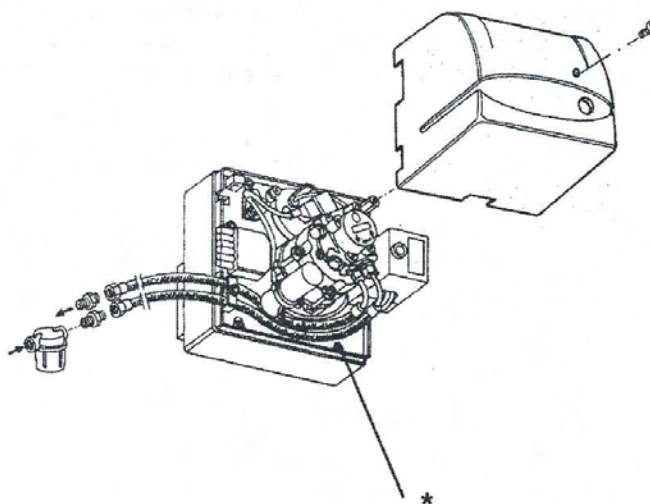
N.B. For any missing devices in the piping, conform to existing regulations.

H = Measurement between minimum oil level and pump axis
 L = Max. length of suction line, including vertical lifts. For each bend of valve deduct 0,25 m.
 Øi = Internal diameter of pipe

MOTORE AACO



MOTORE SIMEL

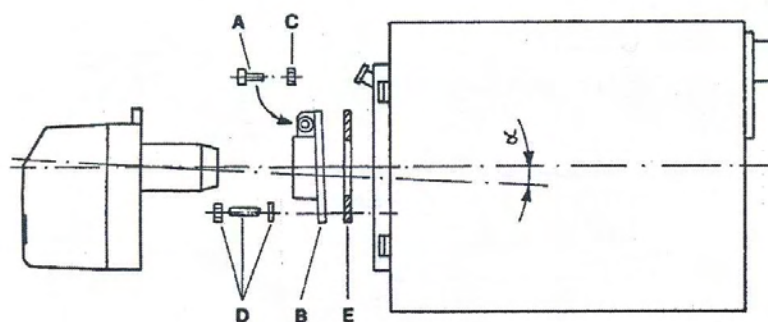


- * The two flexible hoses shall be positioned as show on the figure for ensuring correct closing of the cover, they can come out from the lower side or the left side of the burner.

INSTALLING ON BOYLER

N° 0002932940

Rev. 04/10/99



WITH SLIDING FLANGE:

- Fasten flange (B) to the boiler with n°4 screws (D) placing the insulation card (E);
- Insert burner into flange / boiler and tighten screw (A) with nut (C).

CAUTION: when attaching the burner to the flange position the combustion head axis as illustrated in the diagram (angle α).

Extraneous light / advanced ignition

During the pre-ventilation and/or pre-starting phase there shall be no flame signal. Should the signal be present, for example for advanced ignition due to bad tightness of the electrovalve, external lighting, short-circuit in the photo-resistance or in the connecting cable, a breakdown in the flame signal amplifier, and so on., when the pre-ventilation and safety time has elapsed, the control-box brings the burner to the emergency stop and cuts off fuel inflow even during the safety time.

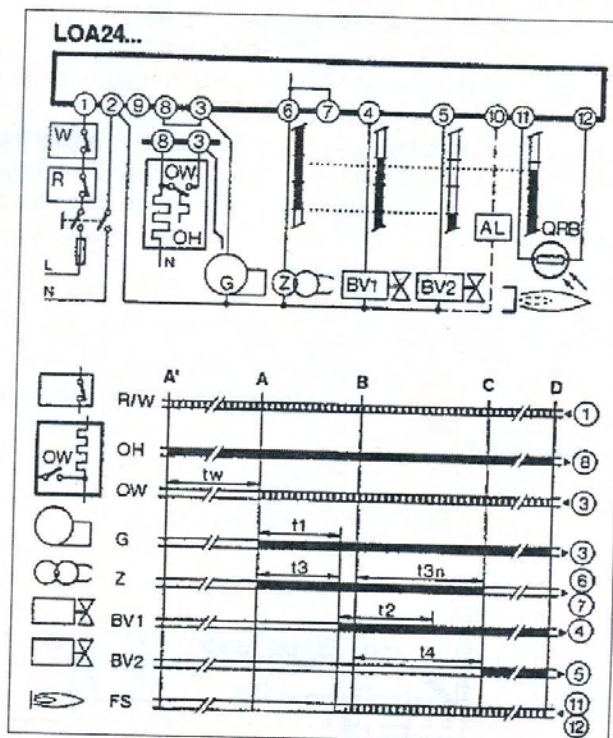
No flame

If there is no flame at the end of the safety time, the control-box stops the burner immediately.

No flame during operation

If there is no flame during operation, the control-box cuts off fuel and automatically repeats a new starting program: once the "t4" time has elapsed, the starting program is over.

Every safety stop of less than 1 second switches off voltage to terminals 3 - 8 - 11: and to terminal 10, it is possible to provide a remote signal of emergency stop. Resetting of the control-box is possible after approx. 50 seconds of emergency stop.


Program Legend

■ Control-box output signals

□ Input signals required

- A' Beginning of starting cycle for burners with light-oil pre-heater "OH"
- A Beginning of starting cycle for burner without light-oil pre-heater
- B Flame presence
- C Normal operation
- D Adjustment stop by "R"

- tw Light-oil pre-heating time until operation consent by contact "OW" (minimum thermostat)
- t1 Pre-ventilation time
- t3 Pre-starting time
- t2 Safety time
- t3n Post-starting time
- t4 Time interval between flame presence and connection of 2nd valve to terminal 5

Tension V ~	Type	Safety at low voltage	Pre-ventilation t1	Pre-starting t3	Safety time t2max	Post-starting t3n	Time Interval BV1-BV2=t4
220/240	LOA 24.171B27	YES	13 s	13 s	10 s	15 s	15 s

PREPARATIONS FOR START UP

Make sure that the return pipe in the tank has no obstructions, e.g. gate valves, closed plugs etc. Any eventual obstruction would cause a breakage in the sealing surface situated on the pump shaft. Close the main switch and the boiler thermostats in order to start up the motor and the ignition transformer. Upon completion of the pre-ventilation time, the solenoid valve is activated. the electrovalve will cut in and expose the photoresistant cell to a source of light until the burner stops (shut down). When the pipelines have been filled up (and when fuel has come out of the nozzle), stop the burner and put the photoresistant cell back in its seat.

NOTE: Should it be necessary to purge air, this can be done by loosening the special fitting which the pump is provided with (see 8930/1). Do not illuminate the photoresistant cell before the electric valve has cut in because, in this case, the control box will go to "shut down".

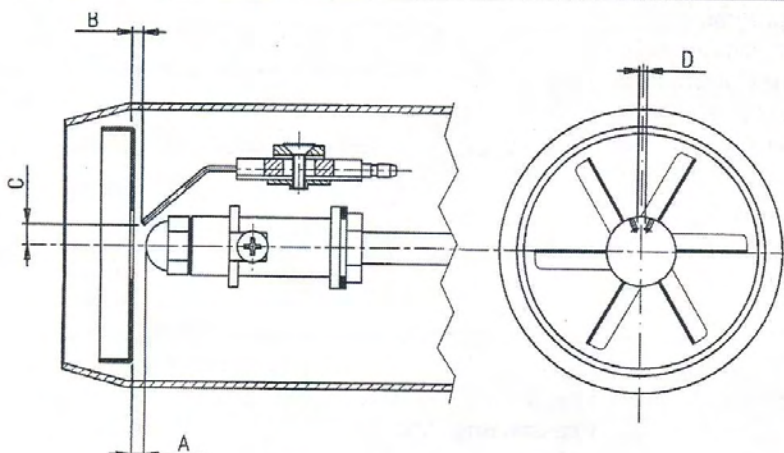
Loosen the fixing screw "6" (see 0002933240) and bring the air damper into the position thought to be necessary as a function of the quantity of fuel to be burnt.

Turn the main switch to ON to power the burner and thus ignite it. Correct, if necessary, combustion air delivery by acting on the intake damper and the position of the deflector disk (adjustable via screw 2, see 0002933230). The burner is, in fact, fitted with a special screw to adjust the position of the deflector disk; this device allows for optimisation of combustion by reducing or increasing the air flow between deflector disk and head. It is normally necessary to reduce (undo screw 2) the air flow between deflector disk and head when there is reduced fuel delivery: this passage must be proportionately more open (screw in screw 2) when the burner is working with a higher fuel delivery rate. After modifying the position of the deflector disk it is, usually, necessary to correct the air damper positions and afterwards check for proper ignition. BTL 0H-4H-6H-10H burners are equipped with an on-nozzle light oil heater. This device provides better atomisation and thus better combustion.

AIR REGULATION PRINCIPLE DIAGRAM AND DISK-ELECTRODES SETTING

N° 0002933351

Rev. 24/07/02



After having installed the nozzle, check the correct position of the electrodes and disk according to the following levels. It's advisable to check levels after every intervention on head.

N.B. To prevent damage to the support or the pre-heater effect nozzle assembly/disassembly tasks with the aid of a wrench and counter-wrench.

MOD.	A	B	C	D
BTL 0H - 4H	1	0	6	2,5
BTL 0 - 4	3	0	6	2,5
BTL 6/6H - 10/10H	3	1	6	3

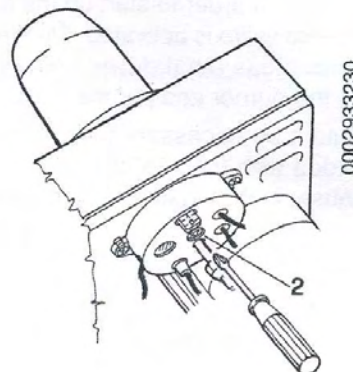
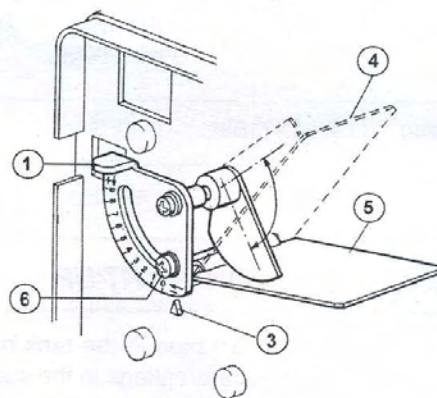
N.B. In certain operating conditions, the ignition can be improved by adjusting the position of the electrodes slightly.

COMBUSTION ADJUSTMENT

N° 0002933240

Rev. 26/09/00

- 1 AIR REGISTER OPENING ADJUSTER
 - Reference index in position "0" register closed
 - Reference index in position "9" register open
- 2 FLAME DISC POSITION
- 3 AIR REGISTER OPENING ADJUSTER REFERENCE INDEX
- 4 AIR DAMPER IN OPEN POSITION (9)
- 5 AIR DAMPER IN CLOSED POSITION (0)
- 6 AIR DAMPER FIXING SCREW



The DSV.2 pre-heater (fitted as standard on the "BTL 0H - 4H" versions) gives efficacious pre-heating of the light oil and therefore ensures good ignition and stable, safe operation even at low ambient temperatures. It is provided with an incorporated solenoid cut-off valve and an anti-dripping device which is used for hydrocarbon (CxHy) abatement during both ignition and burner shutdown.

Burner model	NOZZLE TYPE	ADJUSTMENT DATA			
		Pump pressure	Burner flow-rate	3 Air gate adjustment	2 Disc position adjustment
		bar	kg/h	Set-point n°	Set-point n°
BTL 0H (with pre-heating)	1,00	12	3,90	5,5	4
	0,85		3,30	4,5	3
	0,75		2,90	4	3
	0,60		2,20	3	2
	0,50		1,80	2	1
	0,40		1,40	1,5	0,5
BTL 0 (without pre-heating)	1,00	12	4,20	7	5
	0,85		3,50	6,5	3,5
	0,75		3,00	5	3
	0,60		2,40	4	2
	0,50		2,00	3,5	0,5
BTL 4H (with pre-heating)	1,35	12	5,20	6	5,5
	1,25		4,70	6	5
	1,10		4,30	5	4
	1,00		3,90	4,5	3,5
	0,85		3,30	4	3
	0,75		2,90	3	2
BTL 4 (without pre-heating)	1,25	12	5,00	6,5	5,5
	1,10		4,70	6	5
	1,00		4,20	5,5	4
	0,85		3,60	4,5	3,5
	0,75		3,10	4	2,5
	0,60		2,50	3	1
BTL 6H (with pre-heating)	1,75	12	6,50	6,5	5
	1,65		5,80	5,5	4
	1,50		5,50	5,5	3,5
	1,35		5,00	5	3
	1,25		4,50	4,5	3
	1,10		4,20	4	2,5
	1,00		3,80	3,5	2,5
	0,85		3,20	3	1,5
BTL 6 (without pre-heating)	1,65	12	6,50	6,5	5
	1,50		6,10	6	5
	1,35		5,60	5,5	3,5
	1,25		5,00	5	3
	1,10		4,70	4,5	3
	1,00		4,20	4	2,5
	0,85		3,60	3	2
	0,75		3,10	3	1
BTL 10H (with pre-heating)	2,50	12	9,20	7	6
	2,25		8,30	7	5,5
	2,00		7,70	6,5	5
	1,75		6,65	6	4
	1,50		5,50	5	2,5
	1,35		5,00	4,5	2,5
BTL 10 (without pre-heating)	2,25	12	9,20	7	6
	2,00		8,50	7	5
	1,75		7,30	6,5	4
	1,50		6,10	5	3
	1,35		5,60	5	2,5

NOTE:

The values reported on this table are referred at the 12% CO₂ at the mean sea level and with 0.1 mbar pressure in the combustion chamber.

NOTE:

The values indicated in the table are purely indicative; for best burner performance adjustment needs to be made in accordance with the demands of the particular boiler type.

RECOMMENDED NOZZLES

Delavan type W 45°
Delavan type W 60°
Danfoss type S 45°

Most components can be inspected by removing the hood. To inspect the head you must disassemble the component-carrying plate which can be hung on the burner body in two different positions to make work as practical as possible. The motor, transformer and solenoid valve are connected via a connector while the photo-resistor is push-locked into place.

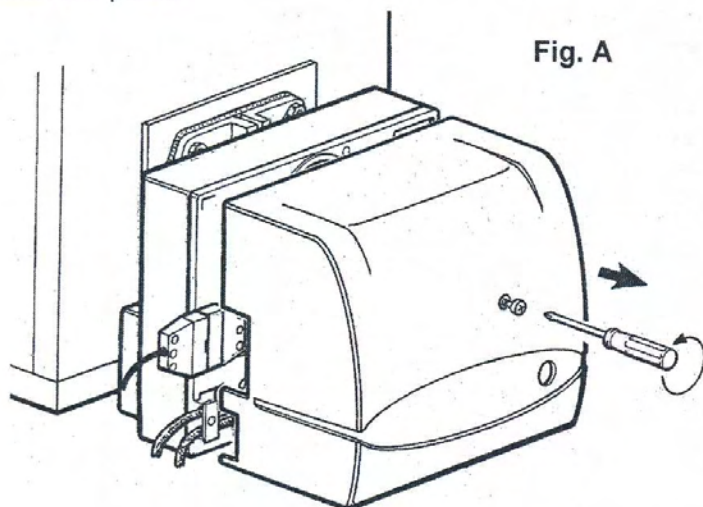


Fig. A

- 1) Undo the lid screw to gain access to the interior of the burner.

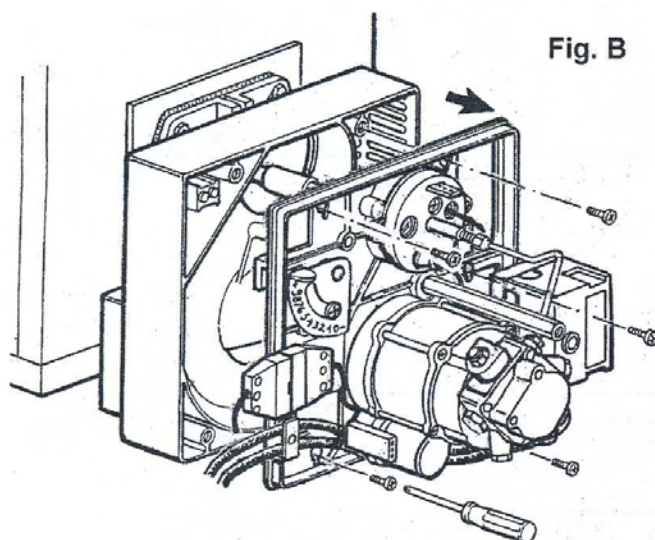


Fig. B

- 2) Undo the 4 screws of the plate, as indicated, in order to access nozzle, electrodes and pre-heater (if fitted).

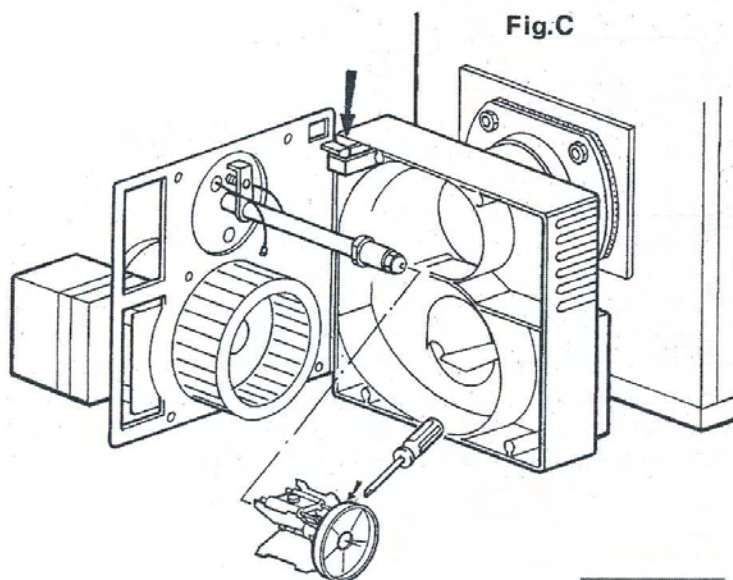


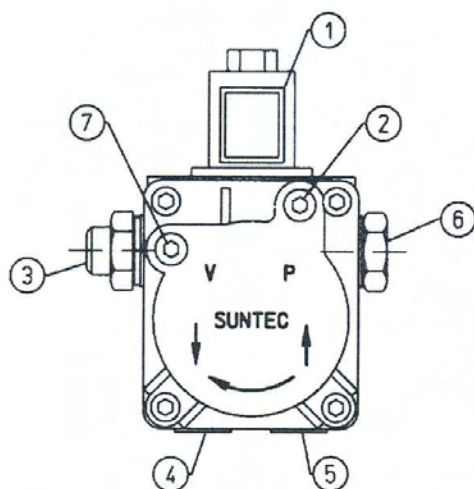
Fig. C

- 3) The plate must be hung up as illustrated in fig. C.

TYPE OF IRREGULARITY	PROBABLE CAUSE	RIMEDY
The controll-box stops with flame (red light on) The failure is limited to the flame-controlling device.	1) Photoresistance is cut off or dirty with smoke. 2) Boiler fouled 3) Photoresistor circuit failure 4) Dirty disk or mouth.	1) Clean or replace it. 2) Check all smoke circuits inside the boiler and the chimney. 3) Replace the control-box. 4) To be cleaned.
The control-box stops the burner with fuel spraying but no flame (red light on).	1) The ignition circuit is broken. 2) The ignition transformer cables have dried over time. 3) The ignition transformer cables are not well connected. 4) The ignition transformer is cut off. 5) The electrode faces are not at the right distance. 6) Electrodes discharge to earth since they are dirty or with a cracked insulation; also check under the clamps fastening the insulating materials.	1) Check the circuit completely. 2) Replace them. 3) Connect correctly. 4) Replace it. 5) Adjust them to the prescribed position. 6) Clean or, if necessary, replace them.
The control-box stops the burner without spraying fuel (red light on).	1) There is one phase missing. 2) Insufficient electric motor. 3) Light-oil does not reach the pump. 4) No light-oil inside the tank. 5) Closed gate-valve in suction pipe. 6) Clogged nozzle. 7) Motor rotating in the opposite direction as that indicated by the arrow.	1) Check the feeder line. 2) Repair or replace it. 3) Check the suction pipe. 4) Fill with fuel. 5) Open it. 6) Disassemble and clean it completely 7) Invert a phase in the input switch.
The burner does not start	1) Open contact in (Boiler or room) thermo-stats or pressure-switches. 2) Short-circuited photo-resistance. 3) There is no voltage because of the an open contact in the main switch or the meter overload-release, or no voltage in the line. 4) The thermo-stats line was not carried out according to the diagram or thermo-stats did not close their contacts. 5) Failure inside the control-box.	1) Increase the value or wait for them to close by natural decrease in temperature or pressure. 2) Replace it. 3) Close the contact of the switches or wait for voltage to be supplied again. 4) Check thermo-stat connections. 5) Replace it.
Defective flame with sparks.	1) Spraying pressure is too low. 2) Too much combustion air. 3) Insufficient nozzle since it is dirty or worn out. 4) Water in fuel.	1) Bring it to the expected value. 2) Decrease combustion air. 3) Clean or replace it. 4) Discharge it from the tank by using a suitable pump (never use the burner pump to carry out this operation).
Not well-shaped flame with smoke and soot.	1) Insufficient combustion air. 2) Insufficient nozzle since it is dirty or worn out. 3) Clogged boiler pipe or chimney. 4) Low spraying pressure.	1) Increase combustion air. 2) Clean or replace it. 3) Clean them. 4) Bring it to the prescribed value.

油泵详述 / PUMP PARTICULAR
SUNTEC AS 47C 1538

BT 8930/1
Rev 21/04/94



1 电磁阀(通常处于闭合状态) /
ELECTROVALVE (USUALLY CLOSED)

2 压力计接头和排气口(1/8") /
PRESSURE TEST POINT AND PURGE POINT (1/8")

3 压力调节螺栓 / PRESSURE REGULATION SCREW

4 回油 / RETURN

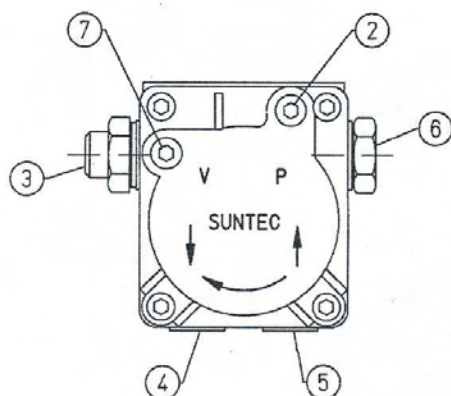
5 吸油 / SUCTION

6 输往喷嘴 / DELIVERY TO NOZZLE

7 真空计接头(1/8") / VACUUM TEST POINT (1/8")

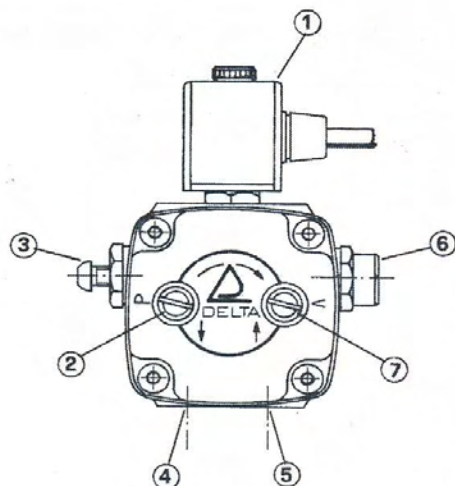
油泵详述 / PUMP PARTICULAR
SUNTEC AE 47C 1387

N°0002900910
Rev. 04/05/00



油泵详述 / PUMP PARTICULAR
DELTA VM 1 LR 24

N° 0002900340
Rev 21/04/94



备注: 油泵已预调成12 bar的压力。

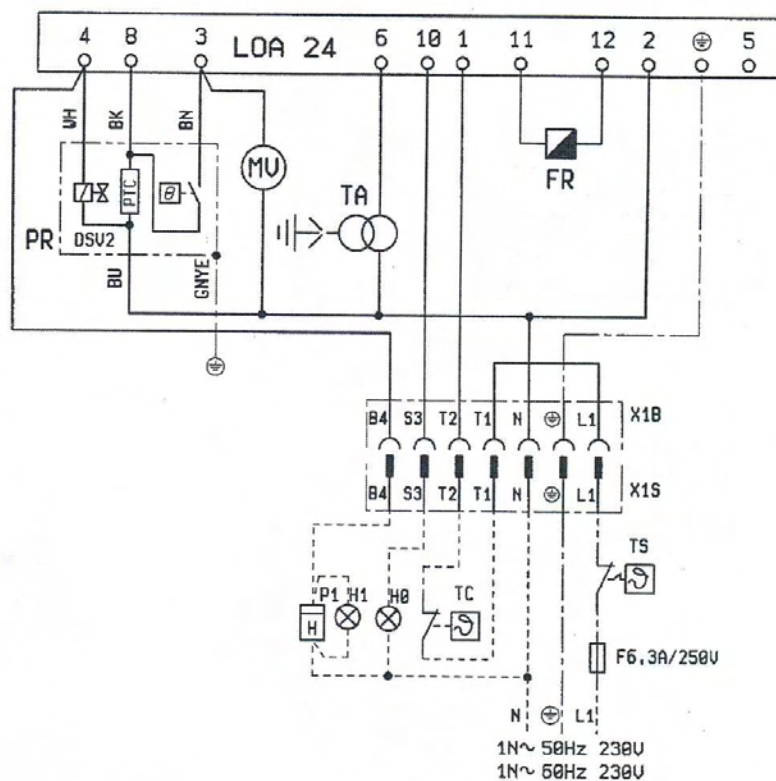
N.B. The pump is preset at a 12 bar pressure.

电气连接 / ELECTRIC CONNECTIONS

电气线路最好远离受热部分，建议所有连接都使用软电线，芯线截面积最小应达1.5 mm²。

The electrical lines should be at an adequate distance from hot parts. It is advisable to make all the connections with flexible electric wire. Conductor's minimum section 1,5 mm².

L1 - 相线 / PHASE
⊕ - 地线 / GROUND
N - 中线 / NEUTRAL



H0 - 停机指示灯
H1 - 运行指示灯
FR - 光电管
TA - 点火变压器
TS - 安全恒温器
TC - 锅炉恒温器
LOA... - 控制盒
V1 - 电磁阀
MV - 风机电机
P1 - 计时器
PR - 预热器

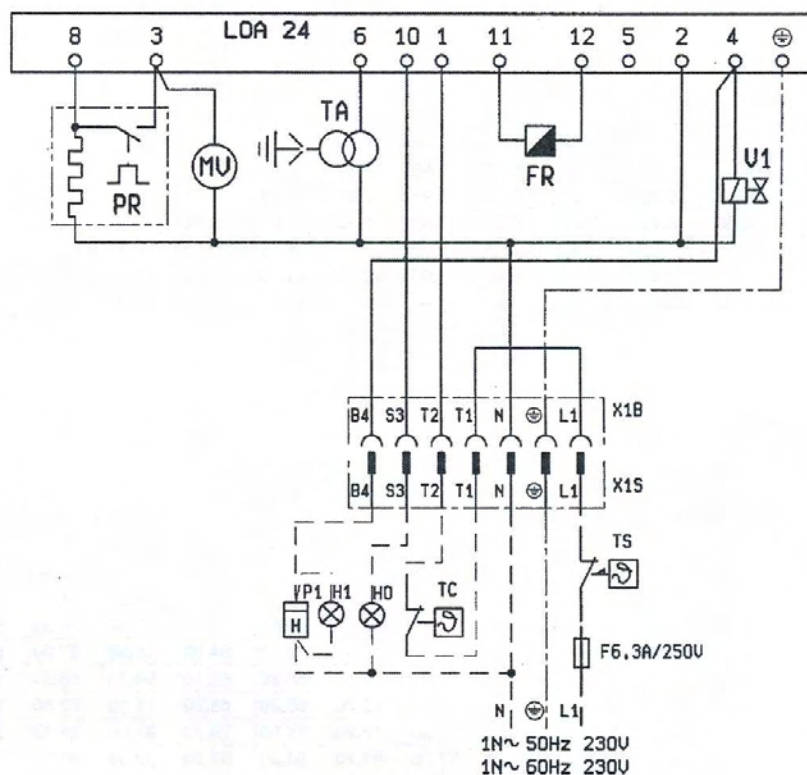
H0 - BLOCK LAMP
H1 - OPERATION LIGHT
FR - PHOTO RESISTANCE
TA - IGNITION TRASFORMER
TS - SAFETY THERMOSTAT
TC - BOILER THERMOSTAT
LOA... - CONTROL BOX
V1 - ELECTROVALVE
MV - FAN MOTOR
P1 - HOUR METER
PR - OIL PREHEATER

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轻油喷嘴流量表
NOZZLE FLOW-RATE TABLE FOR LIGHT OIL

轻油喷嘴流量表
NOZZLE FLOW-RATE TABLE FOR LIGHT OIL

喷嘴 Nozzle	油泵压力 / Pump pressure bar															喷嘴 Nozzle
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
G.P.H.	喷嘴输出流量 / Nozzle output flow-rate kg/h															G.P.H.
0.40	1.27	1.36	1.44	1.52	1.59	1.67	1.73	1.80	1.86	1.92	1.98	2.04	2.10	2.15	2.20	0.40
0.50	1.59	1.70	1.80	1.90	1.99	2.08	2.17	2.25	2.33	2.40	2.48	2.55	2.62	2.69	2.75	0.50
0.60	1.91	2.04	2.16	2.28	2.39	2.50	2.60	2.70	2.79	2.88	2.97	3.06	3.14	3.22	3.30	0.60
0.65	2.07	2.21	2.34	2.47	2.59	2.71	2.82	2.92	3.03	3.12	3.22	3.31	3.41	3.49	3.58	0.65
0.75	2.38	2.55	2.70	2.85	2.99	3.12	3.25	3.37	3.49	3.61	3.72	3.82	3.93	4.03	4.13	0.75
0.85	2.70	2.89	3.06	3.23	3.39	3.54	3.68	3.82	3.96	4.09	4.21	4.33	4.45	4.57	4.68	0.85
1.00	3.18	3.40	3.61	3.80	3.99	4.16	4.33	4.50	4.65	4.81	4.96	5.10	5.24	5.37	5.51	1.00
1.10	3.50	3.74	3.97	4.18	4.38	4.58	4.77	4.95	5.12	5.29	5.45	5.61	5.76	5.91	6.06	1.10
1.20	3.82	4.08	4.33	4.56	4.78	5.00	5.20	5.40	5.59	5.77	5.95	6.12	6.29	6.45	6.61	1.20
1.25	3.97	4.25	4.50	4.75	5.00	5.20	5.40	5.60	5.80	6.00	6.20	6.35	6.55	6.70	6.85	1.25
1.35	4.29	4.59	4.87	5.13	5.38	5.62	5.85	6.07	6.28	6.49	6.69	6.88	7.07	7.26	7.44	1.35
1.50	4.77	5.10	5.41	5.70	5.90	6.24	6.50	6.75	6.98	7.21	7.43	7.65	7.86	8.06	8.26	1.50
1.65	5.25	5.61	5.95	6.27	6.58	6.87	7.15	7.42	7.68	7.93	8.18	8.41	8.64	8.87	9.09	1.65
1.75	5.56	5.95	6.31	6.65	6.98	7.29	7.58	7.87	8.15	8.41	8.67	8.92	9.17	9.41	9.64	1.75
2.00	6.30	6.80	7.21	7.60	7.97	8.33	8.67	8.99	9.31	9.61	9.91	10.20	10.48	10.75	11.01	2.00
2.25	7.15	7.65	8.15	8.55	8.97	9.37	9.75	10.12	10.47	10.85	11.15	11.47	11.79	12.09	12.39	2.25
2.50	7.95	8.50	9.01	9.50	9.97	10.41	10.83	11.24	11.64	12.02	12.39	12.75	13.10	13.44	13.77	2.50
3.00	9.54	10.20	10.82	11.40	11.96	12.49	13.00	13.49	13.96	14.42	14.87	15.30	15.72	16.12	16.52	3.00
3.50	11.13	11.90	12.62	13.30	13.95	14.57	15.17	15.74	16.29	16.83	17.34	17.85	18.34	18.81	19.28	3.50
4.00	12.72	13.60	14.42	15.20	15.94	16.65	17.33	17.99	18.62	19.23	19.82	20.40	20.95	21.50	22.03	4.00
4.50	14.31	15.30	16.22	17.10	17.94	18.73	19.50	20.24	20.95	21.63	22.30	22.95	23.57	24.19	24.78	4.50
5.00	15.90	17.00	18.03	19.00	19.93	20.82	21.67	22.48	23.27	24.04	24.78	25.49	26.19	26.87	27.54	5.00
5.50	17.49	18.70	19.83	20.90	21.92	22.90	23.83	24.73	25.60	26.44	27.25	28.04	28.81	29.56	30.29	5.50
6.00	19.00	20.40	21.63	22.80	23.92	24.98	26.00	26.98	27.93	28.84	29.73	30.59	31.43	32.25	33.04	6.00
6.50	20.67	22.10	23.44	23.70	25.91	27.06	28.17	29.23	30.26	31.25	32.21	33.14	34.05	34.94	35.80	6.50
7.00	22.26	23.79	25.24	26.60	27.90	29.14	30.33	31.48	32.58	33.65	34.69	35.69	36.67	37.62	38.55	7.00
7.50	23.85	25.49	27.04	28.50	29.90	31.22	32.50	33.73	34.91	36.05	37.16	38.24	39.29	40.31	41.31	7.50
8.30	26.39	28.21	29.93	31.54	33.08	34.55	35.97	37.32	38.63	39.90	41.13	42.32	43.48	44.61	45.71	8.30
9.50	30.21	32.29	34.25	36.10	37.87	39.55	41.17	42.72	44.22	45.67	47.07	48.44	49.77	51.06	52.32	9.50
10.50	33.39	35.69	37.86	40.06	41.73	43.74	45.41	47.20	48.90	50.50	52.00	53.50	55.00	56.40	57.80	10.50
12.00	38.20	40.80	43.30	45.60	47.80	50.00	52.00	54.00	55.90	57.70	59.50	61.20	62.90	64.50	66.10	12.00
13.80	43.90	46.90	49.80	52.40	55.00	57.50	59.80	62.10	64.20	66.30	68.40	70.40	72.30	74.30	76.00	13.80
15.30	48.60	52.00	55.20	58.10	61.00	63.70	66.30	68.80	71.10	73.60	75.80	78.00	80.20	82.20	84.30	15.30
17.50	55.60	59.50	63.10	66.50	69.80	72.90	75.80	78.70	81.50	84.10	86.70	89.20	91.70	94.10	96.40	17.50
19.50	62.00	66.30	70.30	74.10	77.70	81.20	84.50	87.70	90.80	93.70	96.60	99.40	102.20	104.80	107.40	19.50
21.50	68.40	73.10	77.50	81.70	85.70	89.50	93.20	96.70	100.10	103.40	106.50	109.60	112.60	115.60	118.40	21.50
24.00	76.30	81.60	86.50	91.20	95.70	99.90	104.00	107.90	111.70	115.40	118.90	122.40	125.70	129.00	132.20	24.00
28.00	89.00	95.20	101.00	106.40	111.60	116.60	121.30	125.90	130.30	134.60	138.70	142.80	146.70	150.50	154.20	28.00
30.00	95.40	102.00	108.20	114.00	119.60	124.90	130.00	134.90	139.60	144.20	148.70	153.00	157.20	161.20	165.20	30.00

1 mbar= 10 mmC.A. $\approx$ 100 Pa

1 kW= 860 kcal

轻油稠度 / light oil density = 0,820 / 0,830 PCI = 10150

特种供暖用油稠度 / Special heating oil density = 0,900 PCI = 9920

家庭供暖用油稠度(3,5°E) / Domestic (3,5°E) heating oil density = 0,940 PCI = 9700

重油稠度(7,9°E) / Heavy oil density (7,9°E) = 0,970 / 0,980 PCI = 9650

PCI = 下热值 / Minimum calorific value

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