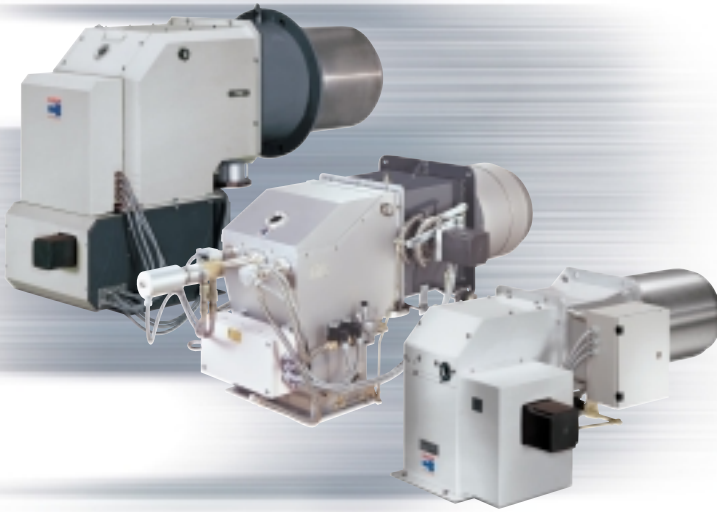




INDUSTRIAL OIL, GAS AND DUAL FUEL BURNERS

▶ TI SERIES

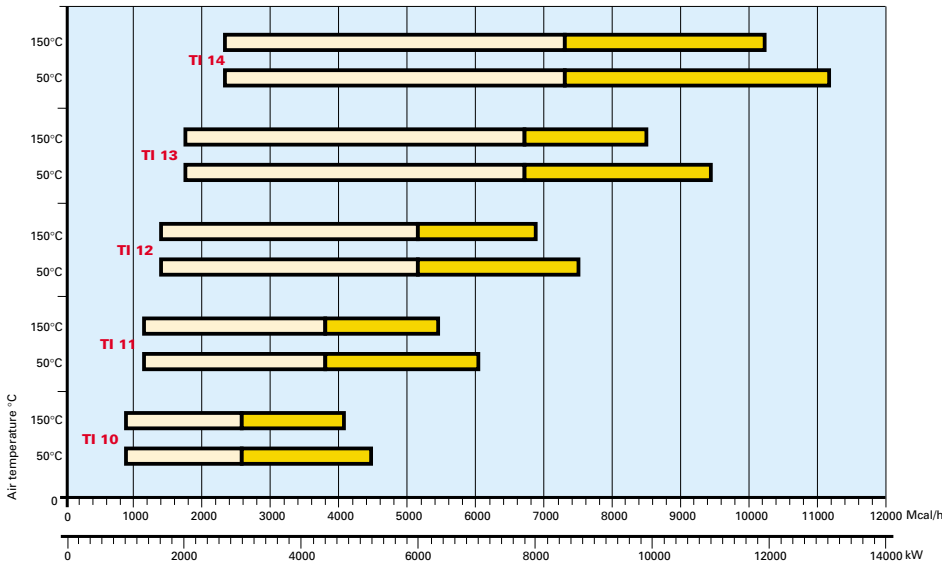
▶ TI 10	930/3000 ÷ 5200 kW
▶ TI 11	1165/4200 ÷ 7000 kW
▶ TI 12	2325/6000 ÷ 8700 kW
▶ TI 13	2600/7800 ÷ 11000 kW
▶ TI 14	6000/8500 ÷ 13000 kW



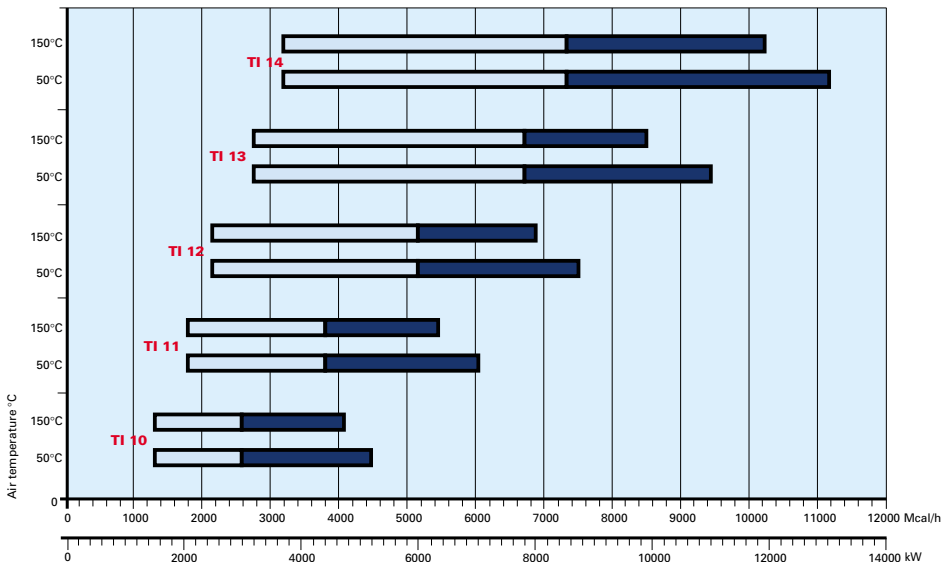
The industrial burners TI series are designed for large civil installations and industrial processes with high thermal demands. This series gives a modular and flexible combustion system adding a preparation fuel unit (regulation pressure group set, preheating/pumping oil station), a gas train, a control panel and a fan. Preheated air can also be used in the oil diathermic generators and other heat recovery systems. The modulating operation, with a variable geometry combustion head, always allows to reach a wide modulation ratio and optimal fluid-dynamics conditions for a good combustion.

FIRING RATES

GAS



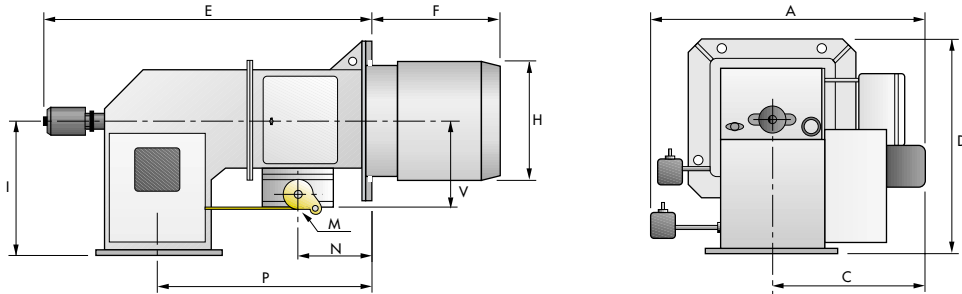
OIL



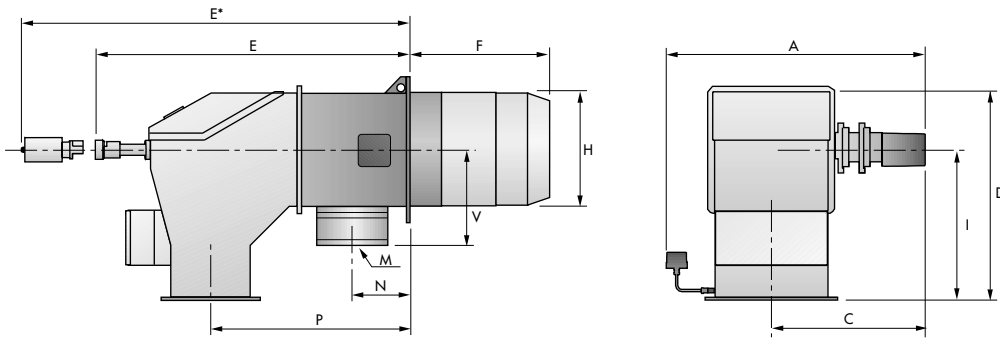
TI series - OVERALL DIMENSIONS (mm)

BURNER

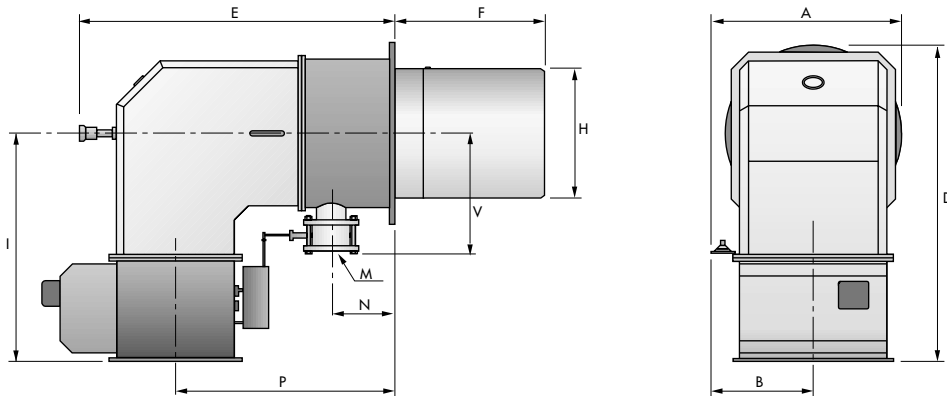
TI 10-11-12



TI 13



TI 14



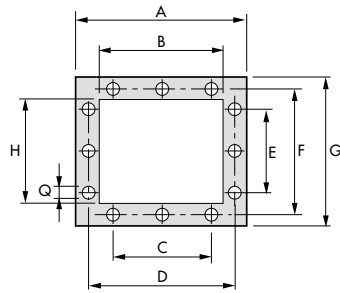
Model	A	B	C	D	E - E*	F	H	I	M	N	P	V
▶ TI 10	770	-	478	590	1080	470	336	390	DN80	208	604	257
▶ TI 11	770	-	478	590	1080	470	336	390	DN80	208	604	257
▶ TI 12	770	-	478	590	1080	470	386	390	DN80	208	604	257
▶ TI 13	940	-	558	756	1140 - 1406	512	416	546	DN80	250	720	316
▶ TI 14	820	400	-	1200	1293 - 1508	600	508	847	DN100	250	851	478

E - gas version
E* - oil and dual fuel version

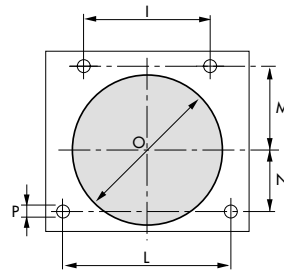
► MOUNTING FLANGES

TI 10-11-12

AIR CHANNEL FLANGE

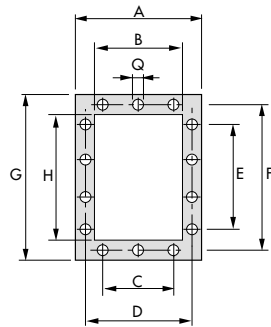


PERFORATION BOILERPLATE

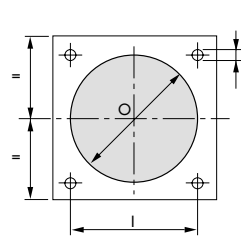


TI 13

AIR CHANNEL FLANGE

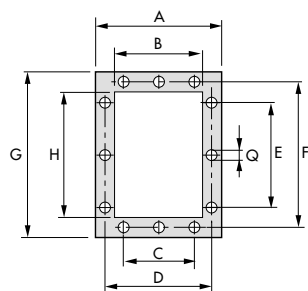


PERFORATION BOILERPLATE

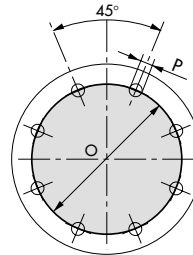


TI 14

AIR CHANNEL FLANGE

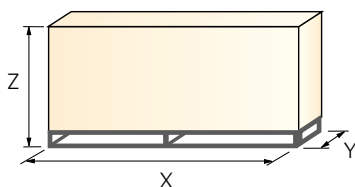


PERFORATION BOILERPLATE



Model	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q
► TI 10	368	300	240	340	220	320	348	280	240	350	175	120	350	M16	9
► TI 11	368	300	240	340	220	320	348	280	240	350	175	120	350	M16	9
► TI 12	368	300	240	340	220	320	348	280	260	390	195	130	400	M16	9
► TI 13	360	280	250	332	375	448	480	402	460	-	-	-	430	M18	11
► TI 14	542	452	410	510	390	620	652	562	-	-	-	-	645	M14	11

► PACKAGING



Model	X	Y	Z	kg
► TI 10	1680	960	930	200
► TI 11	1680	960	930	200
► TI 12	1680	960	930	200
► TI 13	2100	1200	1150	240
► TI 14	2200	940	1450	270

All burners

Forced draught burners, two stage progressive or modulating operation with a kit, separate supplies, fully automatic, made up of:

- Sheet-steel airlock painted with a cover for access to the internal elements
- Air damper for air setting with variable profile cam controlled by a servomotor
- Mobile combustion head (except for TI 14 model), that can be set on the basis of required output
- Pilot burner (TI13 - TI14 models)
- Minimum air pressure switch
- Flame inspection window
- Shunt box with ignition transformer
- IP 54 electric protection level.

Oil Burner

- Photocell for flame detection
- Nozzle pipe
- Safety nozzle valve
- Valves group with safety oil valves
- Automatic regulator of oil capacity controlled by a servomotor
- Maximum oil pressure switch on the return circuit
- Pressure gauge on the delivery and return circuit.

Gas Burner

- Ionisation probe
- Maximum gas pressure switch
- Butterfly valve for the dosage of the fuel with a variable profile cam controlled by a servomotor
- Gas pressure test point to the combustion head.

Dual Fuel Burner (Oil/Gas)

- Photocell for flame detection
- Nozzle pipe
- Safety nozzle valve
- Valves group with safety oil valves
- Automatic regulator of oil capacity controlled by a servomotor
- Maximum oil pressure switch on the return circuit
- Pressure gauge on the delivery and return circuit
- Maximum gas pressure switch
- Butterfly valve for the dosage of the fuel with a variable profile cam controlled by a servomotor
- Gas pressure test point to the combustion head.

Standard equipment

- Screws for fixing the burner flange to the boiler
- Thermal screen
- Screws for fixing the gas train flange to the burner (gas and dual fuel burner)
- Gas train gasket (gas and dual fuel burner)
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

TI series - AVAILABLE BURNER MODELS

Code	Model	Fuel	Heat output *			Air ** (m ³ /h)	Note	Price
			(kW)	Oil (kg/h)	Gas (Nm ³ /h)			
3857450	TI 10 P/ M TC A-0 FS1 230/50-60 T50 I	Natural gas	930/3000+5200	-	525	6300		
3857455	TI 10 P/ M TC A-180 FS1 230/50-60 T50 I	Natural gas	930/3000+5200	-	525	6300		
3857600	TI 11 P/ M TC A-0 FS1 230/50-60 T50 I	Natural gas	1165/4200+7000	-	710	8400		
3857605	TI 11 P/ M TC A-180 FS1 230/50-60 T50 I	Natural gas	1165/4200+7000	-	710	8400		
3857750	TI 12 P/ M TC A-0 FS1 230/50-60 T50 I	Natural gas	2325/6000+8700	-	880	10500		
3857755	TI 12 P/ M TC A-180 FS1 230/50-60 T50 I	Natural gas	2325/6000+8700	-	880	10500		
3851300	TI 13 P/ M TC A-0 FS1 230/50-60 T50 I	Natural gas	2600/7800+11000	-	1090	13200	(1)	
3851305	TI 13 P/ M TC A-180 FS1 230/50-60 T50 I	Natural gas	2600/7800+11000	-	1090	13200	(1)	
3857800	TI 14 P/ M TC A-0 FS1 230/50-60 T50 I	Natural gas	6000/8500+12000	-	1215	14600	(1)	
3854450	TI 10 P/ G TC A-0 FS1 230/50-60 T50 I	Light Oil	930/3000+5200	78+441	-	6300		
3854455	TI 10 P/ G TC A-180 FS1 230/50-60 T50 I	Light Oil	930/3000+5200	78+441	-	6300		
3854600	TI 11 P/ G TC A-0 FS1 230/50-60 T50 I	Light Oil	1165/4200+7000	98+590	-	8400		
3854605	TI 11 P/ G TC A-180 FS1 230/50-60 T50 I	Light Oil	1165/4200+7000	98+590	-	8400		
3854750	TI 12 P/ G TC A-0 FS1 230/50-60 T50 I	Light Oil	2325/6000+8700	196+735	-	10500		
3854755	TI 12 P/ G TC A-180 FS1 230/50-60 T50 I	Light Oil	2325/6000+8700	196+735	-	10500		
3851400	TI 13 P/ G TC A-0 FS1 230/50-60 T50 I	Light Oil	2600/7800+11000	220+910	-	12800	(1)	
3851405	TI 13 P/ G TC A-180 FS1 230/50-60 T50 I	Light Oil	2600/7800+11000	220+910	-	12800	(1)	
3851200	TI 14 P/ G TC A-0 FS1 230/50-60 T50 I	Light Oil	6000/8500+12000	506+1012	-	14200	(1)	
3851210	TI 14 P/ G TC A-0 FS1 230/50-60 T50 I	Light Oil	6000/8500+12000	506+1012	-	14200	(2)	
3854450	TI 10 P/ N TC A-0 FS1 230/50-60 T50 I	Heavy Oil	930/3000+5200	80+450	-	6700		
3854455	TI 10 P/ N TC A-180 FS1 230/50-60 T50 I	Heavy Oil	930/3000+5200	80+450	-	6700		
3854600	TI 11 P/ N TC A-0 FS1 230/50-60 T50 I	Heavy Oil	1165/4200+7000	100+600	-	9500		
3854605	TI 11 P/ N TC A-180 FS1 230/50-60 T50 I	Heavy Oil	1165/4200+7000	100+600	-	9500		
3854750	TI 12 P/ N TC A-0 FS1 230/50-60 T50 I	Heavy Oil	2325/6000+8700	200+750	-	11700		
3854755	TI 12 P/ N TC A-180 FS1 230/50-60 T50 I	Heavy Oil	2325/6000+8700	200+750	-	11700		
3851410	TI 13 P/ N TC A-0 FS1 230/50-60 T50 I	Heavy Oil	2600/7800+11000	233+970	-	14600	(1)	
3851415	TI 13 P/ N TC A-180 FS1 230/50-60 T50 I	Heavy Oil	2600/7800+11000	233+970	-	14600	(1)	
3851200	TI 14 P/ N TC A-0 FS1 230/50-60 T50 I	Heavy Oil	6000/8500+12000	538+1075	-	16200	(1)	
3851210	TI 14 P/ N TC A-0 FS1 230/50-60 T50 I	Heavy Oil	6000/8500+12000	538+1075	-	16200	(2)	
3090589	TI 10 P/ P TC A-0 FS1 230/50-60 T50 I	LPG	930/3000+5200	-	200	6000		
3090300	TI 11 P/ P TC A-0 FS1 230/50-60 T50 I	LPG	1165/4200+7000	-	267	8010		
3090561	TI 12 P/ P TC A-0 FS1 230/50-60 T50 I	LPG	2325/6000+8700	-	332	9960		
3851310	TI 13 P/ P TC A-0 FS1 230/50-60 T50 I	LPG	2600/7800+11000	-	413	12390	(1)	
3851325	TI 13 P/ P TC A-180 FS1 230/50-60 T50 I	LPG	2600/7800+11000	-	413	12390	(1)	
3857810	TI 14 P/ P TC A-0 FS1 230/50-60 T50 I	LPG	6000/8500+12000	-	458	13740	(1)	
3090688	TI 10 P/ NP TC A-0 FS1 230/50-60 T50 I	Heavy Oil + LPG	930/3000+5200	80+465	200	6700		
3090761	TI 11 P/ NP TC A-0 FS1 230/50-60 T50 I	Heavy Oil + LPG	1165/4200+7000	100+627	267	9500		
3090700	TI 12 P/ NP TC A-0 FS1 230/50-60 T50 I	Heavy Oil + LPG	2325/6000+8700	200+781	332	11700		
3841911	TI 13 P/ NP TC A-0 FS1 230/50-60 T50 I	Heavy Oil + LPG	2600/7800+11000	233+970	413	14600	(1)	
3841906	TI 13 P/ NP TC A-180 FS1 230/50-60 T50 I	Heavy Oil + LPG	2600/7800+11000	233+970	413	14600	(1)	
3090869	TI 10 P/ NMTC A-0 FS1 230/50-60 T50 I	Heavy Oil + Natural gas	930/3000+5200	80+465	525	6700		
3090542	TI 10 P/ NMTC A-180 FS1 230/50-60 T50 I	Heavy Oil + Natural gas	930/3000+5200	80+465	525	6700		
3090605	TI 11 P/ NMTC A-0 FS1 230/50-60 T50 I	Heavy Oil + Natural gas	1165/4200+7000	100+627	710	9500		
3090389	TI 12 P/ NMTC A-0 FS1 230/50-60 T50 I	Heavy Oil + Natural gas	2325/6000+8700	200+781	880	11700		
3841901	TI 13 P/ NMTC A-0 FS1 230/50-60 T50 I	Heavy Oil + Natural gas	2600/7800+11000	233+970	1090	14600	(1)	
3841906	TI 13 P/ NMTC A-180 FS1 230/50-60 T50 I	Heavy Oil + Natural gas	2600/7800+11000	233+970	1090	14600	(1)	
3090507	TI 14 P/ NMTC A-0 FS1 230/50-60 T50 I	Heavy Oil + Natural gas	6000/8500+12000	538+1075	1215	16100	(1)	
3841450	TI 10 P/ GMTC A-0 FS1 230/50-60 T50 I	Light Oil + Natural gas	930/3000+5200	78+441	525	6300		
3841455	TI 10 P/ GMTC A-180 FS1 230/50-60 T50 I	Light Oil + Natural gas	930/3000+5200	78+441	525	6300		
3841600	TI 11 P/ GMTC A-0 FS1 230/50-60 T50 I	Light Oil + Natural gas	1165/4200+7000	98+590	710	8400		
3841605	TI 11 P/ GMTC A-180 FS1 230/50-60 T50 I	Light Oil + Natural gas	1165/4200+7000	98+590	710	8400		
3841750	TI 12 P/ GMTC A-0 FS1 230/50-60 T50 I	Light Oil + Natural gas	2325/6000+8700	196+735	880	\		
3841755	TI 12 P/ GMTC A-180 FS1 230/50-60 T50 I	Light Oil + Natural gas	2325/6000+8700	196+735	880	10500		
3841900	TI 13 P/ GMTC A-0 FS1 230/50-60 T50 I	Light Oil + Natural gas	2600/7800+11000	220+910	1090	13200	(1)	
3841905	TI 13 P/ GMTC A-180 FS1 230/50-60 T50 I	Light Oil + Natural gas	2600/7800+11000	220+910	1090	13200	(1)	
3841800	TI 14 P/ GMTC A-0 FS1 230/50-60 T50 I	Light Oil + Natural gas	6000/8500+12000	506+1012	1215	14600	(1)	
3841910	TI 13 P/ GP TC A-0 FS1 230/50-60 T50 I	Light Oil + LPG	2600/7800+11000	220+910	413	13200	(1)	
3841915	TI 13 P/ GP TC A-0 FS1 230/50-60 T50 I	Light Oil + LPG	2600/7800+11000	220+910	413	13200	(1)	
3090692	TI 10 E/ M TC A-180 FS1 230/50-60 T50 I	Natural gas	930/3000+5200	-	525	6300		
3090832	TI 11 E/ M TC A-180 FS1 230/50-60 T50 I	Natural gas	1165/4200+7000	-	710	8400		
3090746	TI 12 E/ M TC A-180 FS1 230/50-60 T50 I	Natural gas	2325/6000+8700	-	880	10500		
3090533	TI 14 E/ M TC A-0 FS1 230/50-60 T50 I	Natural gas	6000/8500+12000	-	1215	14600	(1)	
3090713	TI 10 E/ NMTC A-0 FS1 230/50-60 T50 I	Heavy Oil + Natural gas	930/3000+5200	80+465	525	6700		

* Max capacity is referred to:

Light oil net calorific value 11,8 kWh/kg - 10200 kcal/kg - Viscosity at 20°C 4-6 mm²/s (cSt)

Heavy oil net calorific value 11,1-11,3 kWh/kg - 9545-9720 kcal/kg - Viscosity at 20°C 500 mm²/s (cSt)

G20 net calorific value 10 kWh/Nm³ - Density 0,71 kg/Nm³

G25 net calorific value 8,6 kWh/Nm³ - Density 0,78 kg/Nm³

LPG net calorific value 25,8 kWh/Nm³ - Density 2,02 kg/Nm³

** Air flow is related to max burner output

(1) Low pressure pilot gas train max 500 mbar

(2) High pressure pilot gas train max 7000 mbar

TI series - BURNER ACCESSORIES

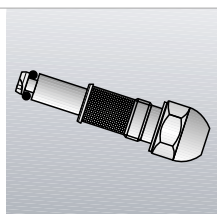
High pressure flexible tubes



To connect the burner to the fuel line adduction some flexible tubes are available.

Burner	Tube diameter	Tube length (mm)	Maximum working pressure (bar)	Tube code	Price
TI 10	1/2"	1500	40	3094227	
TI 11	1/2"	1500	40	3094227	
TI 12	1/2"	1500	40	3094227	
TI 13	3/4"	2000	40	3094226	
TI 14	3/4"	2000	40	3094226	

Nozzles



The following list shows the features and codes on the basis of the maximum required fuel output.

NOTE: each burner needs N° 1 nozzle.

Burner	Nozzles type "B3-30-AA" 30°			Nozzles type "B3-45-AA" 45°		
	Rated delivery (kg/h)	Nozzle code	Price	Rated delivery (kg/h)	Nozzle code	Price
TI 10 - TI 11 TI12	150	3009625		150	3009626	
	175	3009628		175	3009629	
	200	3009631		200	3009632	
	225	3009634		225	3009635	
	250	3009637		250	3009638	
	275	3009640		275	3009641	
	300	3009643		300	3009644	
	325	3009646		325	3009647	
	350	3009649		350	3009650	
	375	3009652		375	3009653	
	400	3009655		400	3009656	
	425	3009658		425	3009659	
	450	3009661		450	3009662	
	475	3009664		475	3009665	
	500	3009667		500	3009668	
	525	3009670		525	3009671	
	550	3009673		550	3009674	
	575	3009676		575	3009677	
	600	3009679		600	3009680	
	650	3009682		650	3009683	
700	3009685		700	3009686		
750	3009688		750	3009689		
800	3009691		800	3009692		
850	3009694		850	3009695		
900	3009697		900	3009698		

Nozzles type "B5-45-AA" 45°

Burner	Rated delivery (kg/h)	Nozzle code	Price
TI 10 - TI 11 TI 12 - TI 13	250	3009802	
	275	3009803	
	300	3009804	
	325	3009805	
	350	3009806	
	375	3009807	
	400	3009808	
	425	3009809	
	450	3009810	
	475	3009811	
	500	3009812	
	525	3009813	
	550	3009814	
	575	3009815	
	600	3009816	
	650	3009817	
	700	3009818	
	750	3009819	
	800	3009820	
	850	3009821	
900	3009822		
950	3009823		

Nozzles type "M14/3" 45°

Burner	Rated delivery (kg/h)	Nozzle code	Price
TI 14	600	3009900	
	650	3009901	
	700	3009902	
	750	3009903	
	800	3009904	
	850	3009905	
	900	3009906	
	950	3009907	
	1000	3009908	
	1050	3009909	
	1100	3009910	
	1150	3009911	
	1200	3009912	

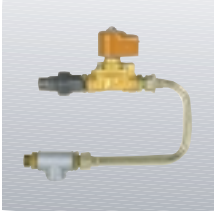
High pressure oil filter



In order to protect the hydraulic circuit of the burner these filters are available.

Burner	Filter diameter	Filtering degree (µm)	Filter Code	Price
TI 10	1/2"	500	In progress	
TI 11	1/2"	500	In progress	
TI 12	1/2"	500	In progress	
TI 13	3/4"	500	In progress	
TI 14	3/4"	500	In progress	

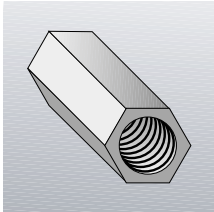
Circulation group (by-pass valve)



Some circulation groups, that allow the circulates of the heated fuel during the stand-by phase, are available.

Burner	Group diameter	Group code	Price
TI 10	1/2"	In progress	
TI 11	1/2"	In progress	
TI 12	1/2"	In progress	
TI 13	3/4"	In progress	
TI 14	3/4"	In progress	

Check valve



In order to avoid fuel return, "check valve" are available.

Burner	Valve diameter	Valve code	Price
TI 10	1/2"	In progress	
TI 11	1/2"	In progress	
TI 12	1/2"	In progress	
TI 13	3/4"	In progress	
TI 14	3/4"	In progress	

Potentiometer kit



A three-pole potentiometer (1000 Ω) can be installed to check the position of the servomotor.

Burner	Kit code	Price
TI 10-11-12-13-14	3010021	