

EUROBOILERS

**GARIONI NAVAL**  
INDUSTRIAL AND MARINE HEATING SYSTEMS

STEAM BOILERS AND THERMAL OIL HEATERS



EUROBOILERS

**GARIONI NAVAL**  
INDUSTRIAL AND MARINE HEATING SYSTEMS

STEAM BOILERS AND THERMAL OIL HEATERS

[www.garioninaval.com](http://www.garioninaval.com)  
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STEAM  
BOILERS  
since 1954

**THERMAL OIL  
HEATERS**

**CALDAIE AD OLIO  
DIATERMICO**

# TECHNICAL DATA AND TECHNICAL DRAWINGS

w w w . g a r i o n i n a v a l . c o m

**GARIONI NAVAL S.p.A.** Viale dei Caduti, 3 75030 Castelmella Brescia - Italy  
Phone +39 030 2681541 / +39 030 3582420 Fax +39 030 2680910 / +39 030 3580535  
[garioninaval@garioninaval.com](mailto:garioninaval@garioninaval.com) [www.garioninaval.com](http://www.garioninaval.com) [www.euroboiler.com](http://www.euroboiler.com)



C.C.I.A.A. BS n. 0332624 - R.S. Reg. Trib. BS n. 46984 - Cap. Soc. € 2.000.000,00 i.v. - P.IVA e Cod. Fisc. 03148440179



# "TH" - "TH-V" THERMAL OIL HEATER

w w w . g a r i o n i n a v a l . c o m

**GARIONI NAVAL S.p.A.** Viale dei Caduti, 3 25030 Castelmella Brescia - Italy  
Phone +39 030 2681541 / +39 030 3582420 Fax +39 030 2690910 / +39 030 3580535  
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## THERMAL OIL HEATERS TH – TH V

TH thermal oil heaters are completely free of the presence of pressure in the boiler line. These boilers utilise a fluid (thermal oil) which, in an open vessel system, is heated to a temperature below boiling point.

The main benefit of the use of thermal oil is the availability of high temperature fluid (up to 310°C) without pressure.

Moreover, by means of thermal oil heaters, using an oil/steam exchanger (unfired steam generator) it is possible to produce steam at pressures of up to 25 bar .

Our TH series thermal oil heaters are distinguished because of their:

- **Low thermal inertia**, due to the minimisation of the amount of refractory material and the use of ceramic fibre.
- **Low oil contents** ensuring fast heating to operating temperature.
- **Guaranteed perfect circulation and flow rate of oil** in the boiler thanks to the creation of coils with one or more parallel tube, perfectly identical one to the next.
- **Horizontal or vertical layout**, with **three pass firetubes**.
- **High efficiency (87% with oil at 260°C)** thanks to perfect exploitation of the exchange surfaces.
- **Facility for installation of various heat recovery systems** to increase efficiency up to 93%.
- **Immediate assistance service**, thanks to the use of primary brand commercial burners. On-the-spot after-sales service.

*The quality of TH steam generators is anyway assured by the ISO 9001 total quality certification secured by our company.*

w w w . g a r i o n i n a v a l . c o m

## SCOPE OF SUPPLY

### **1.0 BOILER BODY**

- 1.1 **CYLINDRICAL SHELL**, made of suitable gauge carbon steel sheet, containing the heating element, complete with suitably reinforced heads and, on request, departing from the standard solution, with a circular section stack connection.
- 1.2 **HEATING ELEMENT** comprising a "single tube" coil with one or more turns in accordance with the thermal capacity, wound into a continuous loop spiral. Made of ASTM 106, grade B, schedule 40 non-alloy steel tube for applications with wall temperatures of up to 450°C. Internal rear skin casing made of high temperature resistant steel clad with refractory cement, to provide a flue gas seal between the first and second firetubes.
- 1.3 Ring, made of refractory steel, to provide a flue gas seal on the first pass in the combustion chamber.
- 1.4 **EXTERNAL REAR DOOR**, for horizontal models only, openable, bolted into position, with circular section stack connection. Clad with cast-in-place insulating cement.
- 1.5 **FRONT DOOR**, for horizontal models only, hinged up to model TH 1000 inclusive, bolted from model 1250, complete with flame inspection hole and burner mounting plate, clad with cast-in-place refractory and insulating cement, to provide a flue gas seal between the second and third passes.
- 1.6 **UPPER DOOR**, only for vertical models, openable, bolted into position, complete with flame inspection hole, burner mounting plate, and clad with cast-in-place refractory and insulating cement.
- 1.7 Flue gas sealing gaskets in ceramic fibre braid.
- 1.8 **MANIFOLDS** complete with flanged oil inlet/outlet connections, probe connections and control and safety instruments.
- 1.9 Skid made of structural steel sections supporting the boiler assembly and its accessories.
- 1.10 Painting of shell, heads, doors and skid utilising a process involving cleaning and degreasing of metal surfaces followed by the application of two coats of one-pack high temperature matt enamel paint.
- 1.11 **INSULATING LINING OF THE SHELL** with 100 mm thick 100 density rock wool matting covered with sheet metal.

### **2.0 REGULATING AND CONTROL EQUIPMENT**

- 2.1 Limit thermostat
- 2.2 Steam control thermostat (2-stage models only)
- 2.3 Oil inlet /outlet glycerine pressure gauges, 0...6 bar scale, with 3-way cocks and test flange.
- 2.4 Oil inlet digital temperature gauge
- 2.5 Oil outlet digital temperature gauge.
- 2.6 **Gariomatic** digital control and monitoring system

### **3.0 SAFETY DEVICES**

- 3.1 Differential pressure switch for minimum oil flow rate.
- 3.2 Manual reset safety thermostat for maximum oil temperature.
- 3.3 Temperature regulator and controller

#### **4.0 ELECTRICAL AND CONTROL PANEL**

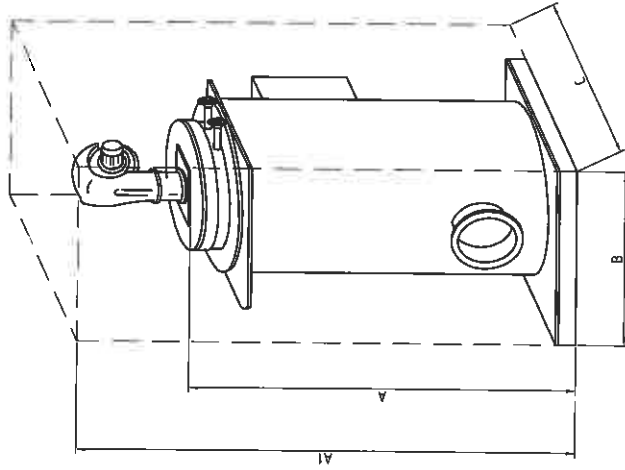
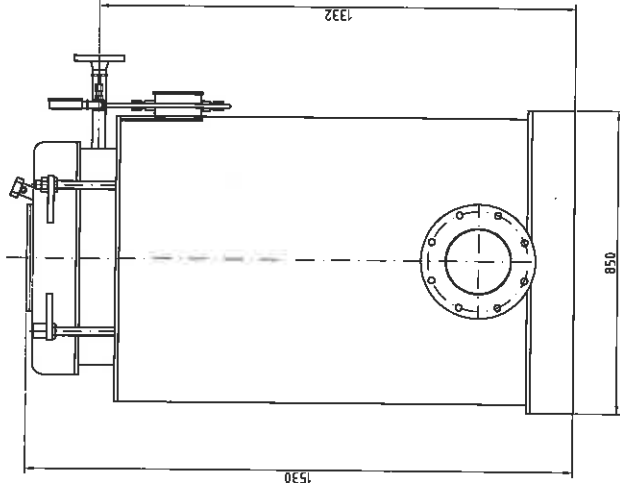
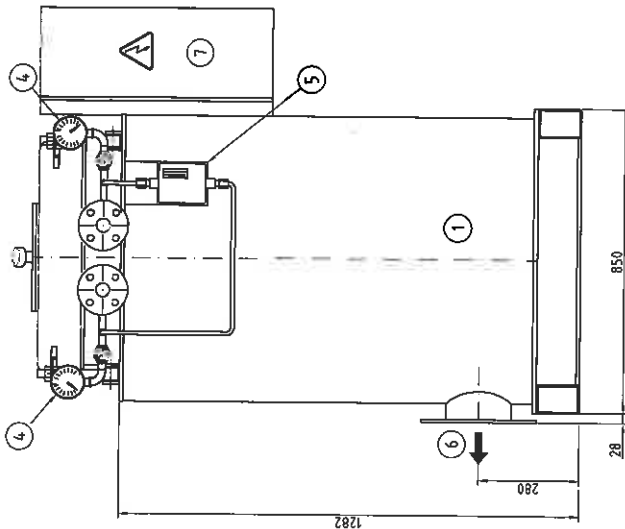
- 4.1 IP 44 enclosure
- 4.2 IP 55 enclosure on request
- 4.3 Main door lock master switch
- 4.4 Diathermic oil circulator pump contactor
- 4.5 Relays
- 4.6 Fuses
- 4.7 Indicator lights
- 4.8 Numbered terminal board
- 4.9 24V control circuits transformer
- 4.10 Electronic control module with microprocessor board
- 4.11 Polycarbonate keyboard with 12 keys for selection and setup of operating parameters.
- 4.12 **Gariomatic** digital control and monitoring system for display of operating parameters and indication, logged to the memory, of the causes of any trip conditions.
- 4.13 Burner start switch
- 4.14 Oil circulator pump start switch
- 4.15 Emergency pushbutton.

#### **5.0 DIATHERMIC OIL CIRCULATION UNIT**

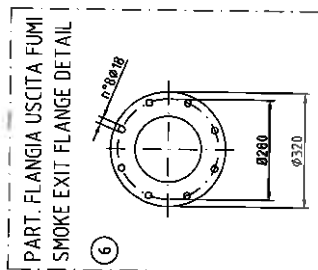
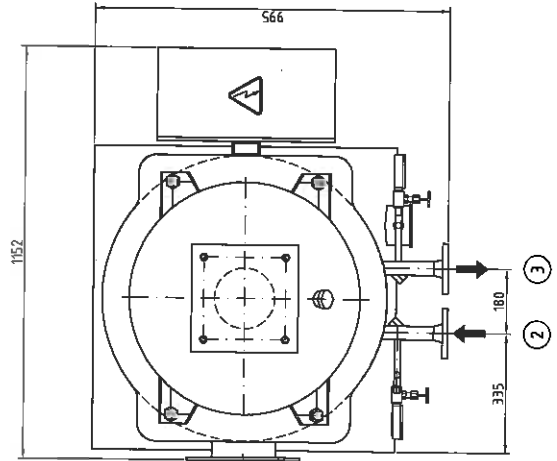
- 5.1 Single stage single inlet centrifugal pump, composed of:
  - Scroll housing made of spheroidal cast iron
  - Chromium steel shaft
  - Cast iron impeller
  - Self-cooled mechanical seal
- 5.2 Totally enclosed fan-over motor (2900 rpm)
- 5.3 Flexible coupling for direct drive transmissions
- 5.4 Flexible coupling guard



DIMENSIONI INCOMBO TRASPORTO  
TRANSPORT EXTERNAL DIMENSIONS



A	1530 mm
A1	1850 mm
B	1000 mm
C	1155 mm
PESO A VIUTO EMPTY WEIGHT	580 Kg



REV.	DATA	INNOVARE
1	28/07/05	Revisione generale
2	28/03/05	Revisione generale
3	28/07/05	Rd. costruttivo - trasporto

76 TH 01 R1		DESCRIZIONE		NOTE	
POS.	INR.	DESCRIZIONE	DESCRIZIONE	NOTE	
1	1	CALDAIA AD OLIO DIATERMICO TH-Y 100	TH-Y 100 THERMAL OIL HEATER	EMPTY WEIGHT: 550 Kg	
2	1	INGRESSO OLIO	OIL INLET	OIL CONTENTS: 44l	
3	1	USCITA OLIO	OIL OUTLET		
4	2	MANOMETRO	PRESSURE INDICATOR		
5	1	PRESSOSTATO DIFFERENZIALE	DIFFERENTIAL PRESSURE SWITCH		
6	1	USCITA FUMI	SMOKE EXIT		
7	1	QUADRO ELETTRICO	CONTROL PANEL		

**GARIONI NAVAL**  
 DIMENSIONI ESTERNE STANDARD  
 STANDARD EXTERNAL DIMENSIONS  
 TH-Y 100

Viale dei Caduti, 3  
 25030 CASTELMELLA (BS)  
 Tel. 030 248541 r.a.  
 Fax 030 248910

COMMESSA \_\_\_\_\_  
 SOSTITUITORE IL \_\_\_\_\_  
 SOSTITUITORE DAL \_\_\_\_\_

APPROVATO C.D. \_\_\_\_\_  
 DATA 05/04/2004

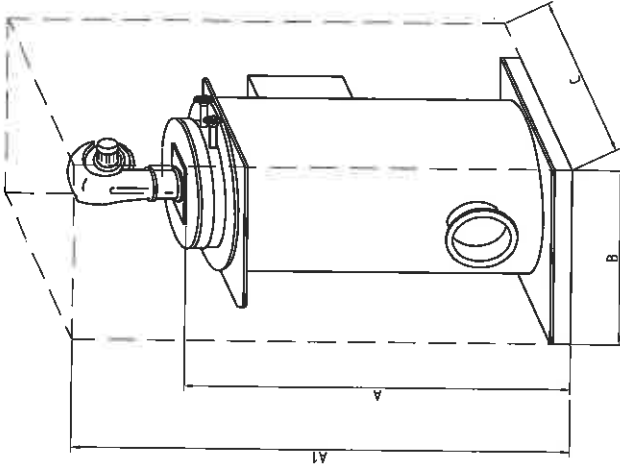
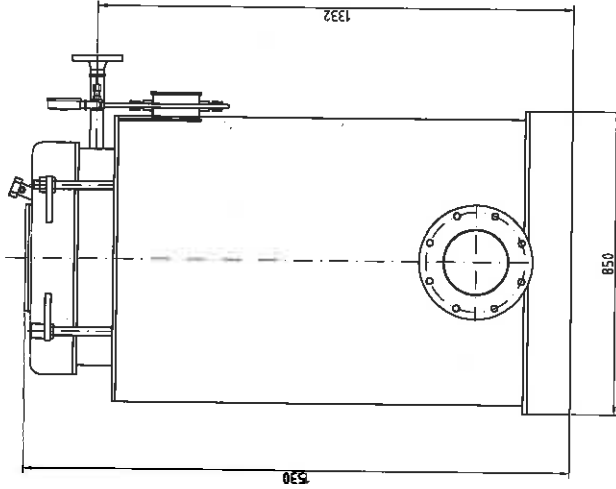
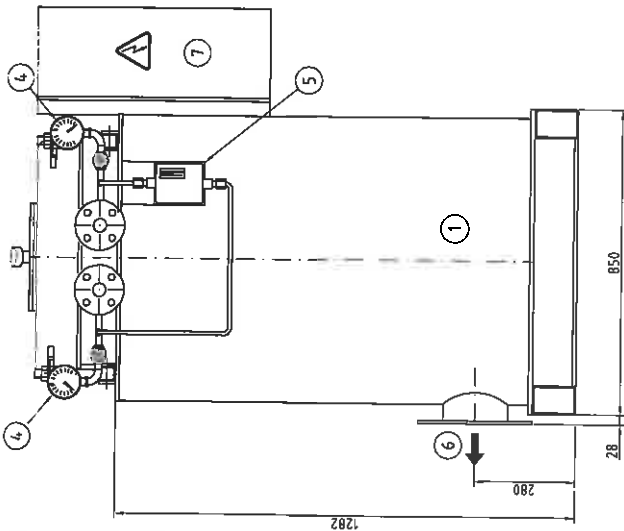
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DISEGNO N. 04-0099

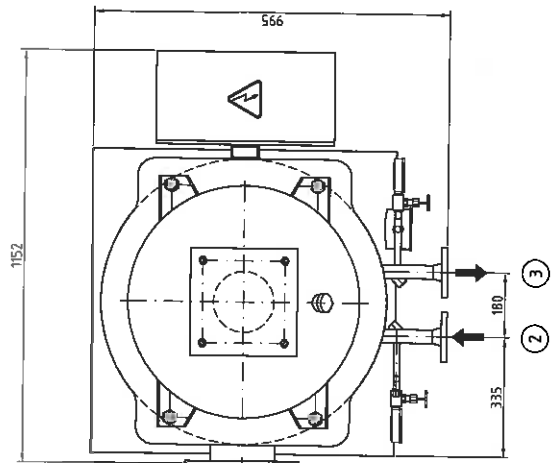
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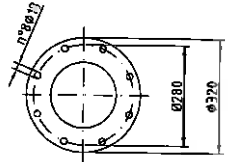
**DIMENSIONI INCONERO TRASPORTO**  
**TRANSPORT EXTERNAL DIMENSIONS**



A	1530 mm
A1	1850 mm
B	1000 mm
C	1155 mm
PESO A VIOTO EMPTY WEIGHT	
580 Kg	



6  
PART. FLANGIA USCITA FUMI  
SMOKE EXIT FLANGE DETAIL



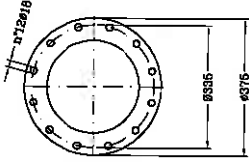
POS. NR.	DESCRIZIONE	NOTE
7	1 QUADRO ELETTRICO	CONTROL PANNEL
6	1 USCITA FUMI	SMOKE EXIT
5	1 PRESSOSTATO DIFFERENZIALE	DIFFERENTIAL PRESSURE SWITCH
4	2 MANOMETRO	PRESSURE INDICATOR
3	1 USCITA OLIO	OIL OUTLET
2	1 INGRESSO OLIO	OIL INLET
1	1 CALDAIA AD OLIO DIATERMICO TH-V 200	TH-V 200 THERMAL OIL HEATER

		Viale del Cavali 3 29018 CASTELMELLA (BS) Tel. 030 280541 Ca Fax 030 280910	
DIMENSIONI ESTERNE STANDARD STANDARD EXTERNAL DIMENSIONS TH-V 200		COMARSSA SOSTITUISCE IL	REVISIONE SOSTITUITO DAL
DISEGNATO S.F.	APPROVATO P.A.	SCALA 1:10	DATA 22/12/2006
			DISEGNO N. 06-0650

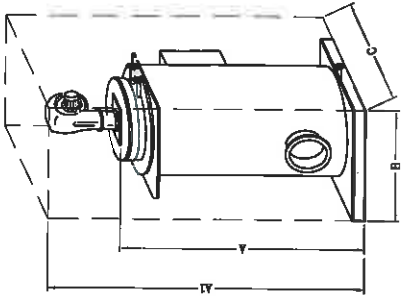
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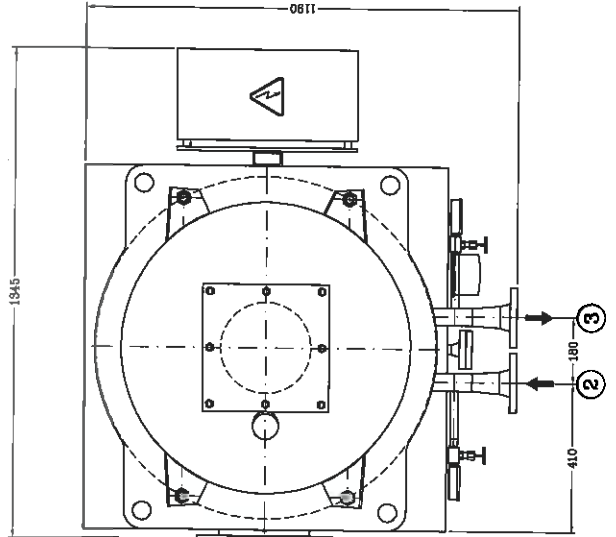
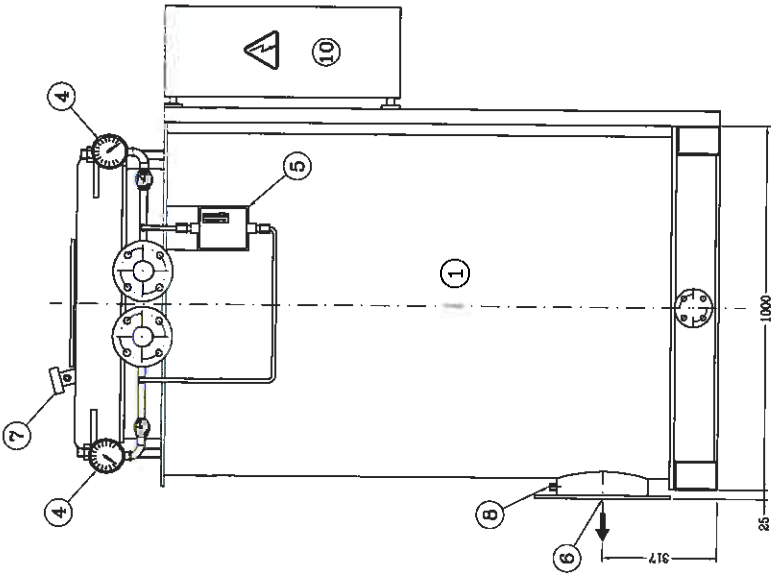
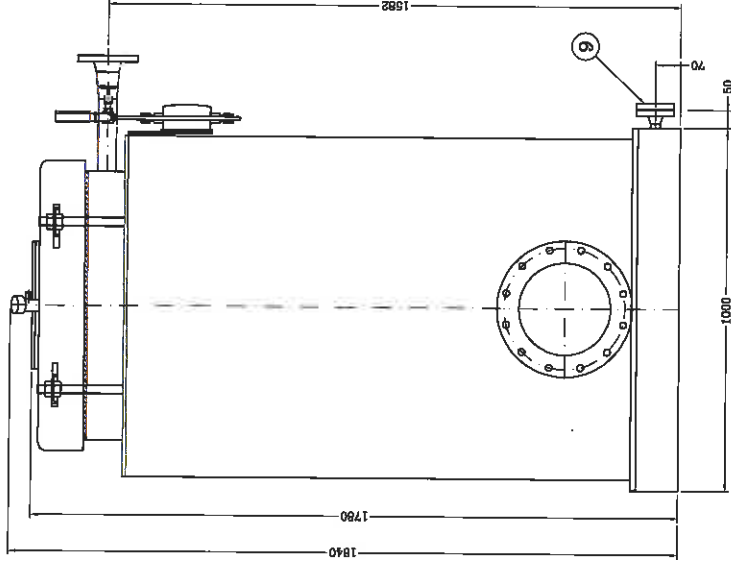
PART. FLANGIA USCITA FUMI  
SMOKE EXIT FLANGE DETAIL  
Pos. 6



DIMENSIONI INGOMBRO TRASPORTO  
TRANSPORT EXTERNAL DIMENSIONS



A	2000 mm
A1	2400 mm
B	1180 mm
C	1000 mm
PESO A VUOTO EMPTY WEIGHT	
	900 Kg



POS. NR.	DESCRIZIONE	CONTROL PANEL	NOTE
10	1 QUADRO ELETTRICO	OIL DISCHARGE CONNECTION (OPTIONAL)	DR20 PNI6
9	1 ATTACCO SCALDO OLIO (OPZIONE)	SMOKE TEMPERATURE CONNECTION (OPTIONAL)	DR20 PNI6
8	1 ATTACCO TERMOSTATO FUMI (OPZIONE)	SIGHTGLASS/FIRE EXTINGUISH CONNECTION	DR20 PNI6
7	1 SPECOLA/CONNESSIONE ANTINCENDIO	CHIMNEY FLANGE	DR20 PNI6
6	1 FLANGIA CAMINO	DIFFERENTIAL PRESSURE SWITCH	DR20 PNI6
5	1 PRESSOSTATO DIFFERENZIALE	PRESSURE INDICATOR	DR20 PNI6
4	2 MANOMETRO	OIL INLET	DR20 PNI6
3	1 USCITA OLIO	TI-V 300 THERMAL OIL BRATER	DR20 PNI6
2	1 INGRESSO OLIO		DR20 PNI6
1	1 CALDAIA AD OLIO DIATERMICO TI-V 300		DR20 PNI6

17/99/02  
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REVISIONI

801 78 7910

**GARIONI NAVAL**

TH-V 300  
DIMENSIONI DI INGOMBRO STANDARD  
STANDARD EXTERNAL DIMENSIONS

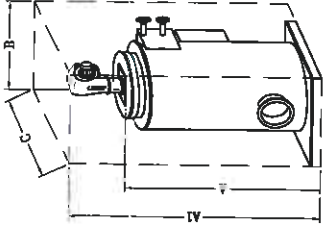
Viale dei Caduti, 3  
25030 CASTELMELLA (BS)  
Tel. (030) 2681541 r.a.  
Fax (030) 2680910

COMMESSA  
REVISIONE  
SOSTITUISCE IL SOSTITUITO DAL  
04-0088 Rev.3

DISSEGNIATO FS  
APPROVATO PA  
DATA 04/02/2008  
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DISEGNO N. TH 1007

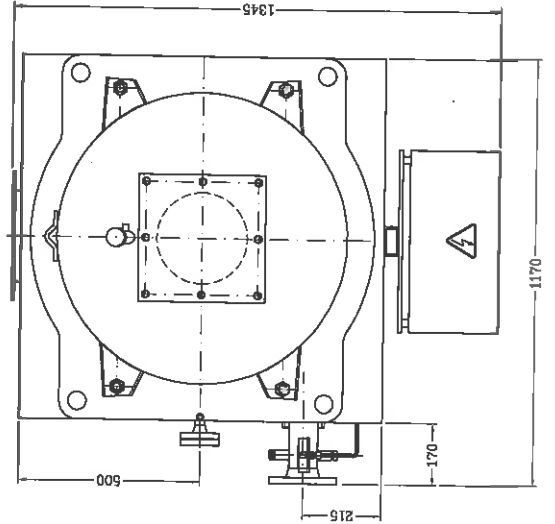
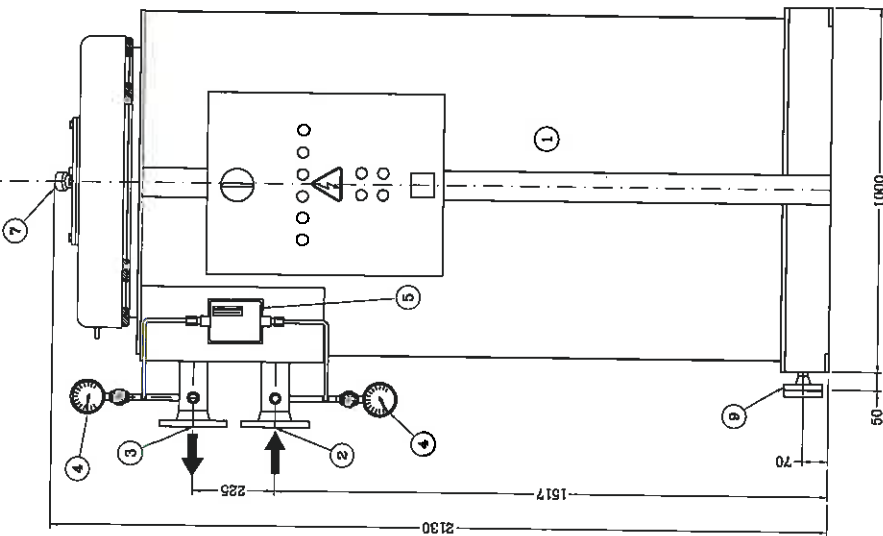
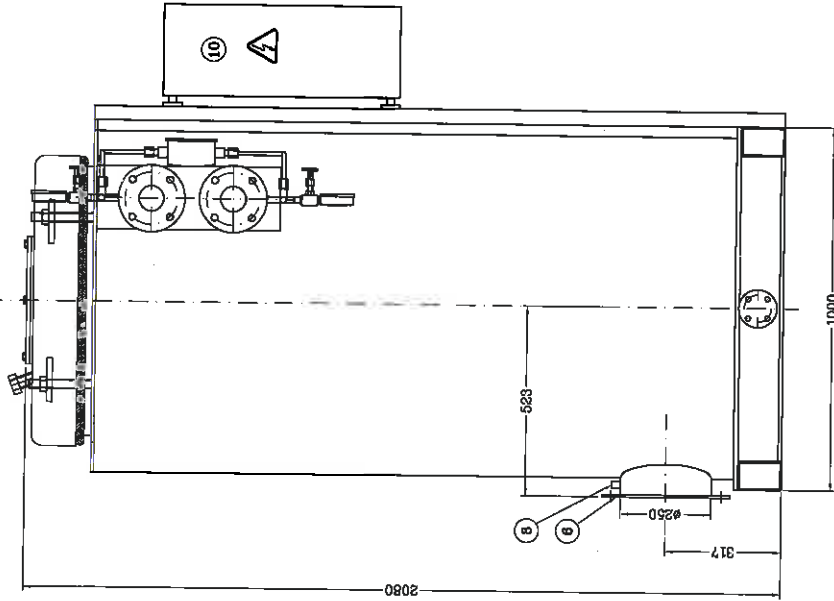
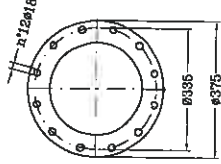
QUESTO DOCUMENTO È DI PROPRIETÀ ESCLUSIVA DI GARIONI NAVAL. È VIETATO IL SUO RIPRODURRE, DISTRIBUIRE, O UTILIZZARE IL SUO CONTENUTO SENZA IL CONSENSO SCRITTO DI GARIONI NAVAL.

DIMENSIONI INGOMBRO TRASPORTO  
TRANSPORT EXTERNAL DIMENSIONS



A	2600 mm
A1	2600 mm
B	1800 mm
C	1500 mm
PESO A VUOTO EMPTY WEIGHT	
1000 Kg	

PART. PIANCIA USCITA FUMI  
SMOKE EXIT FLANGE DETAIL  
Pec. 6



10	1	QUADRO ELETTRICO	CONTROL PANEL	F 21/4"
9	1	ATTACCO SCARICO OLIO (OPZIONE)	OIL DISCHARGE CONNECTION (OPTIONAL)	DN20 PN16
8	1	ATTACCO TERMOSTATO FUMI (OPZIONE)	THERMOCOUPLE CONNECTION (OPTIONAL)	
7	1	SIFONIA/CONNESSIONE ANTICENDIO	SIGHTGLASS/PRE-EXTINGUISHING CONNECTION	
6	1	PIANCIA CABINO	CHIMNEY FLANGE	DN66PN44 DN20
5	1	PRESSOSTATO DIFFERENZIALE	DIFFERENTIAL PRESSURE SWITCH	
4	2	MANOMETRO	PRESSURE INDICATOR	
3	1	USCITA OLIO	OIL OUTLET	DN66 PN16
2	1	INGRESSO OLIO	OIL INLET	DN66 PN16
1	1	CALDAIA AD OLIO DIATERMICO TH-V 400	TH-V 400 THERMAL OIL HEATER	EMPTY WEIGHT: 1000 Kg OIL CONTENTS: 98 l

DESCRIZIONE

**GARIONI NAVAL**  
 Viale dei Caduti 3  
 20030 CASTELMELLA (ES)  
 Tel. (030) 2681541 r.a  
 Fax (030) 2690910

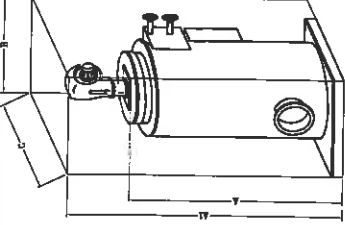
TH-V 400  
 DIMENSIONI D'INGOMBRO STANDARD  
 STANDARD EXTERNAL DIMENSIONS

DISegnato VERIFICATO APPROVATO PA 1:10 16/09/09  
 FS

COMMISSIONE  
 SOSTITUISCE IL 04-0101 Rev.2  
 REVISIONE  
 DISEGNO N. TH 1140

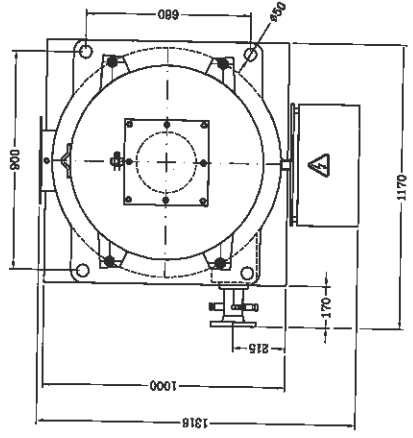
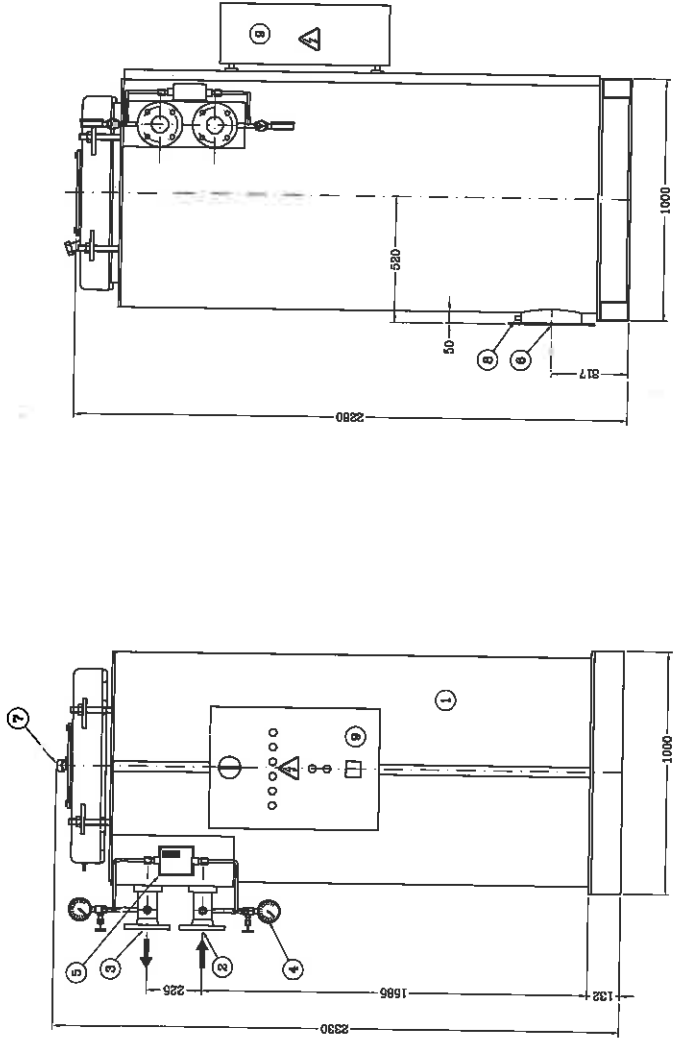
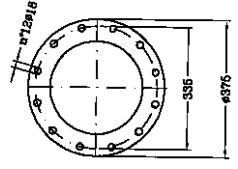
QUESTO DOCUMENTO È DI PROPRIETÀ ESCLUSIVA GARIONI NAVAL. È VIETATO IL REPRISTO O L'USO NON AUTORIZZATO.

DIMENSIONI INCOMBRO TRASPORTO  
TRANSPORT EXTERNAL DIMENSIONS



A	2330 mm
Al	800 mm
B	1400 mm
C	1200 mm
PESO A VUOTO EMPTY WEIGHT	
	1100 Kg.

PART. FLANGIA USCITA FUMI  
SMOKE EXIT FLANGE DETAIL  
(PAG. 6)



POS. NR.	DESCRIZIONE	CONTROL PANEL	NOTE
1	QUADRO ELETTRICO	TERMOSTATICO	
1	AVVIO TRASPORTO FUMI (optional)	TERMOSTATICO	F 31/4"
1	SPERDA/CONNESSIONE ANTIRIFLESSO	SICUREZZA/PER ESTINGUENDO	
1	FLANGIA CALORE	CENTRE FLANGE	INERO DUE 2004
1	PRESSOSTATO DIFFERENZIALE	DIFFERENTIAL PRESSURE SWITCH	
2	MANOMETRO	PRESSURE INDICATOR	
1	USCITA OLIO	OIL OUTLET	DMS PHS
1	INGRESSO OLIO	OIL INLET	DMS PHS
1	CALDAIA AD OLIO IMPERICO T4/V 500	PERMAN. OIL HEATER T4/V 500	EMPTY WEIGHT: 1100 kg OIL CONTENTS: 114 l

**GARIONI NAVAL**

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20050 CASTELMELLA (BS)  
Tel. (030) 2881041 r.a  
Fax (030) 2880810

TH-V 500

DIMENSIONI DI INCOMBRO STANDARD  
STANDARD EXTERNAL DIMENSIONS

DISegnato FS  
APPROVATO PA  
SCALA 1:15  
DATA 29/06/2009

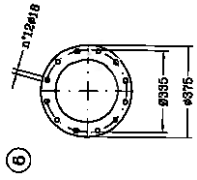
COMMESSA  
REVISIONE 0

SOSTITUISCO IL SOSTITUITO DAL  
04-0108 Rev.6

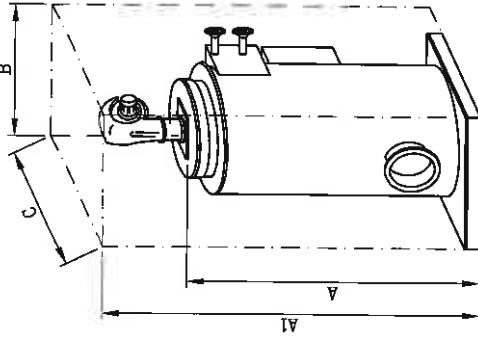
DISegNO N.  
TH 1131

QUESTO DISegNO E' DI PROPRIETA' ESCLUSIVA GARIONI NAVAL E VIETATO IL SUO RIPRODUZIONE O UTILIZZO SENZA LA SCRITTA AUTORIZZAZIONE

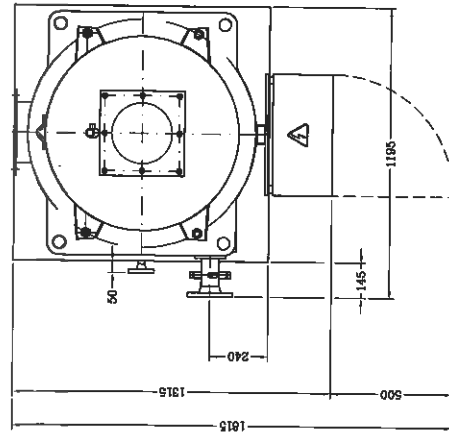
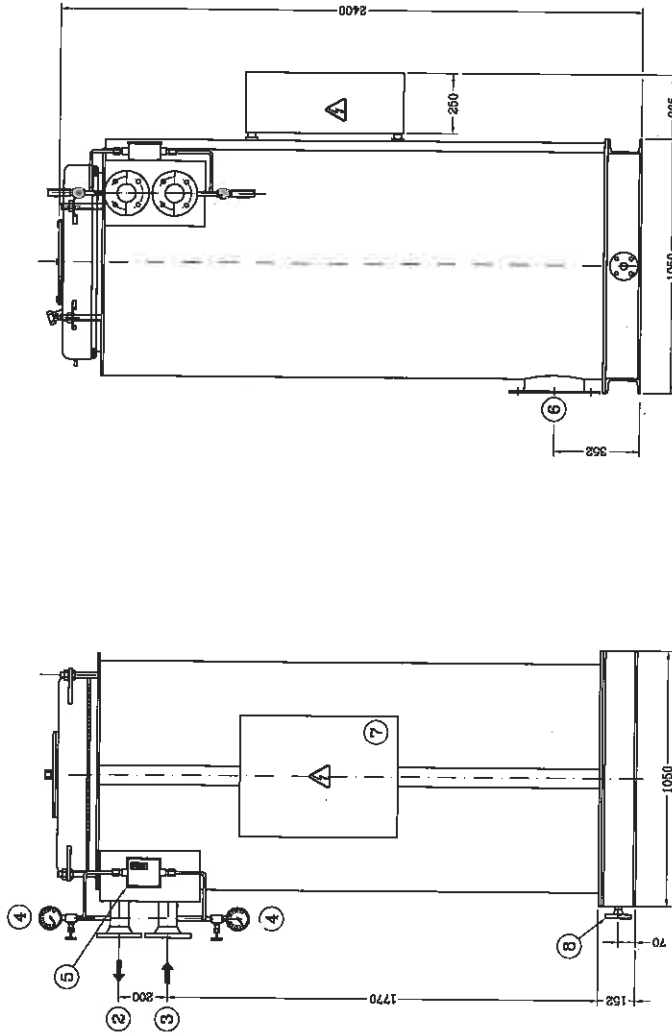
PARTI PLANCHIA LISCEIA PUNTI  
SMOKE EXIT FLANGE DETAIL



DIMENSIONI INCOMBRO TRASPORTO  
TRANSPORT EXTERNAL DIMENSIONS



A	2400 mm
A1	3650 mm
B	1200 mm
C	1350 mm
PESO A VUOTO EMPTY WEIGHT	1200 Kg



6	1	ATTACCO SCARICO OLIO	OIL DISCHARGE CONNECTION	DN25 PN10
7	1	QUADRO ELETTRICO	CONTROL PANEL	
6	1	USCITA FUMI	SMOKE EXIT	DN80044 DN250
5	1	PRESSOSTATO DIFFERENZIALE	DIFFERENTIAL PRESSURE SWITCH	
4	2	MANOMETRO	PRESSURE INDICATOR	
3	1	USCITA OLIO	OIL OUTLET	DN65 PN16
2	1	INGRESSO OLIO	OIL INLET	DN66 PN16
1	1	CALDAIA AD OLIO DIATERMICO TH/V 600	THERMAL OIL HEATER TH/V 600	EMPTY WEIGHT: 1200 Kg OIL CONTENTS: 146 l
POS. NR.		DESCRIZIONE		
174 79 03 01		TH-V 600		
REV.		MODIFICHE		
1	18/01/04	Disegnato e verificato		
2	10/03/04	Verifica grafica		
3	21/02/05	Verifica generale		
4	05/03/07	Omantamento manufatti		
5	28/11/07	Scatto e rev. garanzia costrutt.		

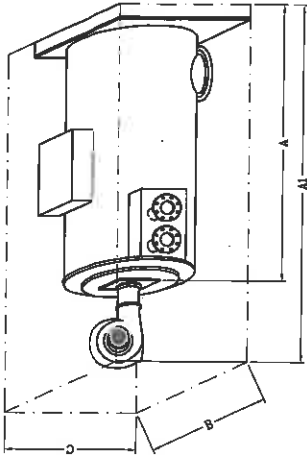
**GARIONI NAVAL**  
 Viale dei Caduti 3  
 26030 CASTELMELLA (BS)  
 Tel. (030) 2681641 P.a.  
 Fax. (030) 2680910

TH-V 600  
 STANDARD EXTERNAL DIMENSIONS  
 DIMENSIONI DI INCOMBRO STANDARD

DISegnato FS APPROVATO CD DATA 13/04/2004  
 SOSTITUISCE IL SOSTITUITO DAL  
 DISEGNO N. 04-0103

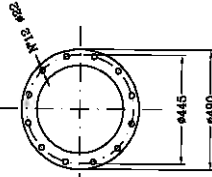
QUESTO DISEGNO E' IN NORMA 11/03/04. INFORMATI E' VERIFICATO E' INFORMATI DI LAVORO RIPRODOTTO O DERIVATO E' INFORMATI DI LAVORO RIPRODOTTO O DERIVATO E' INFORMATI DI LAVORO RIPRODOTTO O DERIVATO

DIMENSIONI INCOMBRO TRASPORTO  
TRANSPORT EXTERNAL DIMENSIONS

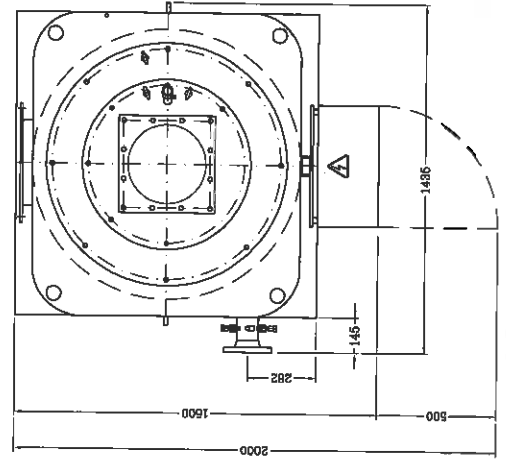
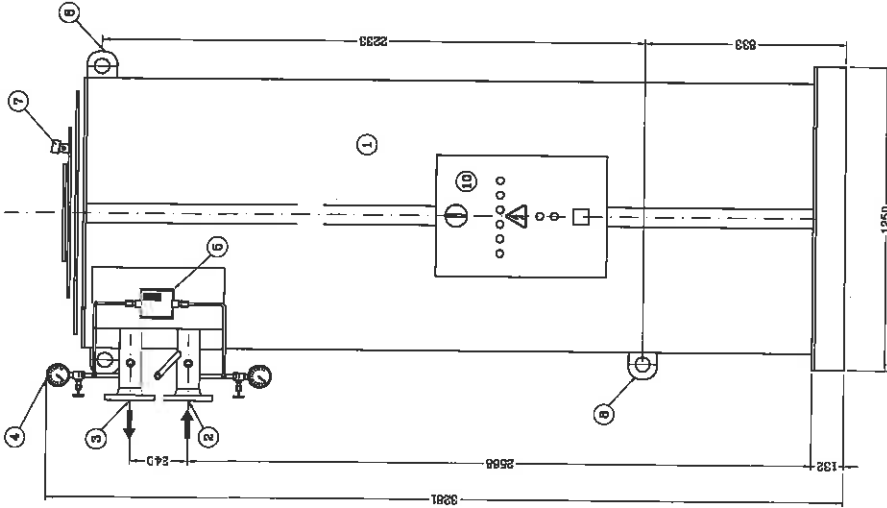
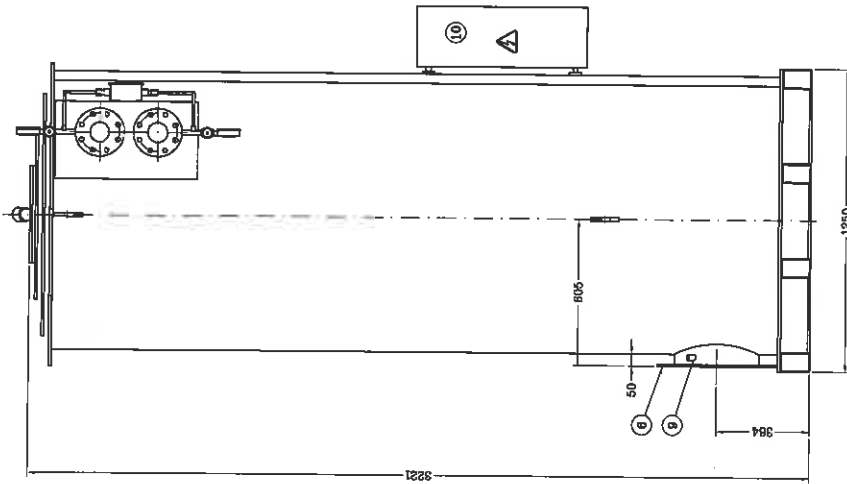
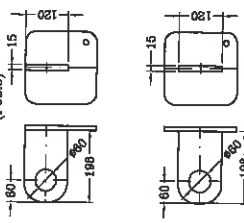


A	3000 mm
A1	4000 mm
B	1450 mm
C	1500 mm
PESO A VUOTO EMPTY WEIGHT	1950 Kg

PART. FLANGIA USCITA FUMI  
SMOKE EXIT FLANGE DETAIL  
(POS. 6)



PART. GANCI SOLLEVAMENTO  
LIFTING LUGS DETAIL  
(POS. 6)



POS. NR.	DESCRIZIONE	DESCRIPTION	NOTE
10	1	QUADRO ELETTRO	
9	2	ATTACCO TERMISTATO FUMI	CONTROL PANEL
8	3	GANCI DI SOLLEVAMENTO	THERMISTOPE CONNECTION
7	1	SPECIALE/COMPRESSOR APPLICANDO	LIFTING LUGS
6	1	FLANGIA CAMINO	SMOKEGLASS/FIRE RETARDING CONNECTION
5	1	PRESSIONATO DIFFERENZIALE	CHIMNEY FLANGE
4	2	MANOMETRO	DIFFERENTIAL PRESSURE SWITCH
3	1	USCITA OLIO	PRESSURE INDICATOR
2	1	INGRESSO OLIO	OIL OUTLET
1	1	CONDANA AD OLIO DILUATO 24/4 100	OIL INLET
	1	CONDANA AD OLIO DILUATO 24/4 100	THERMAL OIL HEATER 24/4 100
			EMPTY WEIGHT: 1950 Kg OIL CAPACITY: 250 l

**GARIONI NAVAL**  
TH-V 800  
DIMENSIONI DI INCOMBRO STANDARD  
STANDARD EXTERNAL DIMENSIONS

Viale dei Caduti 3  
26030 CASTELMELLA (PS)  
Tel. (030) 2681541 r.a  
Fax (030) 2680910

COMPRESSA  
REVISIONE 0

SOSTITUISCE IL  
04-014 Rev.4

DISCERNIBILE  
F.S.

APPROVATO  
PA

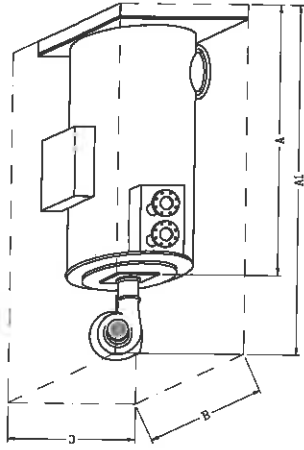
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1:15

DATA  
13/10/2008

DISEGNO N.  
TH 1090

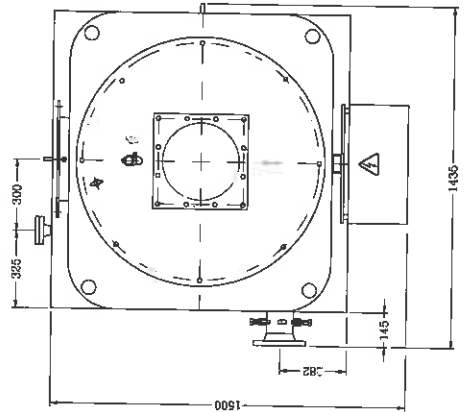
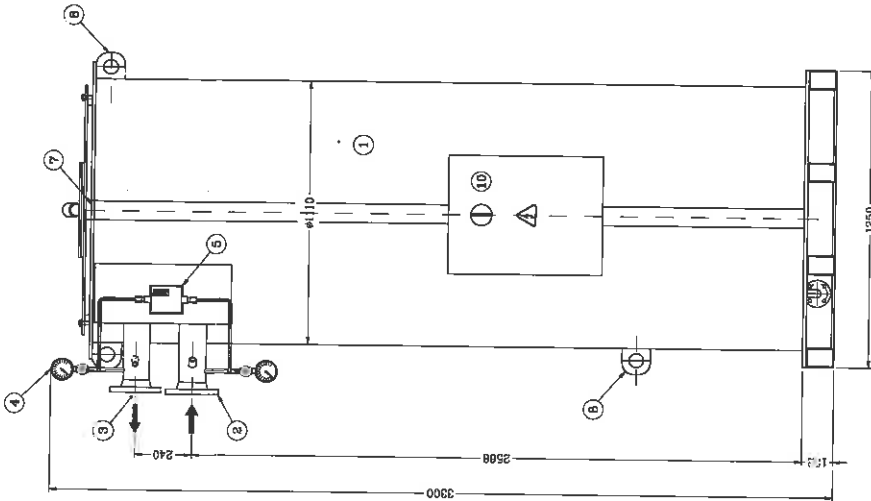
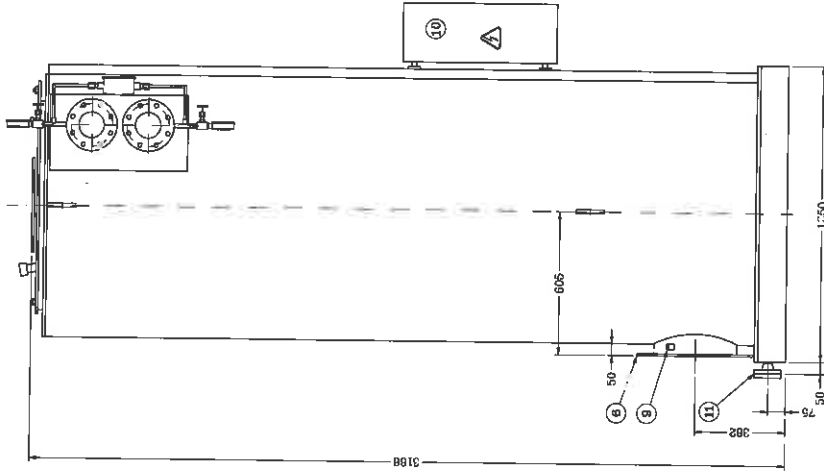
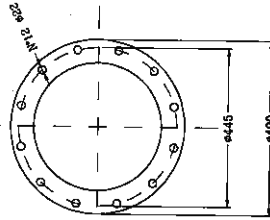
QUESTO DISEGNO E' IN TUTTA SCELTA PROPRIETA' E' VIETATA LA SUA RIPRODUZIONE O UTILIZZO A TITOLI NON LA SUOI. AUTORIZZAZIONE

DIMENSIONI INCOMBRO TRASPORTO  
TRANSPORT EXTERNAL DIMENSIONS



A	3300 mm
Al	4000 mm
B	1500 mm
C	1500 mm
PESO A VUOTO EMPTY WEIGHT	1950 Kg

PANEL PLANCHIA USCITA FUMI  
SMOKE EXIT FLANGE DETAIL  
(FOS. 6)



11	1	ATTACCO SCARICO OLIO (OPZIONALE) CONTROL PANEL	OL DISCHARGE CONNECTION (OPTIONAL) CONTROL PANEL	D005 P016
10	1	QUADRO ELETTRICO		
9	1	ATTACCO TERMOSTATO OLIO (OPZIONALE)	SMOKE TEMPERATURE CONNECTION (OPTIONAL)	P 01/4"
8	3	GANCI DI SOLLIEVAMENTO	LIFTING LUGS	
7	1	SCODOLA/CONNESSIONE ANTINCENDIO	SECURITY/FIRE EXTINGUISHING CONNECTION	
6	1	FRANGIA CHIUSO	CHEMISTRY FLANGE	D005 DIN 18044
5	1	PRESSOSTATO DIFFERENZIALE	DIFFERENTIAL PRESSURE SWITCH	
4	2	MANOMETRO	PRESSURE INDICATOR	
3	1	USCITA OLIO	OIL OUTLET	D010 P016
2	1	INGRESSO OLIO	OIL INLET	D010 P016
1	1	CHIAMATA AD OLIO DIATERMICO T1/V 1000	THERMAL OIL HEATER T1/V 1000	EMPTY WEIGHT: 1950 Kg OIL CONTENT: 254 l

172 10 08 Rev 7

**GARIONI NAVAL**  
TH-V 1000  
DIMENSIONI DI INCOMBRO STANDARD  
STANDARD EXTERNAL DIMENSIONS

Viale dei Caduti 33  
35030 CASTELMELLA (BS)  
Tel. (030) 2881541 r.a.  
Fax (030) 2880910

COMMESSA  
REVISIONE 2

SOSTITUISCE IL SOSTITUITO DAL  
04-0154-Rev.3

DISSEGNO N.  
TH 1080

DATA 21/08/2008

SCALA 1:15

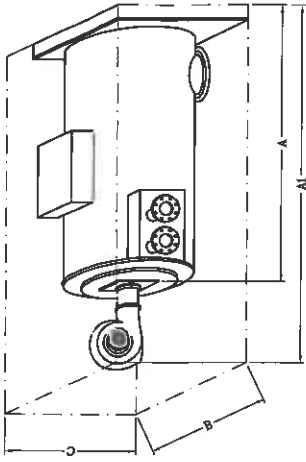
APPROVATO PA

DISSEGNO F.S.

DESCRIZIONE

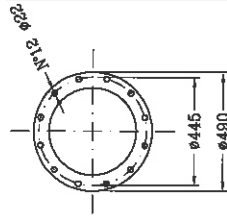
QUESTO D.C.C.D. E' DI PROPRIA INIZIATIVA, PROGETTO, E' VETICOLO A VELOCITA' SUPERIORE O EQUIVALENTE A TERRE FERRE, LA VOSTRA AUTORIZZAZIONE E'

DIMENSIONI INCOMBRO TRASPORTO  
TRANSPORT EXTERNAL DIMENSIONS

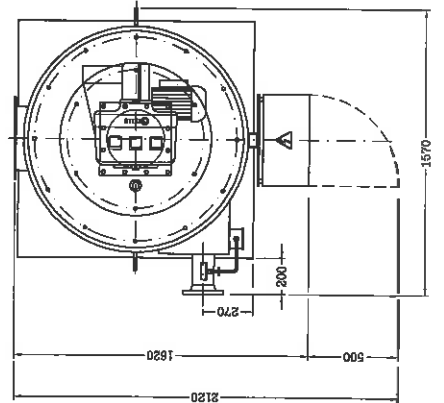
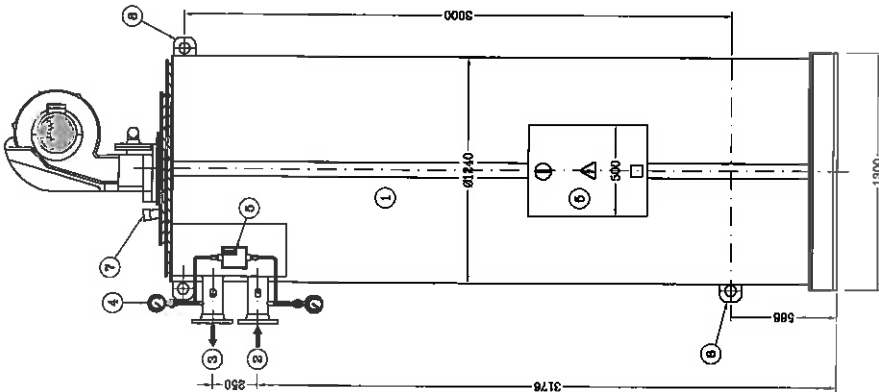
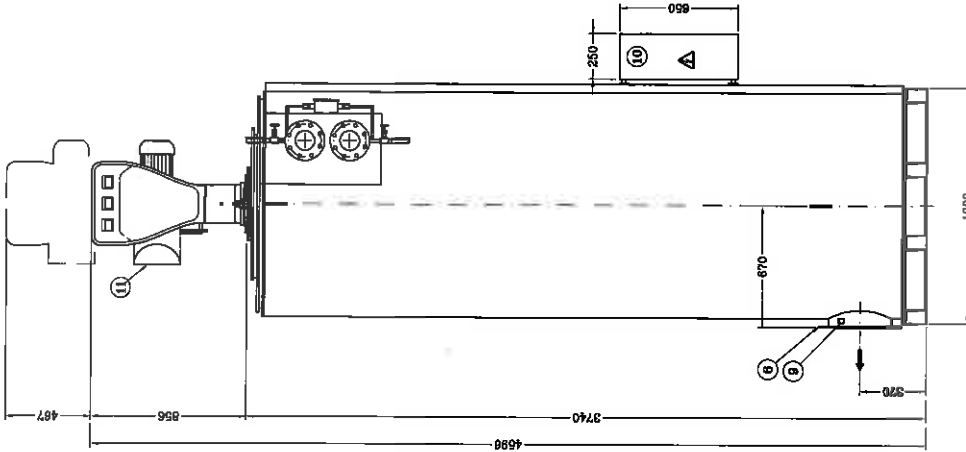
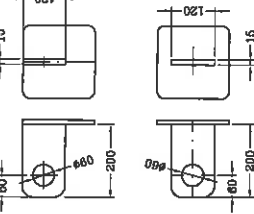


A	3800 mm
Al	4800 mm
B	1800 mm
C	1850 mm
PESO A VUOTO EMPTY WEIGHT	3050 Kg

PART. FLANGIA USCITA FUMI  
SMOKE EXIT FLANGE DETAIL  
(POS. 6)



PART. GANCI SOLLEVAMENTO  
LIFTING LUGS DETAIL  
(POS. 8)



POS./N.	DESCRIZIONE	REVISIONE
1	BROCCATORE	
10	1 QUADRO ELETTRICO	CONTROL PANEL
9	1 ATTACCO TERMISTATO FUMI	THERMISTORIC CONNECTION
8	3 GANCI DI SOLLEVAMENTO	LIFTING LUGS
7	1 SPECCHIA/CONNESSIONE ANTICORROSIONE	SCAFFERIAS/PIECE ANTICORROSIONE CONNECTION
6	1 FLANGIA USCITA	CEMNETY FLANGE
5	1 PRESSOSTATO DIFFERENZIALE	DIFFERENTIAL PRESSURE SWITCH
4	MANOMETRO	PRESSURE INDICATOR
3	1 USCITA OLIO	OIL OUTLET
2	1 INGRESSO OLIO	OIL INLET
1	1 CASSERA AD OLIO DISTRIBUITO IN 7/7 1250	TERMINAL OIL DISTRIBUTER IN 7/7 1250
		NOTE

**GARIONI NAVAL**  
 Viale dei Caduti 3  
 25030 CASTELMELLA (BS)  
 Tel. (030) 2661541 r.a.  
 Fax (030) 2680810

**DIMENSIONI DI INCOMBRO STANDARD**  
 TH-V 1250  
**STANDARD EXTERNAL DIMENSIONS**

DISegnato FS  
 APPROVATO PA  
 DATA 14/01/2008  
 SCALA 1:20

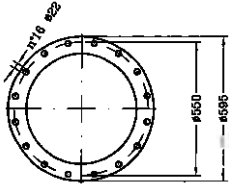
COMMESSA REVISIONE  
 SOSTITUISCE IL SOSTITUITO DAL  
 04-198 0003 0

**DISEGNO N.**  
 TH 1001

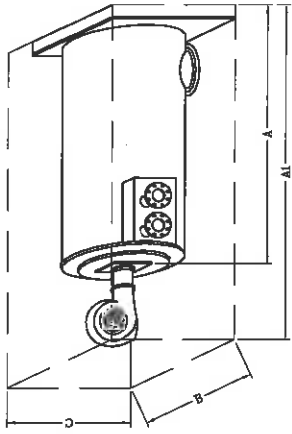
QUESTO DISGNO E' IN TUTTA SCELTA PROPRIETA' E' VIETATO IL SUO RIPRODURRE O UTILIZZARLO A SENZA PERMESSA DELLA GARIONI NAVAL



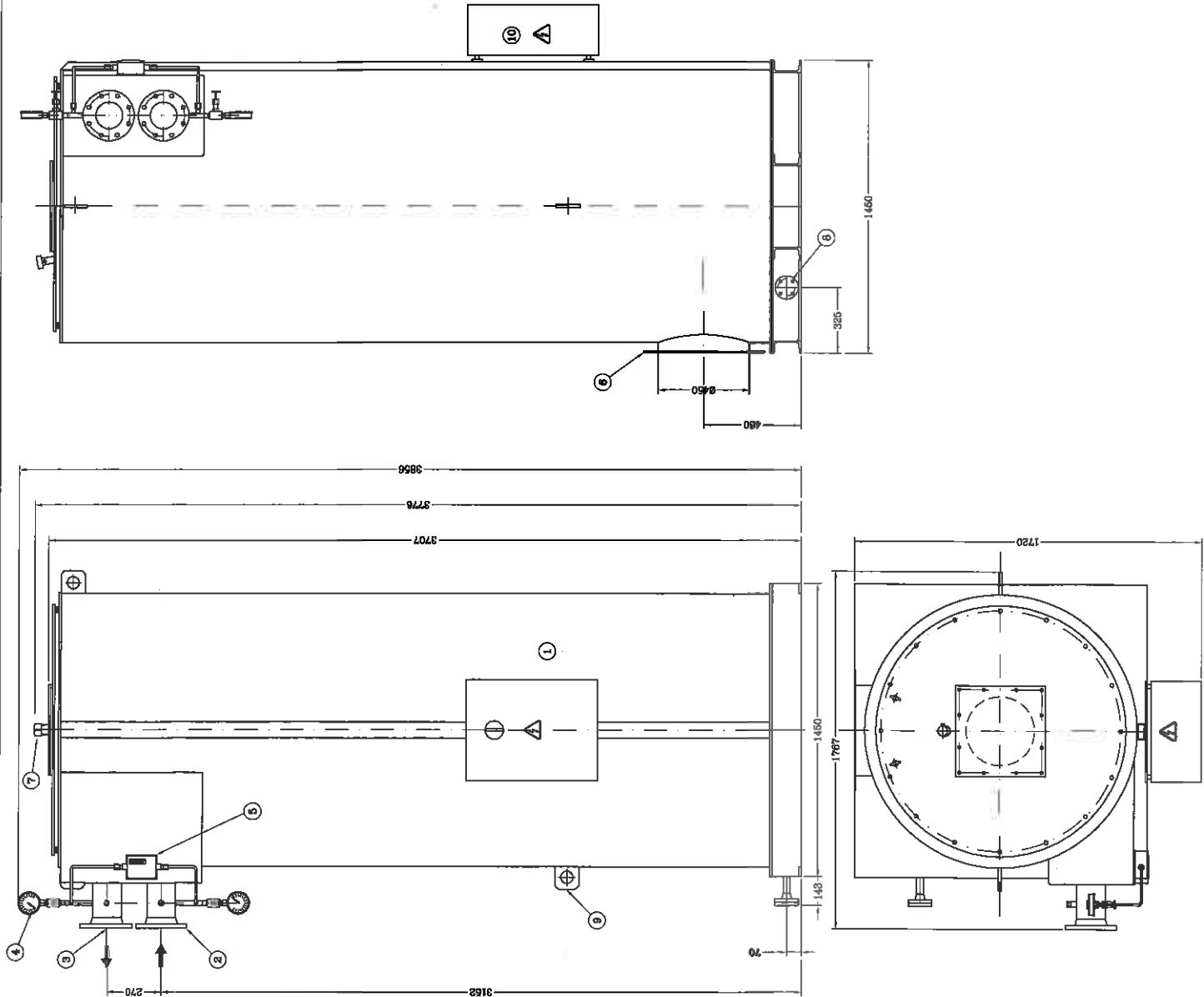
PART. FLANGIA USCITA FUMI  
SMOKE OUTLET FLANGE  
(Pos. 6)



DIMENSIONI INCOMBRO TRASPORTO  
TRANSPORT EXTERNAL DIMENSIONS



A	4000 mm
A1	4800 mm
B	1800 mm
C	1800 mm
PESO A VUOTO EMPTY WEIGHT	3100 Kg



10	1	QUADRO ELETTRICO	CONTROL PANNELL
9	3	GANCIO DI SOLLEVAMENTO	LIFTING LUGS
8	1	ATTACCO SCARICO	OIL DISCHARGE CONNECTION
7	1	SPECCHIA/CONNESSIONE ANTINCENDIO	SIGHTGLASS/FIRE EXTINGUISHER CONNECTION
6	1	USCITA FUMI	SMOKE EXIT
5	1	PRESSOSTATO DIFFERENZIALE	DIFFERENTIAL PRESSURE SWITCH
4	2	MANOMETRO	PRESSURE INDICATOR
3	1	USCITA OLIO	OIL OUTLET
2	1	INGRESSO OLIO	OIL INLET
1	1	CALDAIA AD OLIO DIATERMICO TH/V 1500	THERMAL OIL HEATER TH/V 1500

DESCRIZIONE

NOTE

EMPTY WEIGHT: 3100 Kg  
OIL CONTENTS: 518 l

ATTIVAZIONE

COMMESSA

SOSTITUISCE IL SOSTITUITO DAL

04-0106 Rev.1

0

Viale dei Caduti 3  
26030 CASTAMIELLA (PS)  
Tel. (030) 2801541 r.a  
Fax (030) 2880910

**GARIONI NAVAL**

TH/V 1500

STANDARD EXTERNAL DIMENSIONS

DIMENSIONI DI INCOMBRO STANDARD

DISSEGNO N.  
TH 1134

DATA  
01/07/2009

SCALA  
1:15

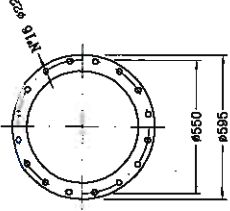
APPROVATO  
PA

DISTRIBUITO  
FS

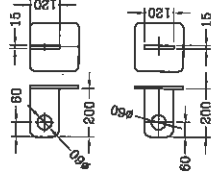
88 TH 03 r.0

QUESTO DISSEGNO E' DI NOSTRA ESCLUSIVA PROPRIETA' E' VIETATO A TITOLUO R. LEGGE RIPRODURLO O SVILUPPARGO A TITOLI SENZA LA NOSTRA AUTORIZZAZIONE

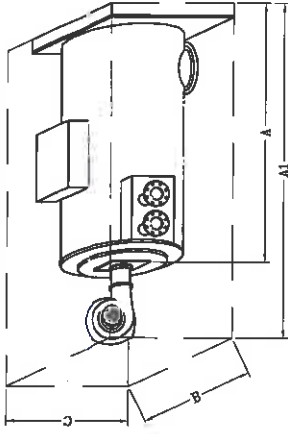
PART. FLANGIA USCITA FUMI  
SMOKE OUTLET FLANGE  
(Pos. 6)



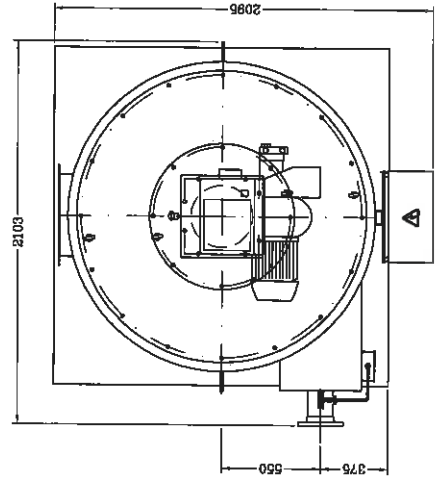
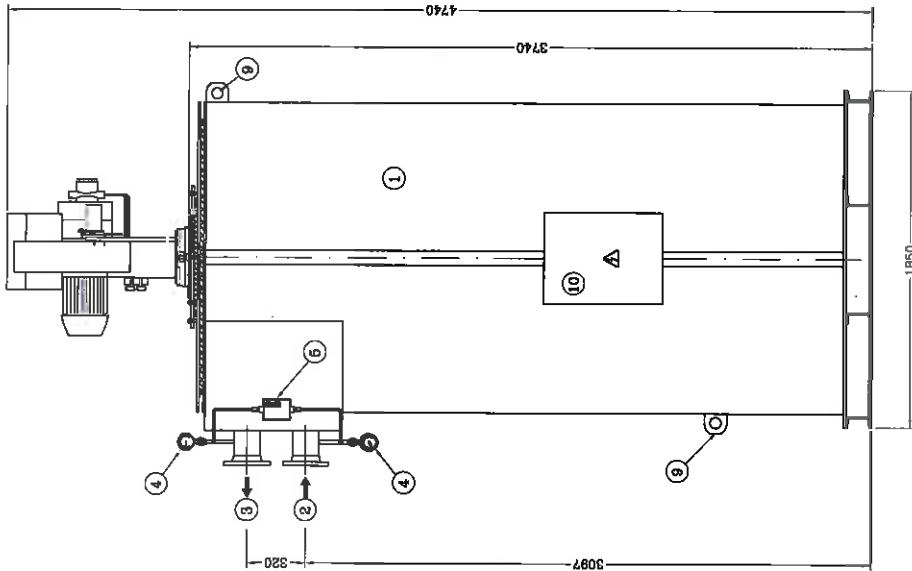
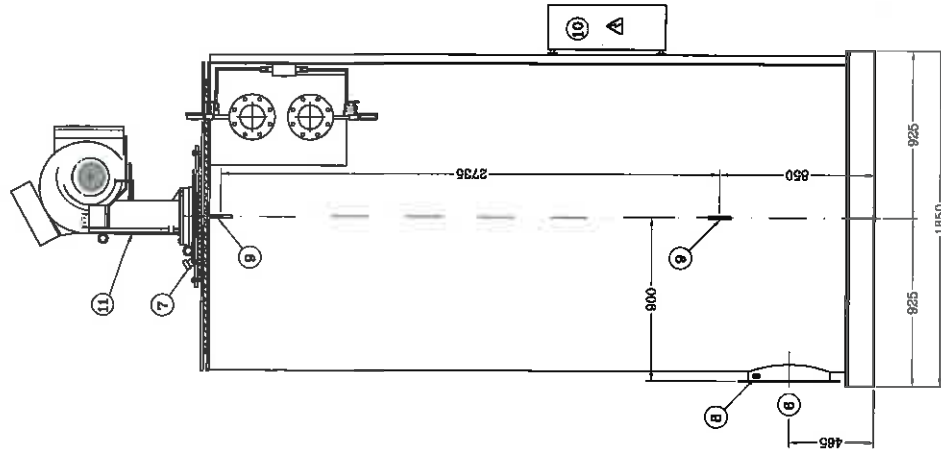
PART. GANCI SOLLEVAMENTO  
LIFTING LUGS DETAIL  
(POS.8)



DIMENSIONI INCOMBRO TRASPORTO  
TRANSPORT EXTERNAL DIMENSIONS



A	4000 mm
A1	4800 mm
B	2110 mm
C	2100 mm
PESO A VUOTO EMPTY WEIGHT	
	4300 Kg



POS. NR.	DESCRIZIONE	DESCRIZIONE
11	1 BRUCIATORE	BURNER
10	1 QUADRO ELETTRICO	CONTROL PANNEL
9	3 GANCIO DI SOLLEVAMENTO	LIFTING LUGS
8	1 ATTACCO TERMOSTATO FUMI	TEMPERATURE SWITCH CONNECTION
7	1 SPECOLA/CONNESSIONE ANTINCENDIO	SIGHTGLASS/FIRE EXTINGUISHER CONNECTION
6	1 USCITA FUMI	SMOKE EXIT
5	1 PRESSOSTATO DIFFERENZIALE	DIFFERENTIAL PRESSURE SWITCH
4	2 MANGHETTO	PRESSURE INDICATOR
3	1 USCITA OLIO	OIL OUTLET
2	1 INGRESSO OLIO	OIL INLET
1	1 CALDRIA AD OLIO DIATERMICO TR/V 2000	THERMAL OIL HEATER TR/V 2000

**GARIONI NAVAL**  
TH/V 2000  
STANDARD EXTERNAL DIMENSIONS  
DIMENSIONI DI INCOMBRO STANDARD

Viale dei Caduti, 3  
25030 CASTELMELLA (BS)  
Tel. (030) 2681541 r.a.  
Fax (030) 2680910

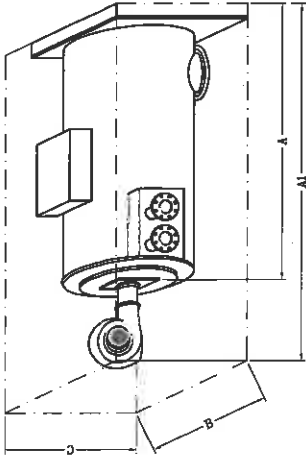
COMPRESA  
REVISIONE 1  
SOSTITUISCE IL COSTRUTTO DAL  
04-0107 Rev.6

DISEGNO N.  
TH 1024

24 H 08 r.1

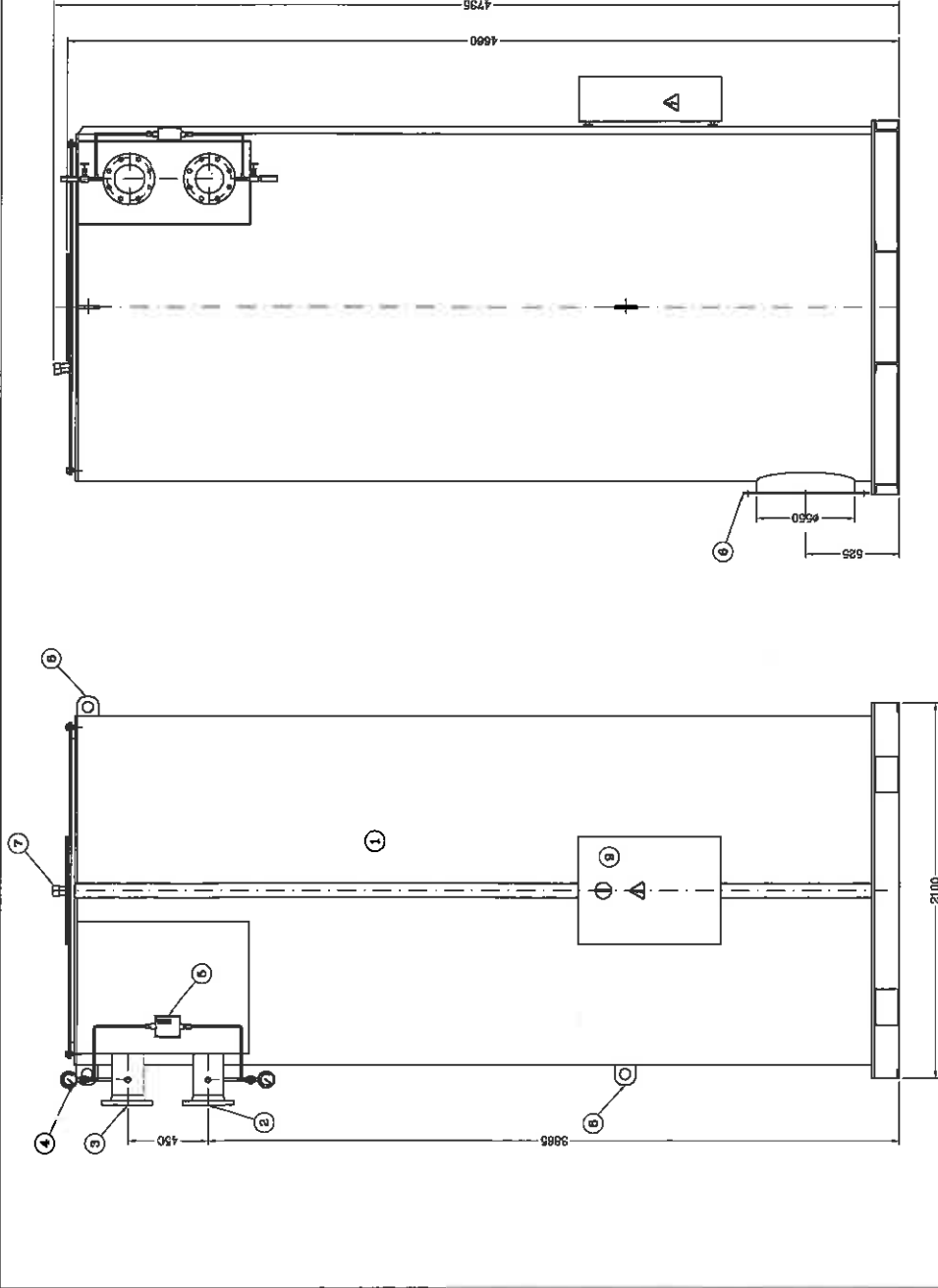
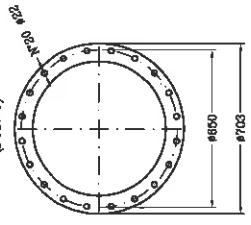
QUESTO DISGNO E' DI SOGGETTA ESCLUSIVA. PROPRIETA' E' TUTTATA IN LEGGE. RIPRODURRE O INOLTARE E' VIETATO A TUTTI SENZA LA NOSTRA AUTORIZZAZIONE.

DIMENSIONI INGOMBRO TRASPORTO  
TRANSPORT EXTERNAL DIMENSIONS



A	4800 mm
A1	5900 mm
B	2500 mm
C	2500 mm
PESO A VUOTO EMPTY WEIGHT	
6800 Kg	

PART. FLANGIA USCITA FUMI  
SMOKE EXIT FLANGE DETAIL.  
(POS. 6)



POS. NR.	DESCRIZIONE	DESCRIPTION
6 1	QUADRO ELETTRICO	CONTROL PANEL
8 3	GANCI DI SOLLEVAMENTO	LIFTING LUGS
7 1	SPECOLA/CONNESSIONE ANTINCENDIO	SEMGLOSS/FIRE EXTINGUISHING CONNECTION
6 1	FLANGIA CAMINO	CHIMNEY FLANGE
5 1	PROSSOSTATO DIFFERENZIALE	DIFFERENTIAL PRESSURE SWITCH
4 2	MANOMETRO	PRESSURE INDICATOR
3 1	USCITA OLIO	OIL OUTLET
2 1	INGRESSO OLIO	OIL INLET
1 1	CALDAIA AD OLIO DIATERMICO TH/V 2500	THERMAL OIL HEATER TH/V 2500

NOTE

Viale dei Cabotti 3  
25030 CASTELMELLA (BS)  
Tel. (030) 2861641 r.a.  
Fax (030) 2860910

**GARIONI NAVAL**

TH/V 2500

DIMENSIONI DI INGOMBRO STANDARD  
STANDARD EXTERNAL DIMENSIONS

DISegnato FS VERIFICATO PA APPROVATO PA DATA 28/10/10

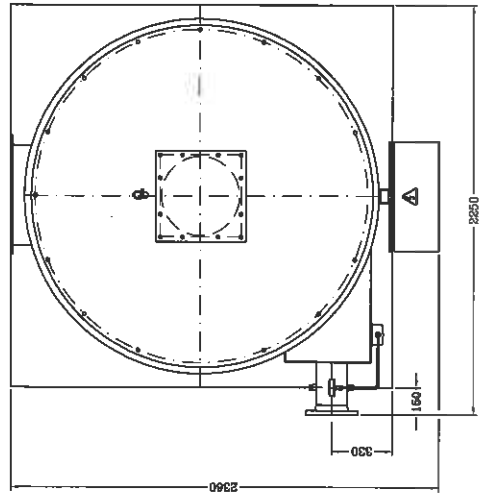
SCALA 1:20

COMUNICA REVISIONE

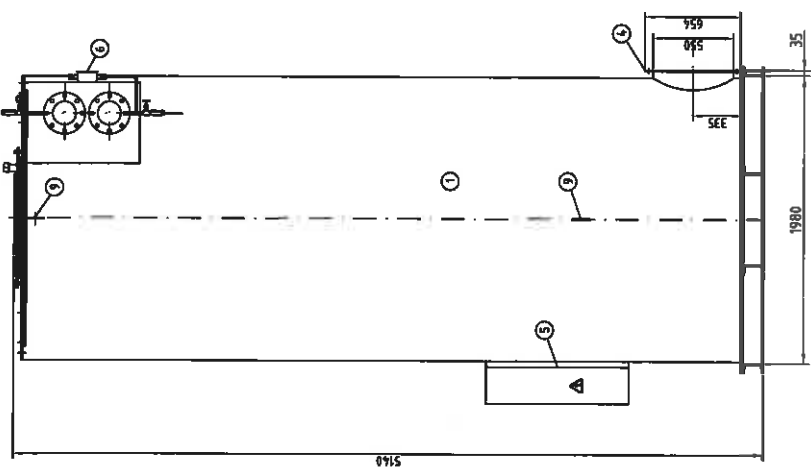
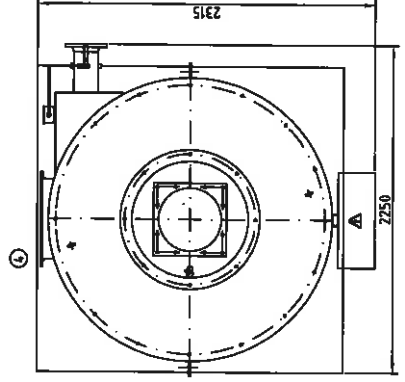
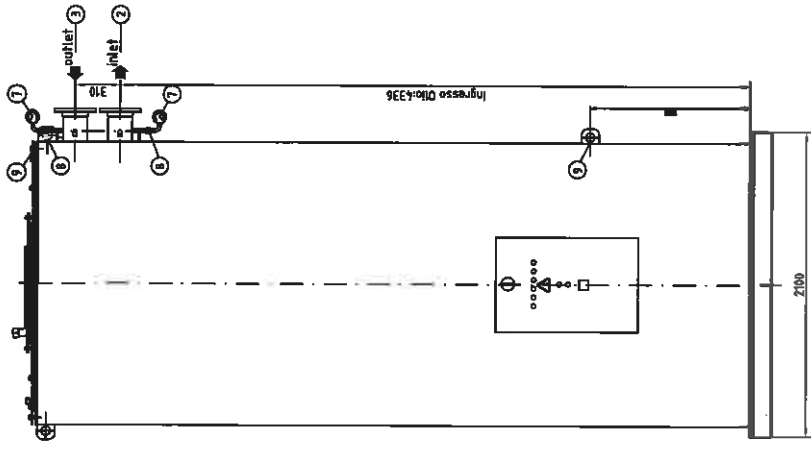
SOTTOSCRITTO IL SOTTOSCRITTO DAL

DISegNO N. TH 1195

QUESTO DISSEGNO E' IN TUTTA SCELTA PROPRIETA' E' VIETATO IL REIMPRESO O RITRANSMISSE O RITRANSMISSE A TERZI SENZA LA NOSTRA AUTORIZZAZIONE



PESO  
WEIGHT: 7100 Kg  
ENTRATA/USCITA OLIO  
INLET/OUTLET OIL  
DN160 PN16



9	2	GANCI DI SOLLEVAMENTO	LIFTING LUGS
8	2	RUBINETTO MANOMETRO	PRESSURE INDICATOR VALVE
7	2	MANOMETRO	PRESSURE INDICATOR
6	1	PRESSOSTATO DIFFERENZIALE	DIFFERENTIAL PRESSURE SWITCH
5	1	QUADRO ELETTRICO	CONTROL PANEL
4	1	USCITA FUMI	SMOKE EXIT
3	1	USCITA OLIO	OIL OUTLET
2	1	INGRESSO OLIO	OIL INLET
1	1	GENERATORE OLIO WATERPROOF	THERMAL OIL HEATER
PROG. IRL		DESCRIZIONE	DESCRIPTION
1		06/07/2006	Eliminazione scarico
REV.		DATA	MODIFICHE
			DIS.
			APP.

Viale del Cabini 3  
25039 CASTELMELLA (BS)  
Tel. (030) 248511-2  
Fax (030) 248979

**GARIONI NAVAL**

DIMENSIONI ESTERNE STANDARD  
TH-V 3000  
STANDARD EXTERNAL DIMENSIONS

COMMESSA  
SOSTITUIRE IL SOSTITUITO DAL  
DISEGNO N.  
06-0231

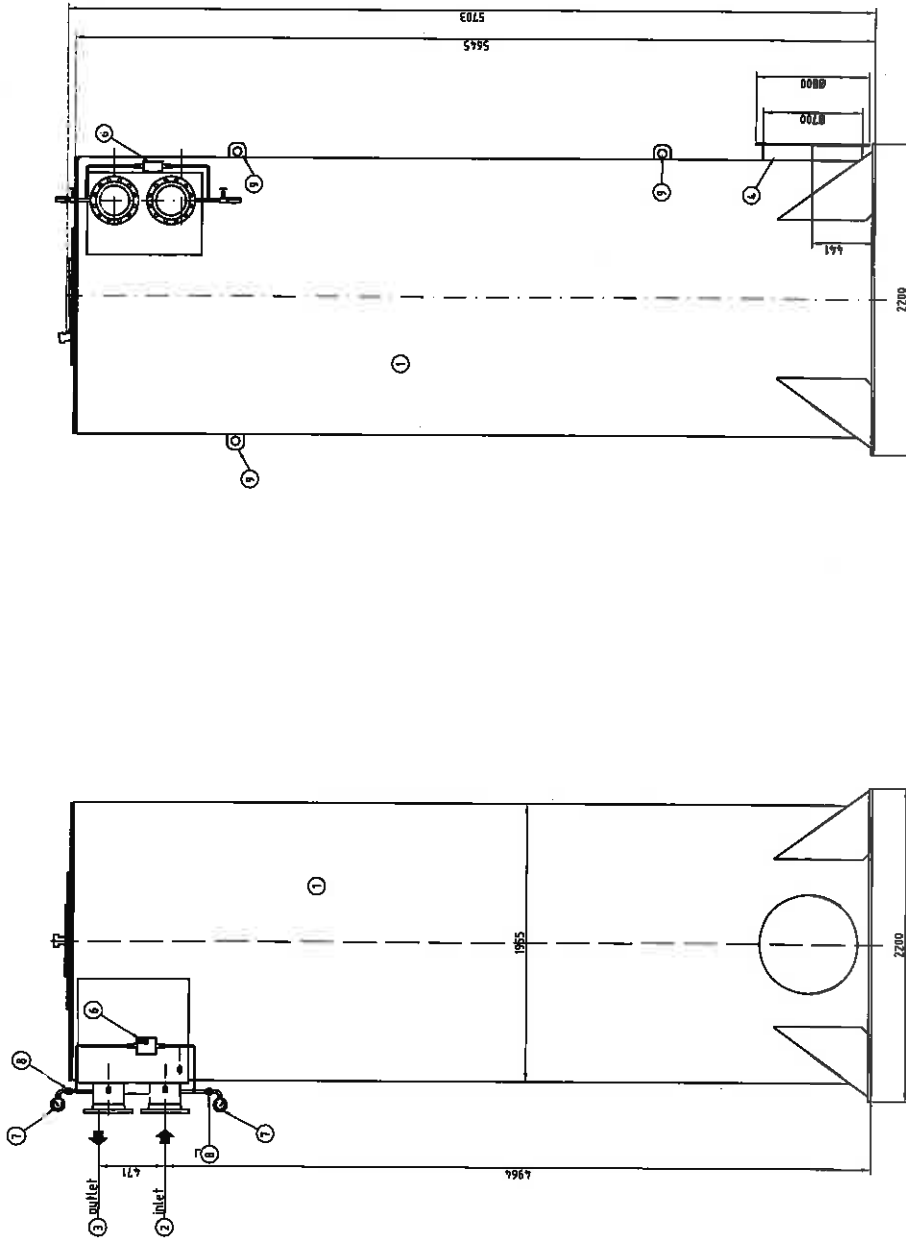
APPROVATO  
M.M.

SCALA  
P.A. 1:25

DATA  
18-05-06

226-TN 01

QUESTO DISEGNO E' DI NOSTRA ESCLUSIVA PROPRIETA' E' VIETATO A TITOLO DI LEGGE RIPRODURLO O RIVALUTARLO A TITOLO SENZA LA NOSTRA AUTORIZZAZIONE



PESO WEIGHT: 7860 Kg  
 ENTRATA/USCITA OLIO INLET/OUTLET OIL DN200 PN16

9	2	GAUCIO SOLLIVAMENTO	LEFT LUGS
8	2	RUBINETTO MANOMETRO	PRESSURE INDICATOR VALVE
7	2	MANOMETRO	PRESSURE INDICATOR
6	1	PISSOSTATO DIFFERENZIALE	DIFFERENTIAL PRESSURE SWITCH
5	1	QUADRO ELETTRICO	CONTROL PANEL
4	1	USCITA FUMI	SMOKE EXIT
3	1	USCITA OLIO	OIL OUTLET
2	1	INGRESSO OLIO	OIL INLET
1	1	GENERATORE OLIO INTERNO	THERMAL OIL HEATER
PROJ. N°		DESCRIZIONE	DESCRIPTION
3		20/03/2006	Revisione generale
2		05/03/2006	Revisione generale
1		05/12/2005	revis. generale inserita bruciatore
REV.	DATA	MODIFICHE	
		DRS.	APP.

Viale dei Caduti, 3  
 25030 CASTELMELLA (BS)  
 Tel. (030) 269541-2  
 Fax (030) 2690910

**GARIONI NAVAL**

DIMENSIONI ESTERNE STANDARD  
 TH-V 4000  
 STANDARD EXTERNAL DIMENSIONS

APPROVATO S.F. C.D. DATA 14/04/2004

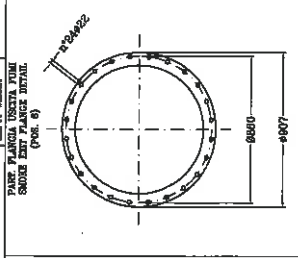
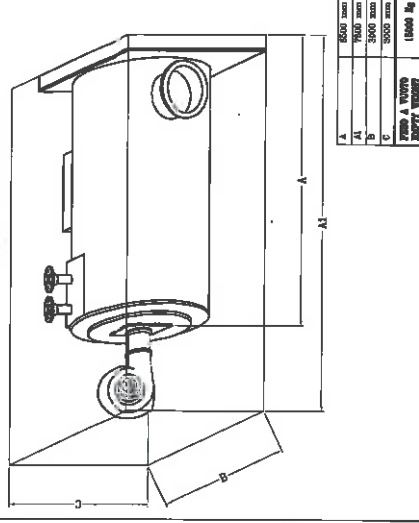
STAGLIA 8.D.  
 SCALA 1:25

COMMESSA 8  
 SOSTITUISCE IL 8  
 DISSEGNO N. 04-0110

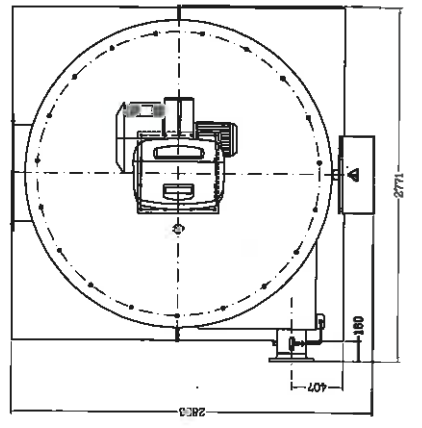
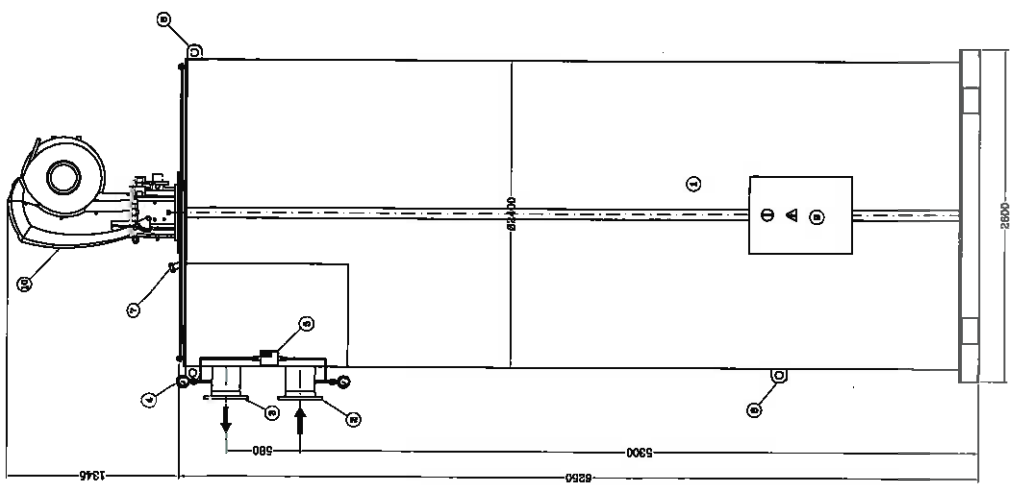
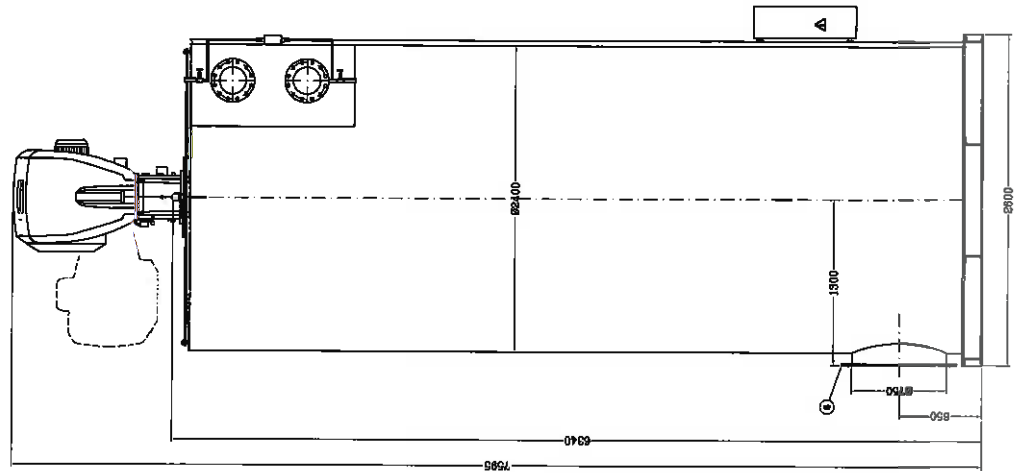
179 TH 03

PRODOTTO, DISEGNATO E IN CARICA ESCLUSIVA PROPRIETA' E' VENDUTO A TITOLI DI LICENZA APPROPRIATA A TUTTE LE AZIENDE AUTORIZZATE

DIMENSIONI ESTERNE - ESTERNO  
EXTERNAL DIMENSIONS - EXTERNAL



PART. PLACCA DISSA FIAM  
SINGLE EXT PLACCE DETAIL  
(Vedi 6)

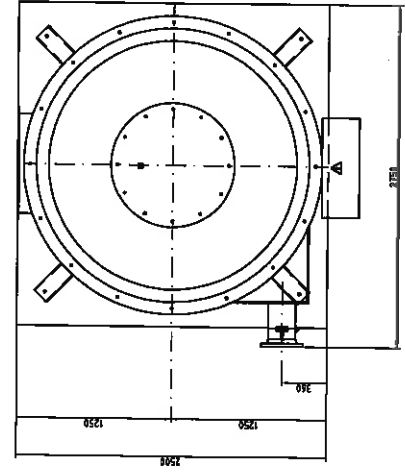
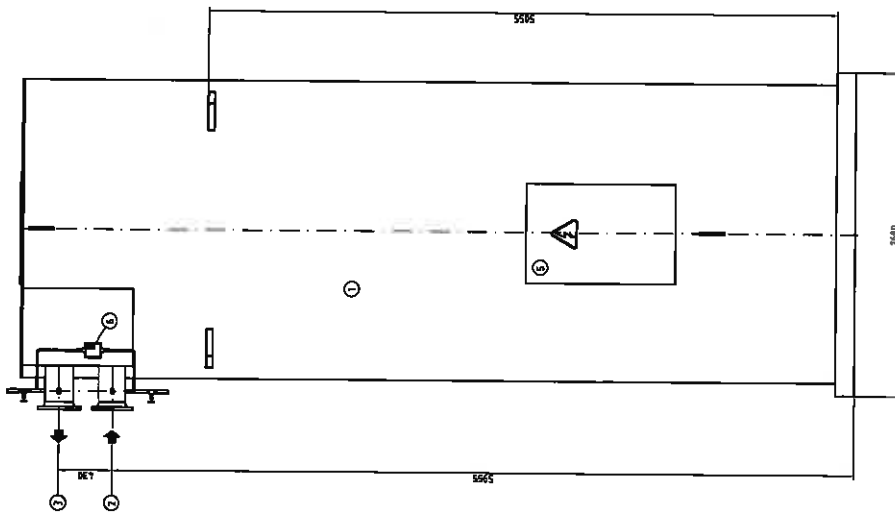
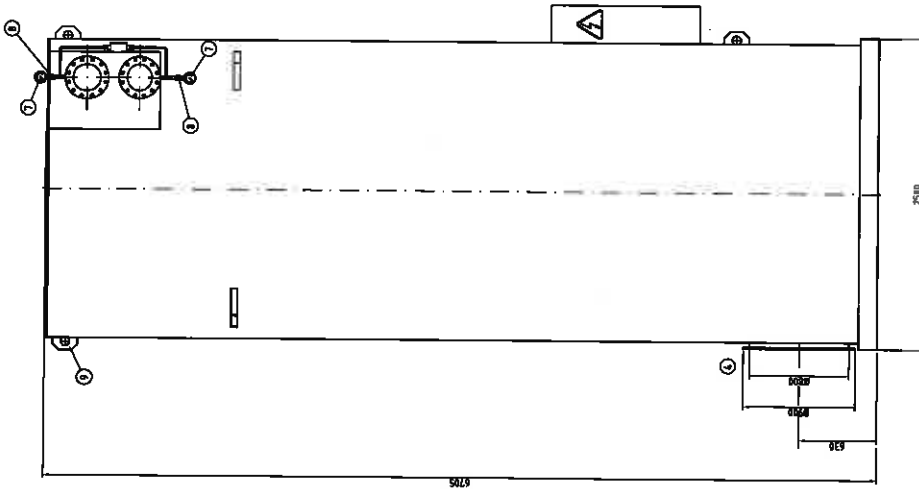


10	1	REVISIONE	INTEGRAZIONE
9	1	SCALINO SOTTOPEDANO	CONSOLE PAVI.
8	3	CANALI DI SCELINAMENTO	SCHEDE LUCE
7	1	PISTOLA/CORONA PER AFFIDAMENTO	STRUTTURE/PINNE IMPERMEABILIZZAZIONE CONDOTTORI
6	1	FRANCO CORONA	CELESTI PLACCE
5	1	PIRE INSISTITO CILINDRICALI	DIFFERENZIALI PER VORRE SERVICE
4	12	MANGIATOIO	PERMEABILIZZAZIONE
3	1	DESTRA OLD	OLD OUTLET
2	1	DESTRA OLD	OLD INLET
1	1	CALDAIA AD ORO TERMOISOLATA 75/75 5000	TERMOISOLAZIONE MANO 75/75 5000
PROV. N.		DI LOCOMOTORE	DI CANTIERE

**GARIONI NAVAL**  
TH/Y 5000  
DIMENSIONI DI INGOMBRO STANDARD  
STANDARD EXTERNAL DIMENSIONS

PROGETTO PS  
VERIFICATO FA  
APPROVATO PA  
DATA 1/20 06/06/11  
DISEGNO N. TH 1209

REVISIONI  
REVISIONE 1  
REVISIONE 2  
REVISIONE 3  
REVISIONE 4  
REVISIONE 5  
REVISIONE 6  
REVISIONE 7  
REVISIONE 8  
REVISIONE 9  
REVISIONE 10



**PESO**  
**WEIGHT: 13200 Kg**  
**ENTRATA/USCITA OLIO**  
**INLET/OUTLET OIL**  
**DN200 PN16**

LETTERE		DESCRIZIONE	DATA	APP.
9	2	GARANZIA SOLLICITAMENTO		
8	2	MANOMETRO		
7	2	VALVOLA DI SICUREZZA		
6	1	MANOMETRO		
5	1	QUADRO ALLE FUNZIONI		
4	1	USCITA FUORI		
3	1	USCITA OLIO		
2	1	INGRESSO OLIO		
1	1	INGRESSO ACQUA		
20/03/2005 Revisione generale 15/03/2006 Revisione generale 16/05/2005 Revisione generale				
REV.		DATA	MODIFICHE	
L.A.		P.A.		
D.N.A.		C.D.		
S.F.		C.D.		

**GARIONI NAVAL**  
**DIMENSIONI ESTERNE STANDARD**  
**STANDARD EXTERNAL DIMENSIONS**  
**14/06/2004**  
**04-0112**

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