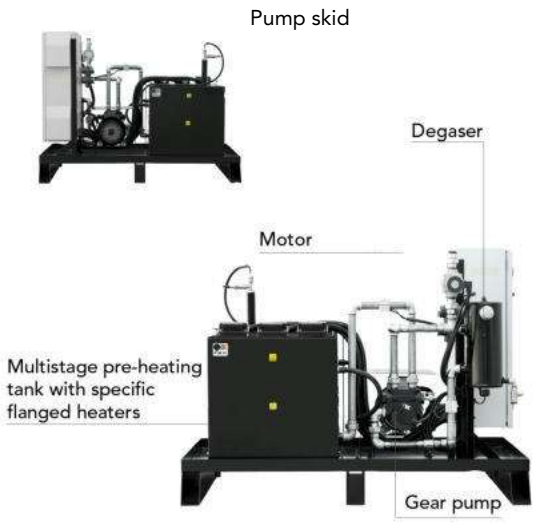
# FNDP 750-1000/M

MECHANICAL MODULATION

Heavy oil burners at 2 stages progressive (hi-low flame) or modulating (PID fully modulating) if equipped with modulation kit and probe.
Fan at high pressurization, high efficiency combustion head with adjustment and high flame stability, pump, multistage preheating tank and degaser skid. Suitable for heavy oil up to 50°E to 50°C and for BTZ heavy oil.
Rational disposal of components with easy accessibility for calibration and maintenance operations.
The adoption of strong metal components makes the burner durable also in heavy duty conditions.
Burners are supplied with nozzle, gasket for installation on boiler, flexible hoses, line filter and degaser tank.



## TECHNICAL DATA

| MODEL | | FNDP 750/M | FNDP 1000/M |
|---|---|---|---|
| Thermal power min.1°st. / min.2°st. - max.2°st. * | [Mcal/h] | 1117/3400-7500 | 1117/3400-10000 |
| Thermal power min.1°st. / min.2°st. - max.2°st. * | [kW] | 1299/3953-8721 | 1299/3953-11628 |
| HEAVY-OIL flow min.1°st. / min.2°st. - max.2°st. * | [kg/h] | 114/347-765 | 114/347-1020 |
| Fuel: Heavy-oil 5°-50°E a 50°C | | | |
| Intermittent working operation (min, 1 stop every 24 hours) two stages progressive or modulating | | | |
| Enviromental conditions operation/storage | -15...+40°C / -20...+70°C ,relative humidity max. 80% | | |
| Max temperature combustion air | [°C] | 60 | 60 |
| Total nominal electric power (burner + skid group) | [kW] | 80 | 100 |
| Fan motor | [kW] | 22 | 30 |
| Pump motor | [kW] | 3 | 5.5 |
| Nominal electric power skid group | [kW] | 58 | 69 |
| Resistances | [kW] | 54 | 63 |
| Fan motor absorption | [A] | 43 | 56 |
| Pump motor absorption | [A] | 6.5 | 11.7 |
| Resistances absorption | [A] | 240 | 273 |
| Absorption burner auxiliary circuit | [A] | 4 | 4 |
| Absorption skid group auxiliary circuit | [A] | 0.5 | 0.5 |
| Power supply | 3~400V, 1N~230V - 50Hz | | |
| Burner degree of electric protection | | IP40 | IP40 |
| Skid group degree of electric protection | | IP40 | IP40 |
| Burner weight | [kg] | 590 | 700 |
| Skid group weight | [kg] | 336 | 366 |

* Reference conditions: Environment temperature 20°C - Barometric pressure 1013 mbars - Altitude 0 metre (sea level).

## FIRING RATES

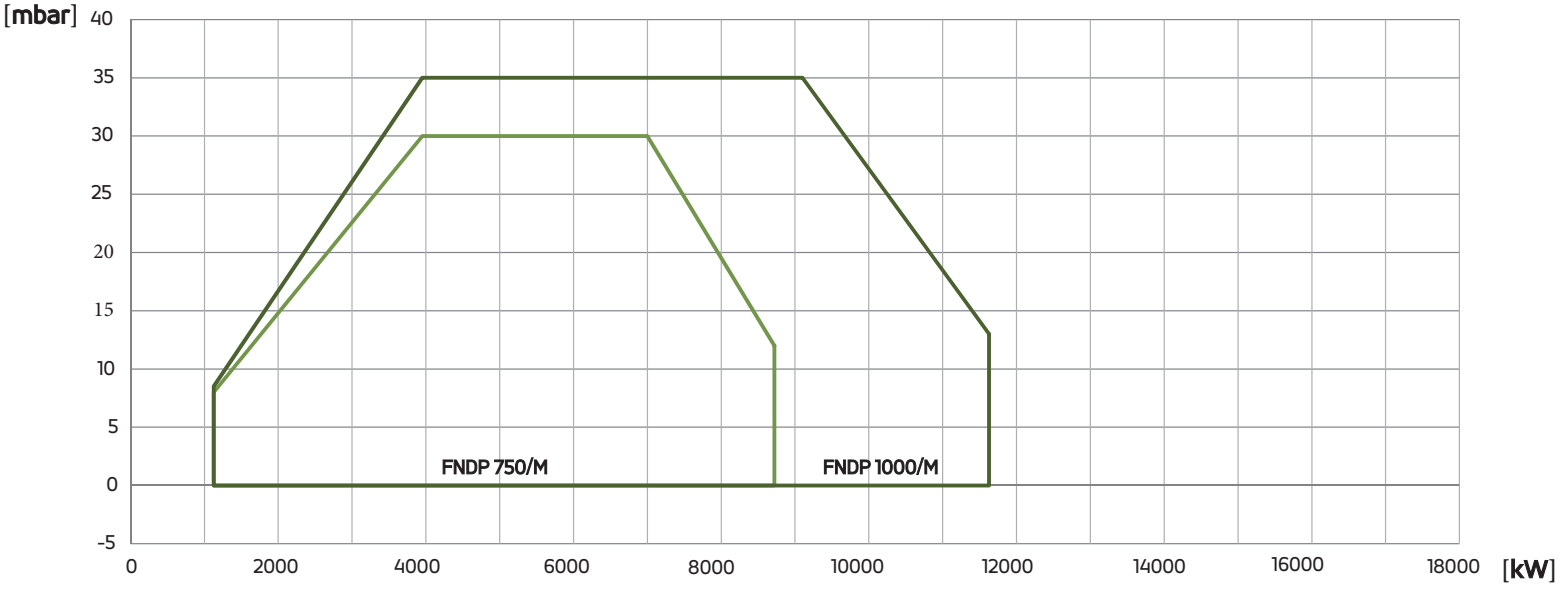



**Fig. 1** X = Thermal power Y = Pression in the combustion chamber

The firing rates has been obtained based on test boilers in accordance with EN267 standards and are indicative of matching the burner to the boiler. For the correct operation of the burner, combustion chamber dimensions must be in accordance with current regulation. In case of non-compliance, contact the manufacturer.

## DIMENSIONS [mm]

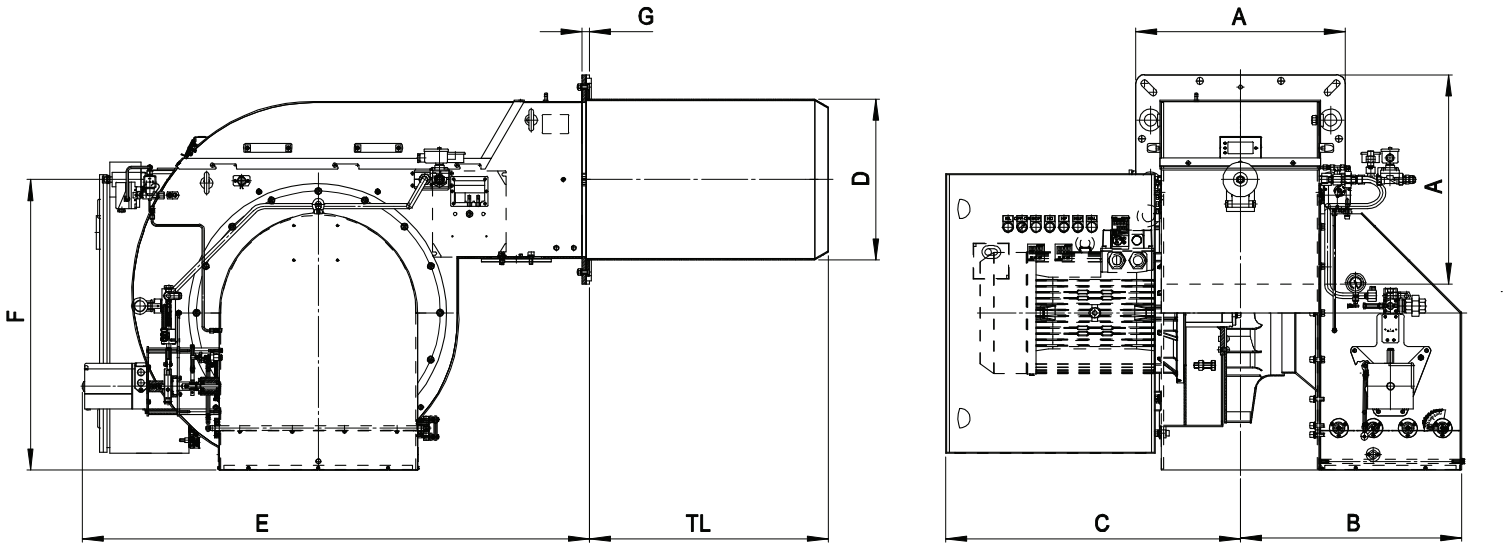
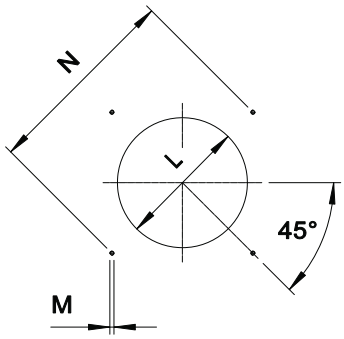



**Fig. 2** Dimensions

| MODEL | A | B | C | D | E | F | G | TL |
|---|---|---|---|---|---|---|---|---|
| FNDP 750/M | 600 | 634 | 845 | 439 | 1453 | 832 | 22 | 685 |
| FNDP 1000/M | 600 | 634 | 845 | 459 | 1453 | 832 | 22 | 685 |

## BOILER PLATE




The dimensions of the boiler plate (threaded holes or studs) must be as indicated in the drawing.

| MODEL | | M | N min | N * | N Max | L min | L max |
|---|---|---|---|---|---|---|---|
| FNDP 750/M | mm | M16 | 707 | 778 | 778 | 460 | 540 |
| FNDP 1000/M | mm | M16 | 707 | 778 | 778 | 510 | 540 |

## PUMP SKID: DIMENSIONS (mm)

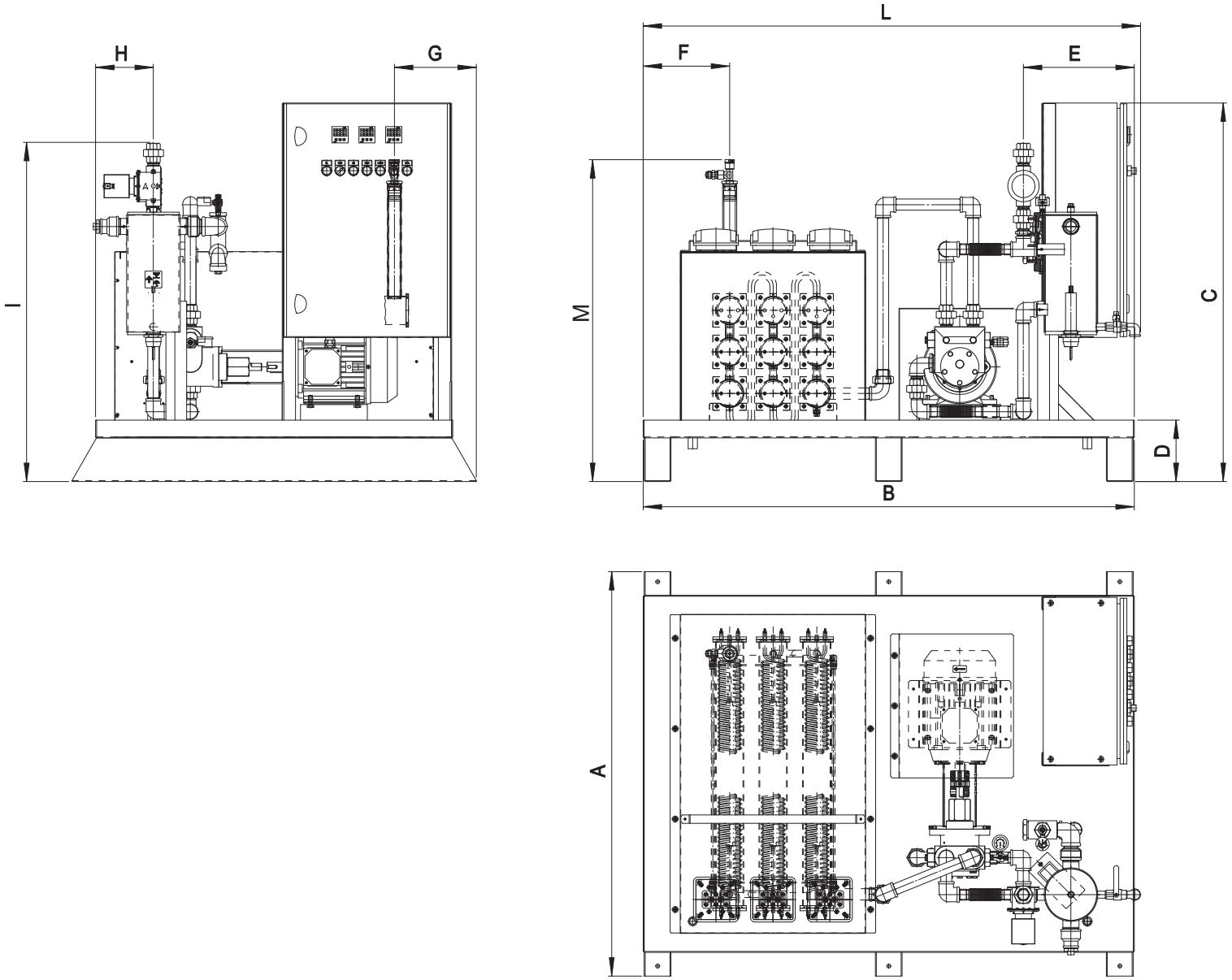



**Fig. 3** Pump skid dimensions

| MODEL | A | B | C | D | E | F | G | H | I | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FNDP 750/M | 1207 | 1466 | 1130 | 183 | 331 | 258 | 245 | 173 | 1013 | 1485 | 961 |
| FNDP 1000/M | 1207 | 1466 | 1130 | 183 | 331 | 258 | 245 | 173 | 1013 | 1485 | 961 |

## PRODUCT SPECIFICATION

### SHORT DESCRIPTION

Heavy oil burners at 2 stages progressive (hi-low flame) or PID fully modulating if equipped with modulation kit and probe. Available versions for heavy oil up to 50°E to 50°C and ecological heavy oil BTZ (low sulfur oil).

### DETAILED SPECIFICATION

Heavy oil burners from 5 to 50°E at 50°C, 2 stages progressive (hi-low flame), with possibility of modulating working (PID fully modulating with optional modulation kit and probe). The burner is composed by:

- Burner frame made of steel completed by specific boiler plate;
- Centrifugal fan at high pressurization with reverse curved blades at low noisiness;
- Combustion head with adjustment at high performance and elevated flame stability equipped with steel blast tube and steel flame disc;
- Easy extraction of combustion head without get off the burners by bolier;
- Flange and insulating gasket for fixing at boiler/furnace;
- PID regulators for the control of fuel heaters;
- Mechanical control system for controlling and command the burner;
- Photoresistance for flame detection;
- Three-phase power supply;
- Fan motor start-up made by delta/star system;
- IP40 electric protection level;
- Safety air pressure switch to stop the burner in case of failed or anomalous fan operation;
- Maximum oil pressure switch to stop the burner in case of the oil pressure on the return is higher then the set point value;
- Servomotor for air shutter and for the heavy oil adjust;
- Mobile shutter with total closure when idle for minimize the energetic losses related at boiler cooling;
- Heavy oil gear pump operated by specific electric motor;
- Thermocouples for detecting the oil temperature;
- Button for the manual tank load;
- Multistage pre-heating tank with specific flanged heaters at low density (anticracking and antigas);
- Resistances (always on) for pump, nozzle and fuel valve;
- Pressure manometer on inlet pump;
- Nozzle assembly with magnet to control inlet/return needle nozzle;
- Double filter between pump and nozzle;
- Set up for the additional specific kit that transforms burner operation as modulating i.e.the modulating kit allows to supply any power between the minimum and maximum value based on instantaneous loading request.

### CONFORMING TO:

- CE rules;
- 2014/30/UE Directive E.M.C.;
- 2014/35/UE Directive L.V.;
- 2006/42/CE - 2006/42/EG - 2006/42/EC Directive M.D.;
- Reference rules: EN267(liquid fuel) - EN746-2 (industrial thermoprocessing equipment)

### STANDARD EQUIPMENT

- Degaser tank
- Flexible pipes for connection
- Line filter
- Isomart gasket
- Nozzle
- Flange with insulating gasket
- Burner nameplate
- Warranty
- Instruction handbook for installation, use and maintenance

## OPTIONAL

- Power modulating kits for temperatures;
- Power modulating kits for pressures;
- Kit for input 4-20mA / 0-10Vdc;
- Temperature probe 0°C-400°C (PT 100  a 0° C);
- Temperature probe 0°C-350°C (J probe);
- Temperature probe 0°C-1200°C (K probe);
- Pressure probe 0-3 bar, 0-6 bar. 0-16 bar, 0-20 bar, 0-30 bar;
- Noise protection