Devices for burning biomass

BIOMASS BURNING DEVICES

Cast iron head sets

Cast iron head feeder

Ceramic head sets

Ceramic head feeder

BURNERS' POWERS

Cast iron head

Features a movable step grate and a multi point air inlet system

- **20 KW**
- **30 KW**
- **40 KW**
- **60 KW**
- **120 KW**
- **180 KW**
- **240 KW**

FUEL HUMIDITY UP TO 25%

CERAMIC HEAD

Made from high temperaturę resistant materials (approx. 1100C), features a multi point air inlet system and an ash removal system

- **30 KW**
- **50 KW**
- **100 KW**
- **240 KW**

FUEL HIMIDITY FROM 25% UP TO 40%

FUEL CONTAINERS

VOLUME

- 0,6 m3
- 1,0 m3
- 2,0 m3
- 4,0 m3
- 6,0 m3
- 8,0 m3
- 10,0m3
- 27,0 m3

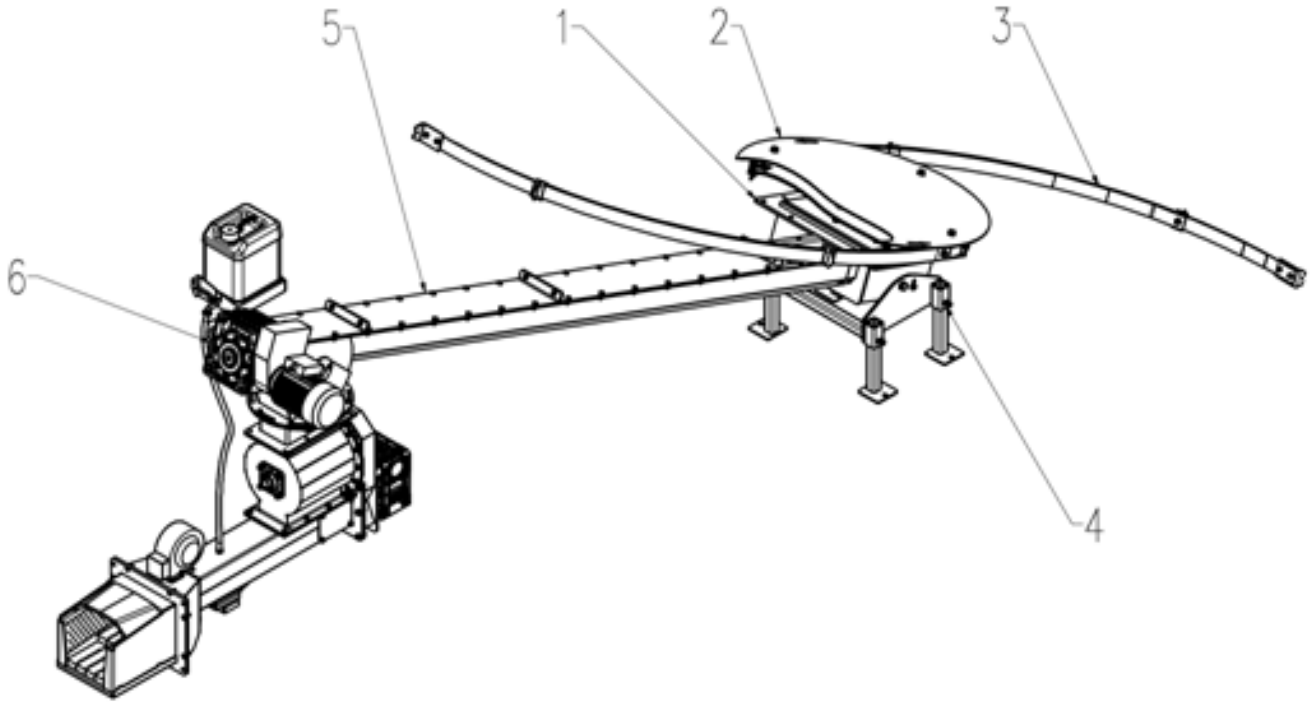
CONTAINERS 0,6 m3 -2m3 – 230V (up to 120kw)
CONTAINERS 4 m3 -27m3 – 400V

ALTERNATIVE TO CONTAINERS: SPRING FEEDERS

APSB GZ - głowica żeliwna

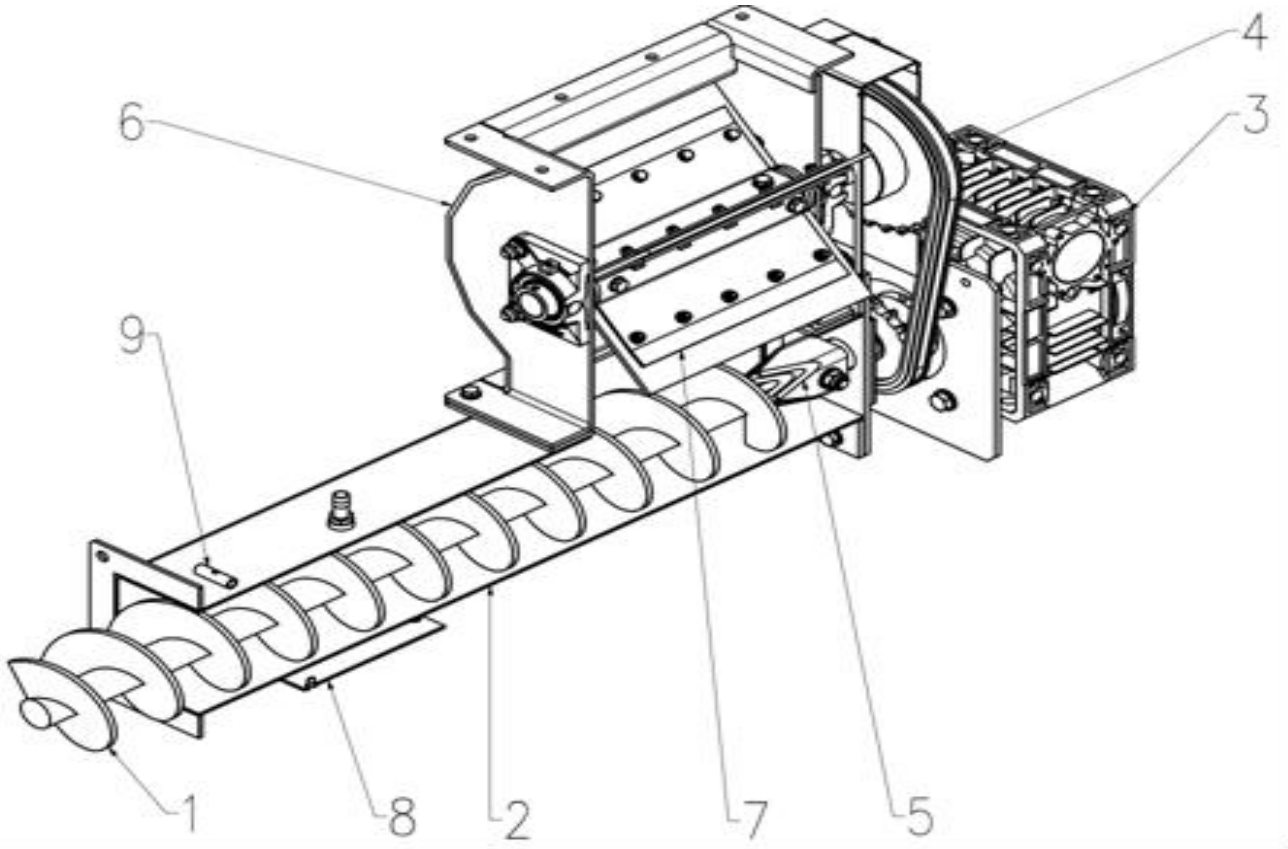
APSB GC - głowica ceramiczna

SPRING FEEDERS ELEMENTS:



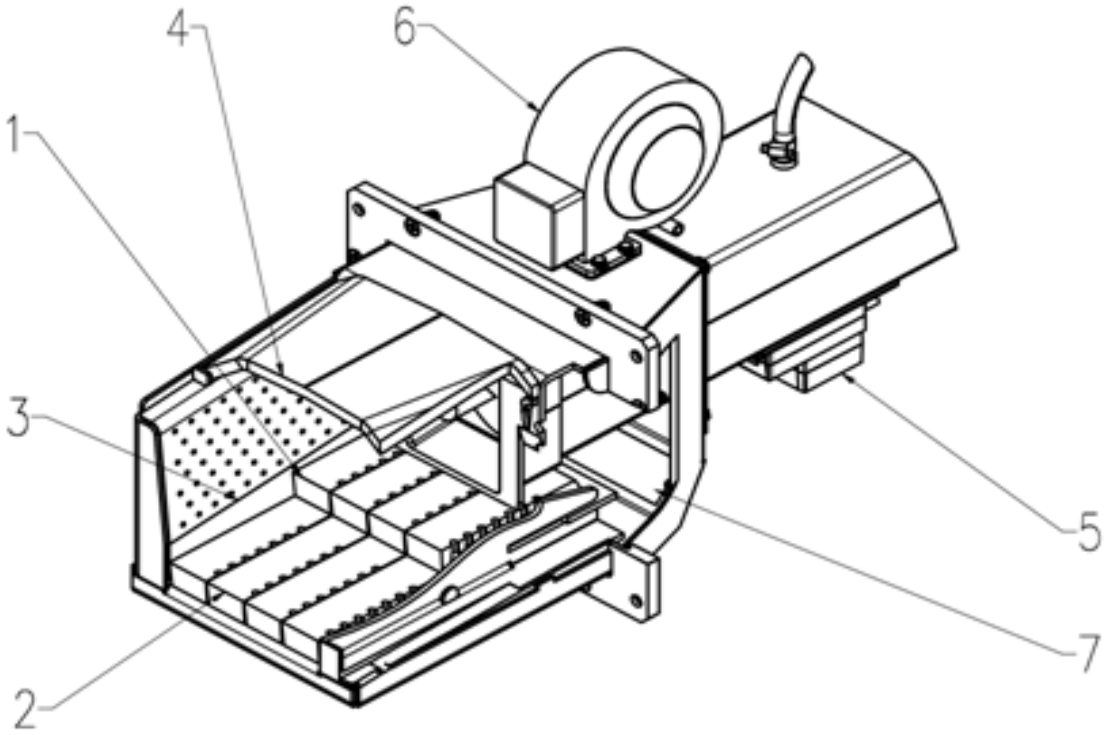
1 – mounting plate, 2 – shield, 3 – spring raking arms, 4 – base,
5– conveyor/feeder, 6 – motoreducer

Chamber conveyor (ROTARY FEEDER)



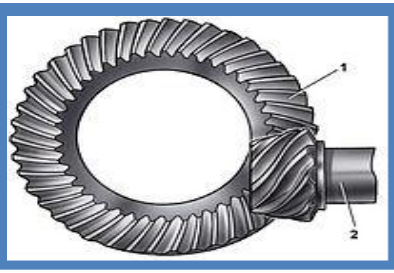
1 – lower feeder screw, 2 – lower feeder cover, 3 – driving motoreducer,
4 – chain gear, 5 – clutch, 6 – dosing feeder cover, 7 – dosing feeder rotor,
8 – mounting base – Belimo system (moving grates), 9 – feeder temperature sensor duct

CAST IRON BURNER



1 – movable grate, 2 – fixed grate, 3 – head fireplace, 4 – burner cover,
5 – grates driving motor, 6 – fan, 7 – burner cleaning opening

Motoreducers

240V	**0,6 – 2M3 CONTAINERS**	**SPIRAL BEVEL GEAR(1/60, 0,75 kW 900 rpm)**	
380V	**0,6 – 2M3 CONTAINERS**	**Cylindrical bevel gear 1/125, 0,75 kW 1400 rpm**	
380V	**4,6,8,10M3 CONTAINERS**	**UPPER FEEDER – CYLINDRICAL GEAR 1/100, 1,5 KW 1400 rpm LOWER FEEDER – CYLINDRICAL GEAR 1/100, 0,75 KW 1400 rpm**	
380V	**SPRING ARMS**	**UPPER FEEDER – CYLINDRICAL BEVEL GEAR 1/120, 1,1 kW 1400 rpm LOWER FEEDER – CYLINDRICAL GEAR 1/100, 0,75 KW 1400 rpm**	

TYPES OF FUEL

The „SMOK” is intended for burning various types of biomass in the form of sawdust, chips, shavings, briquette, pellets or grains and fruit pits

- P45 chips
- SAWDUST
- BARK
- BRIQUETTE / AGRO-BRIQUETTE
- PELLETS/ AGRO – PELLETS

Processed and unprocessed fuels

QUALITY OF BIOMASS. NORMS, PROPERTIES, REQUIREMENTS

EUROPEAN NORM

CEN/TS 14961

- Fraction size (P16/P45/P63/P1000)
- Moisture content (M20/M30/M40/M55/M65)
- ash(A0.7/A1.5/A3.0/A6.0/A10.0)
- Heating value MJ/kg
- density, kg/m3
- Chlorine contant ,%
- Nitrogen contant,%

COUNTRY SPECIFIC NORM

- ONORM M 7135 AUSTRIA
- SS 187120 SWEDEN
- DIN 51731 GERMANY
- CTI – R 04/5 ITALY
- BRITISH BioGen ENGLAND

WOOD CHIPSACCORDING TO NORM P 45

Main fraction>80%

- 3.15≤ P ≤ 45 mm

Fine fraction <5%-m

- <1mm

Coarse fraction,

- Max. Particle length<1 m - %>63 mm

WOOD CHIPS ACCORDING TO NORM P 45

- Main fraction>80%-m

3.15≤ P ≤ 45 mm

- Fine fraction <5%-m

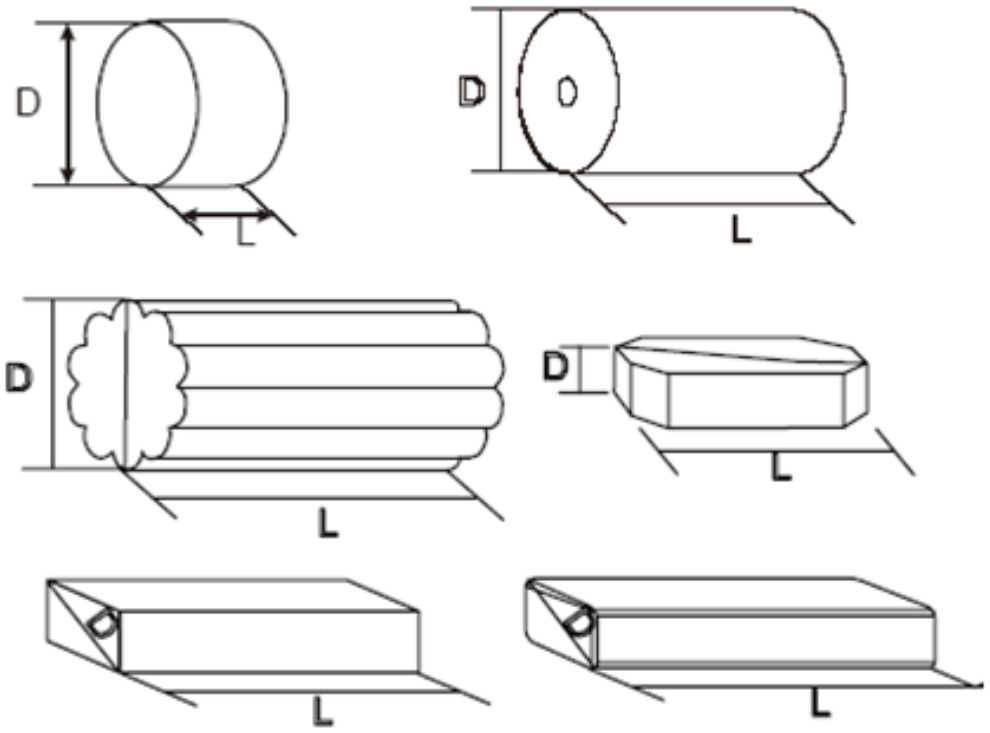
1≤P≤3,15mm

Fine fraction 5w-%<1 mm

- Coarse fracation,

Max. Particle length <1 m - %>63 mm

Wood briquette



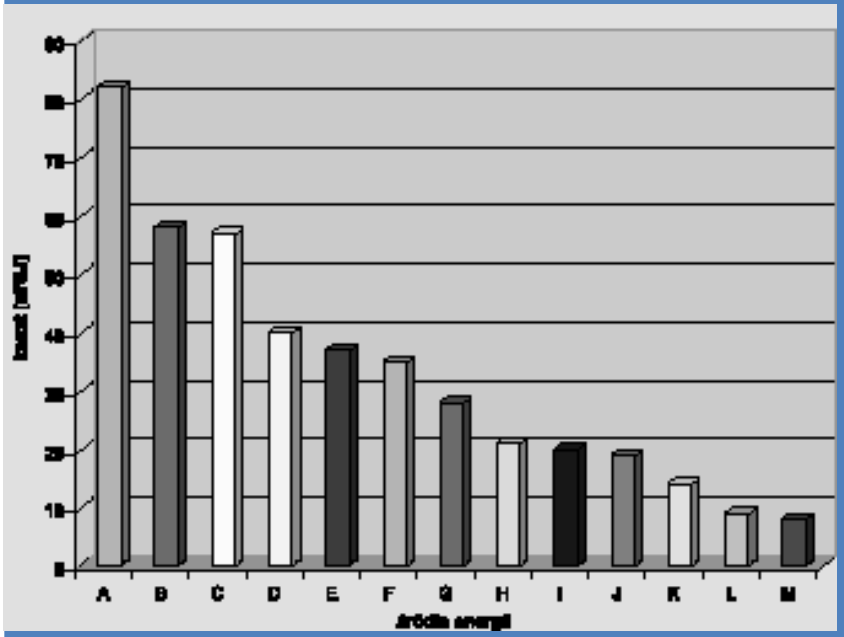
- *origin*– barkless wood, not chemically treated
- *Moisture content*– M10
- *Particle density*– DE1.0 (1.00-1.09 kg/dm3)
- *Ash content:* A 0.7 %
- *additives* <2 %
- *Net heating value* E4.7 (E≥4,7kWh/kg = 16,9 MJ/kg)

Briquet with bulk density up to 450kg/m^3

PELLET

- *origin*– barkless wood, not chemically treated
- *Moisture content*– M10
- *Mechanical durability* DU97,5 (97.5 w-% of granulate in 100 g should not be crushed in testing)
- *% dust content*
- *Ash content* A 0.7 %
- *Sulphur content*
- *additives* <2 %
- *Net heating value* E4.7 (E≥4,7kWh/kg = 16,9 MJ/kg)

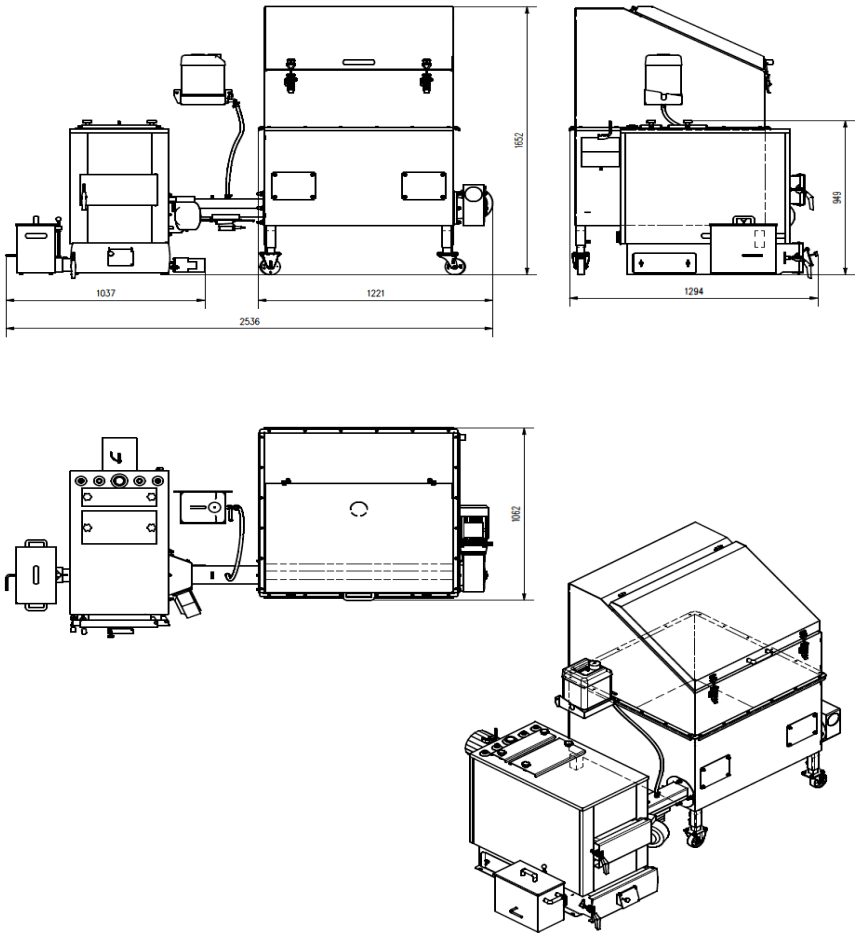
Heating price comparison



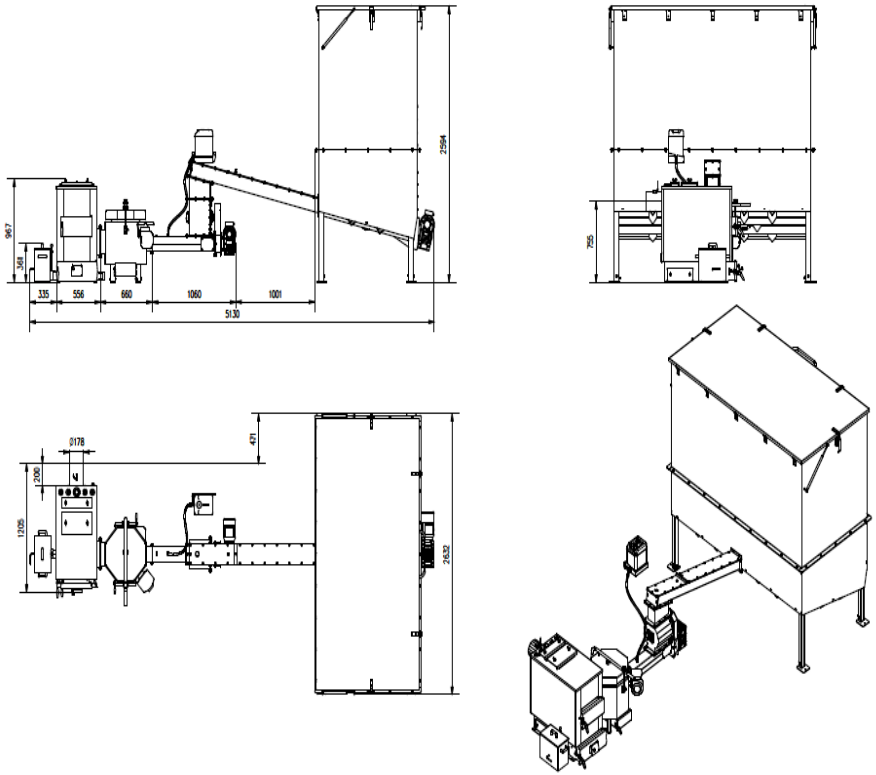
A. electricity
B. Two-rate electricity (50/50%)
C. Liquid petroleum gas
D. mazut
E. Electricity, 2nd rate
F. District heating
G. Natural gas
H. Coke
I. Coal
J. Heat pump E=4 (daily rate)
K. Heat pump E=4 two-rate (50/50%)
L. Heat pump E=4 (2nd rate).
M. Biomass.

SMOK schematics

AZSB GZ 30R 1M3 Z SUP (230V)

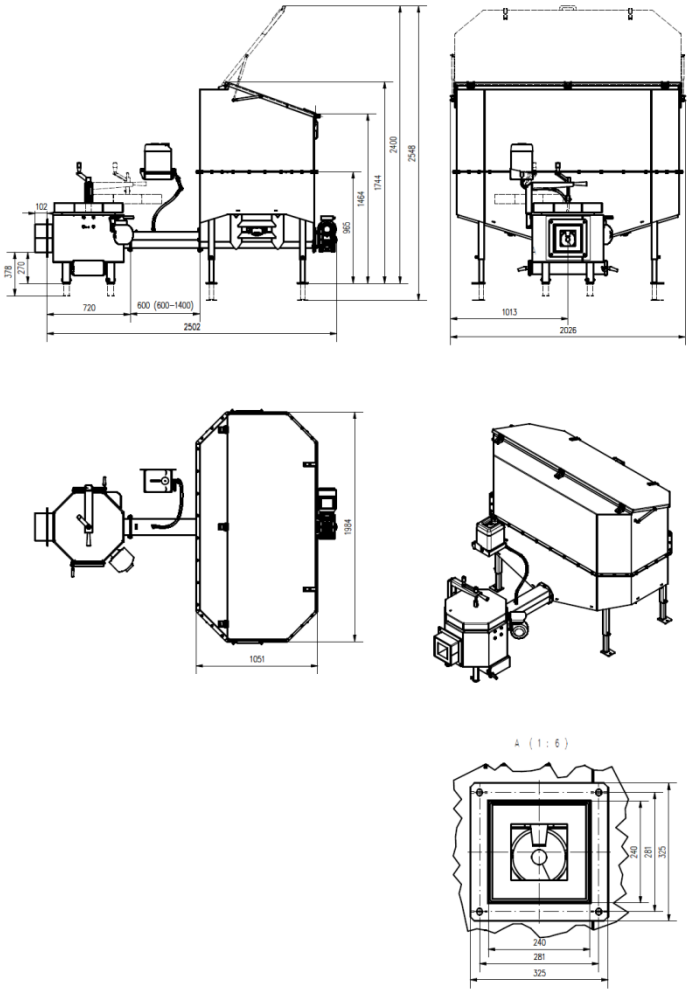


AZSB 30 GC 6M3 P SUP



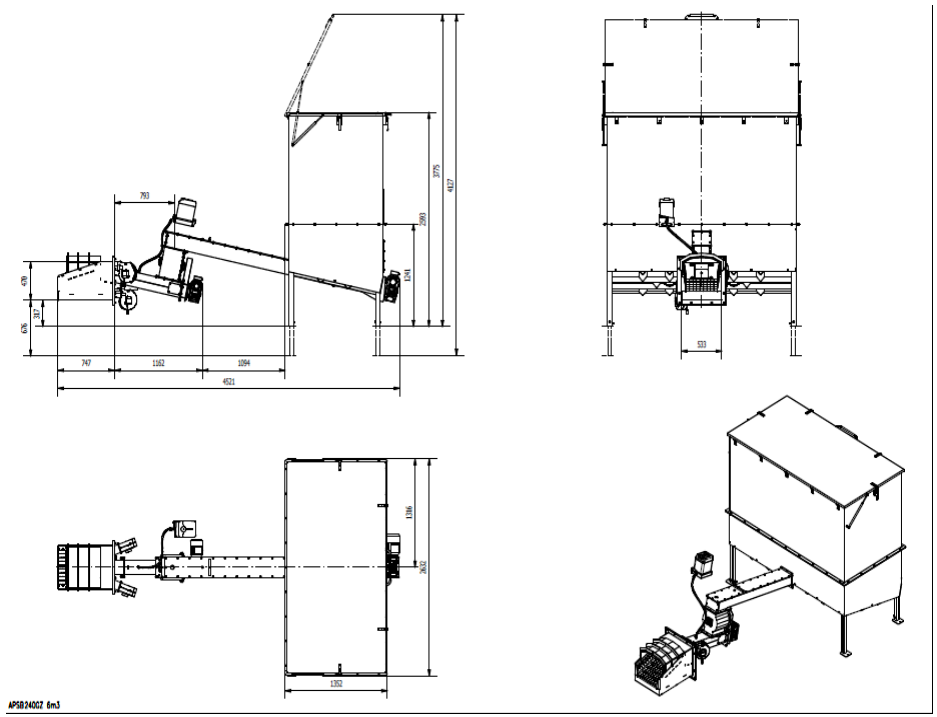
SMOK Schematics

APSB 50 GC 2M3 P



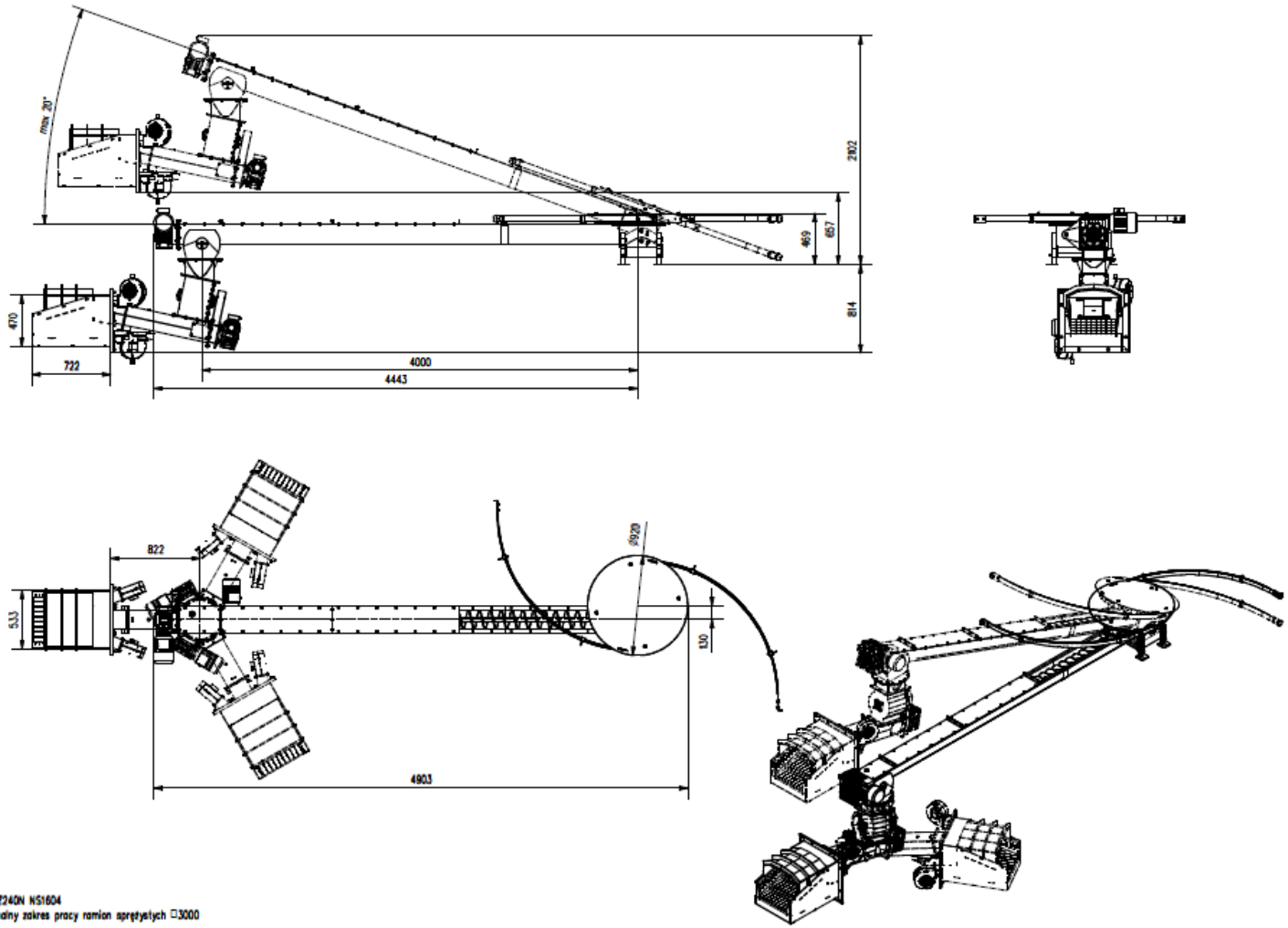
APSB50GC 2m3 prawy

APSB 240 GZ 6M3

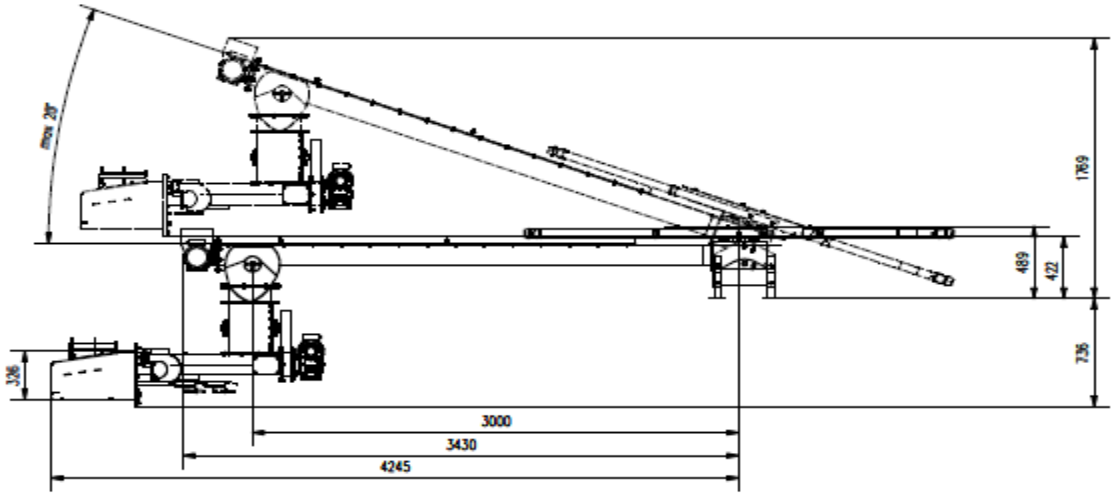


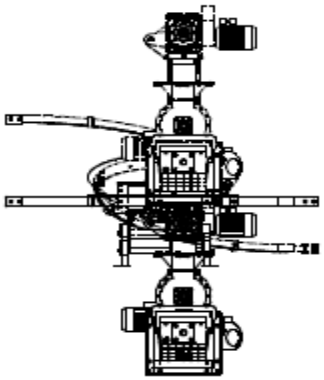
SMOK schematics, configuration

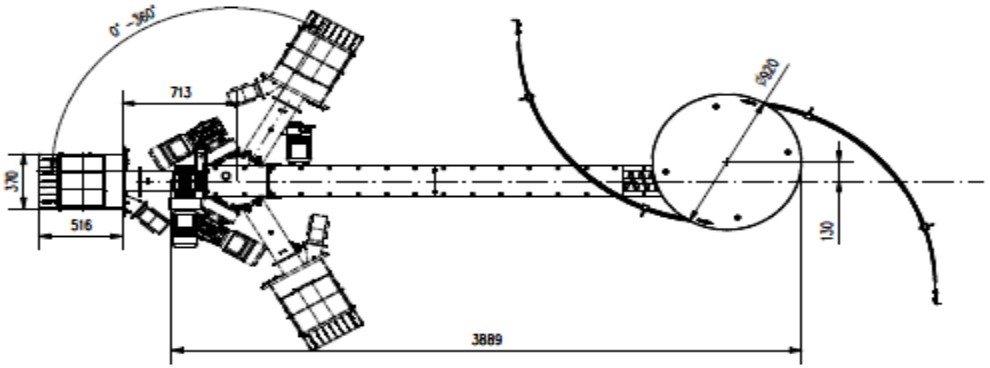
APSB GZ 240N NS1604

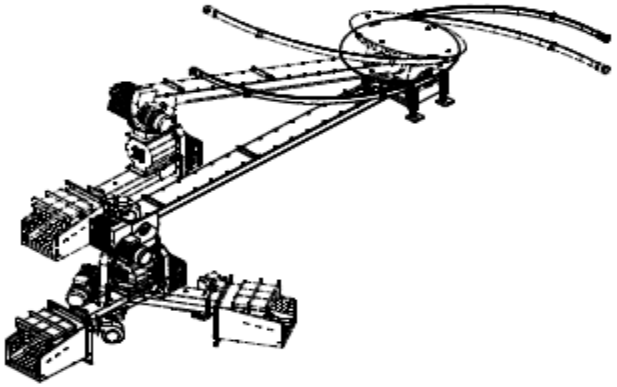


APSBGZ120R NS1243



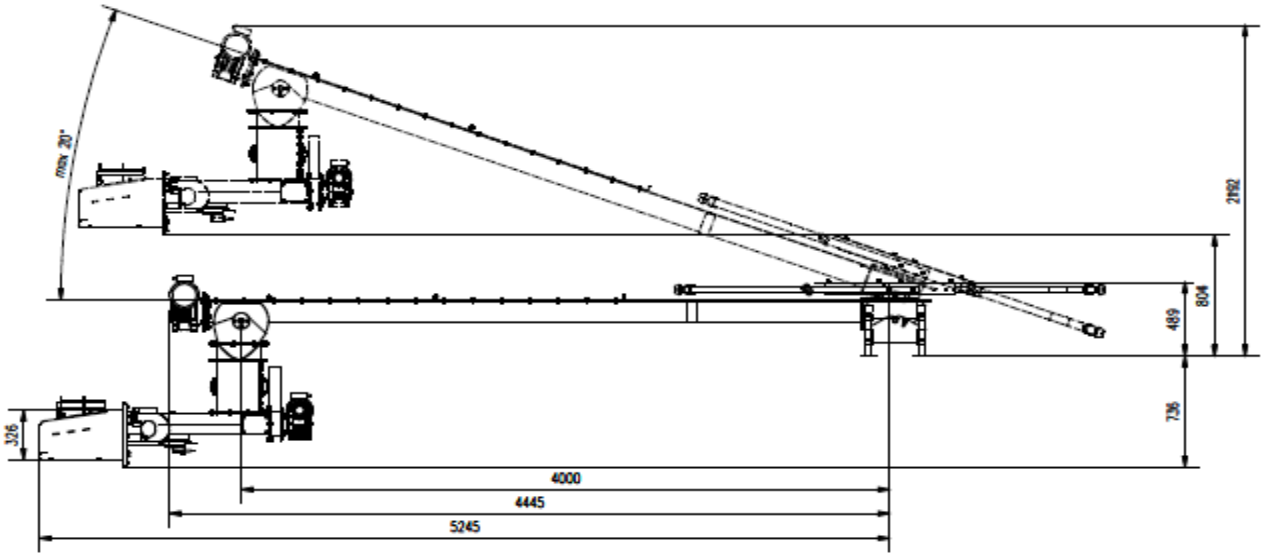


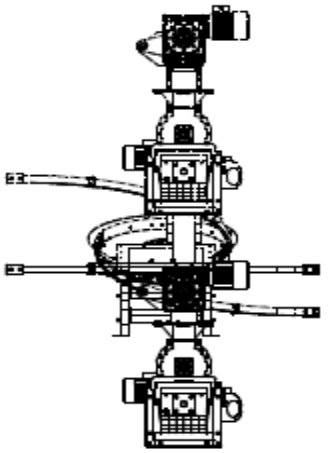


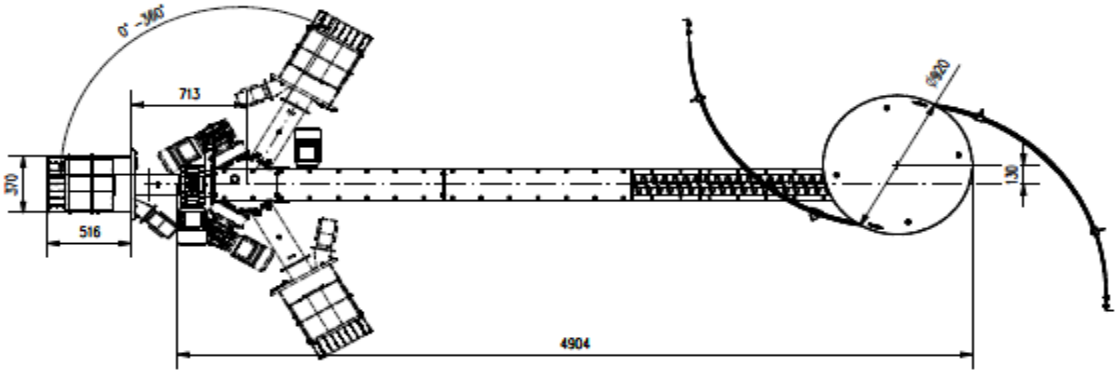


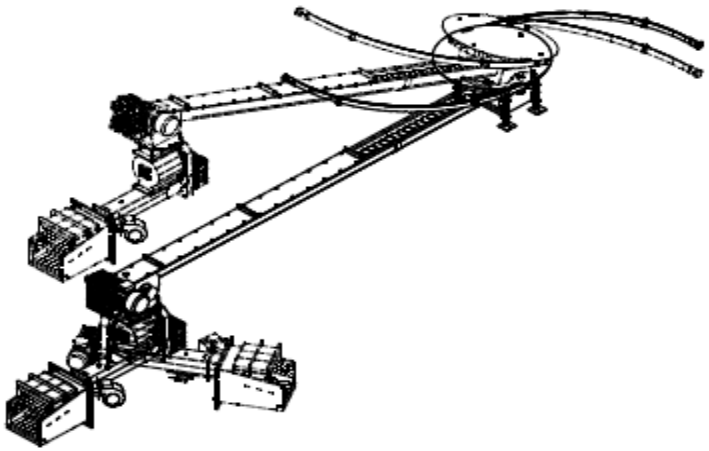
APSBGZ120R NS1243
Maksymalny zakres pracy ramion sprężystych □3000

APSBGZ120R NS1244









APSBGZ120R NS1244
Maksymalny zakres pracy ramion sprężystych □3000

SMOK – IRELAND

AZSB GZ 240 KW NS


JCB

SLOVENIA

POLAND

PL - CHWALISZEWO

23 YEARS OF OPERATION