



Kotlovi i logistika biomase - praktično znanje

Boilers and biomass logistic – practical knowledge

Kvalitet i
inovativnost
već 120 godina



Osnivanje kompanije HERZ – 1896. godina, u ulicu Herzgasse u Beču, kada su porodice Gebauer i Lehrner započeli s proizvodnjom armatura.

Po prvoj adresi – Herzgasse – kompanija kasnije dobija ime HERZ



ARMATUREN,
APPARATE u.
TELEPHONS MIT INTERURS. ANSCHLUSS:
COMPTOIR u. MAGAZIN
ALLE ARBEITUNGEN:
8-10-5-10 SERIE
MAGAZIN u. EXPEDIT ALLEINE
R-10-0-53
TELEGRAMME:
VENTILFABRIKEN WIEN

METALLWAREN
FABRIKEN

ÖST. POSTSPARKASSA NR. 4
UNG. POSTSPARKASSA NR. 2
POLN. POSTSPARKASSA
IN WARSCHAU NR. 191.946
BANK:
NIEDERÖSTERRE. GEWERBE
U. HANDELSBANK, WIEN.

GEBAUER & LEHRNER
WIEN

Inzersdorferstrasse 50-56. Neilreichgasse 53-55,
X., HERZGASSE 64-66.
Schrötergasse 47-53.

Wien, am 29. Dezember 1
X., Herzgasse 64-66.

Ge gesch Schutzeurke
In allen Kulturstädten angemeldet



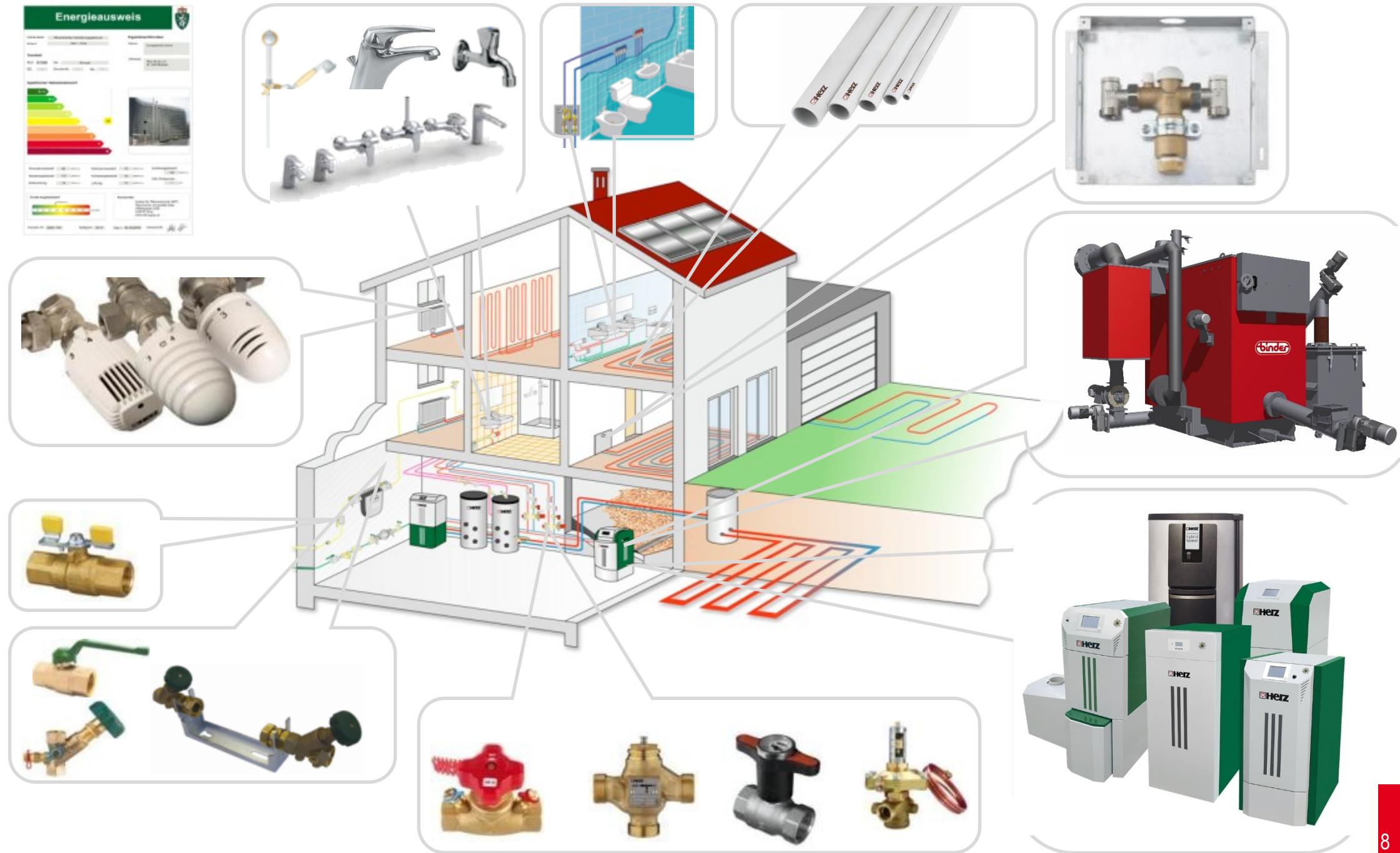
- **120** godina prisutna na tržištu
- u **85** zemalja širom svijeta
- preko **2400** zaposlenih
- **260** Mil. € godišnji prihodi
- **24** proizvodna pogona:
 - 8 u Austriji
 - 16 u drugim evropskim zemljama
- **75%** izvoz
- **22** kćerinske firme

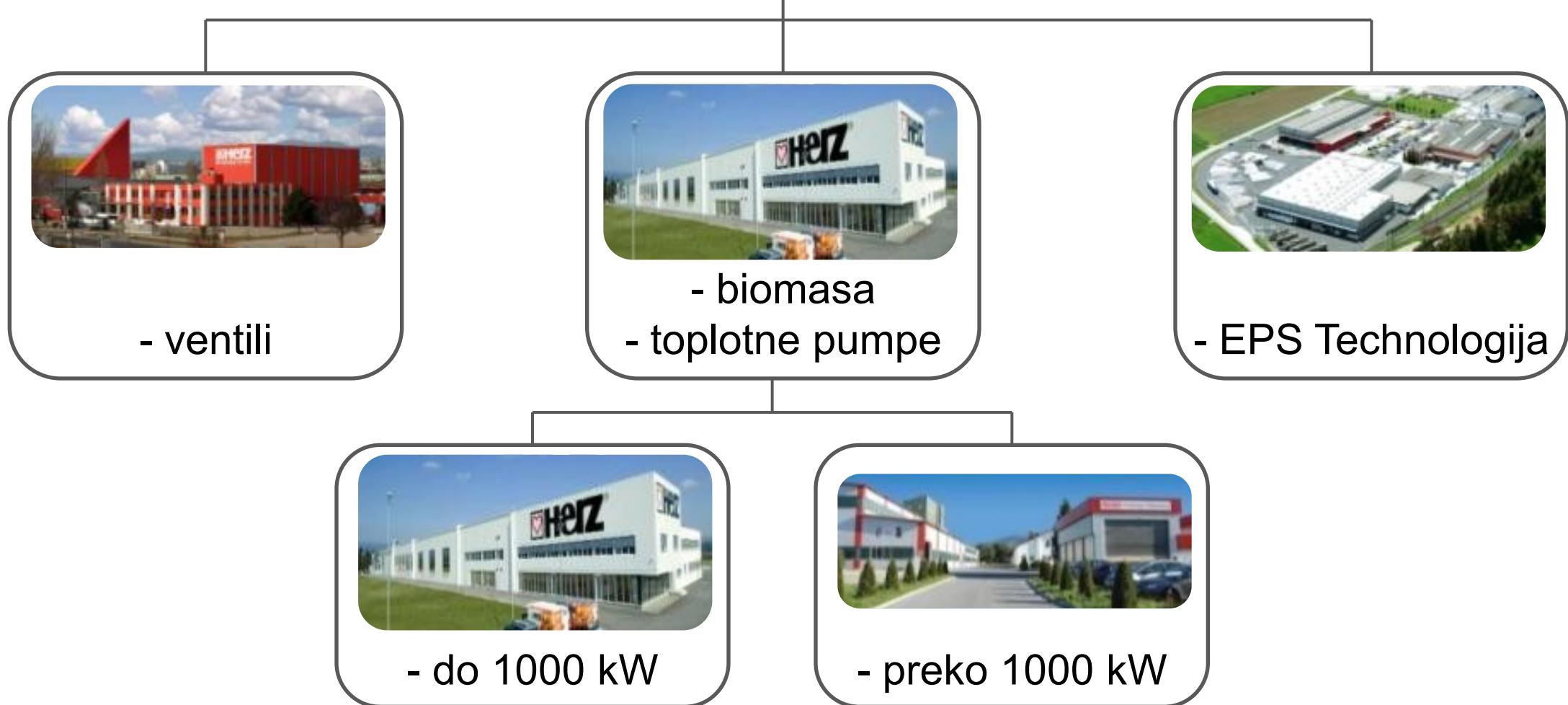




Vlasnik: Dr. Gerhard Glinzerer

- Nezavisna kompanija
- Kontinuirani rast
- Međunarodni najviši položaj
- Potpuni dobavljač u sektoru grejanja
- Razvoj i unapređenje proizvoda
- Ekološke i ekonomske misli





8 proizvodne pogone u Austriji



▪ Pinkafeld



▪ Kemeten



▪ Sebersdorf



▪ Beč



▪ Rohrbach (IPA)



▪ Glanegg (Hirsch)



▪ Bärnbach (Binder)



▪ Salzburg (Universa)

14 ostale proizvodnje

▪ Poljska (3)



▪ Srbija



▪ Mađarska (3)



▪ Češka



▪ Rumunija (2)



▪ Slovenija



▪ Slovačka (2)



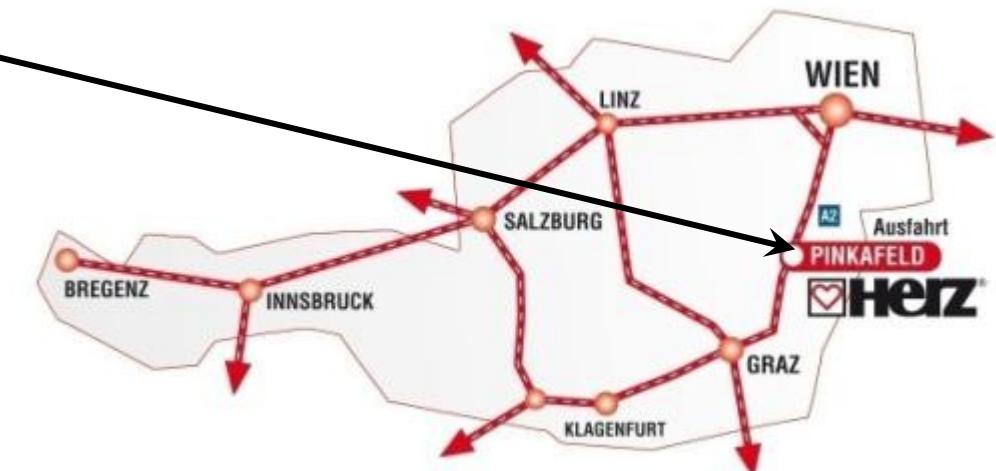
▪ Italija



Nova fabrika HERZ Energietechnik u Pinkafeldu



Pinkafeld

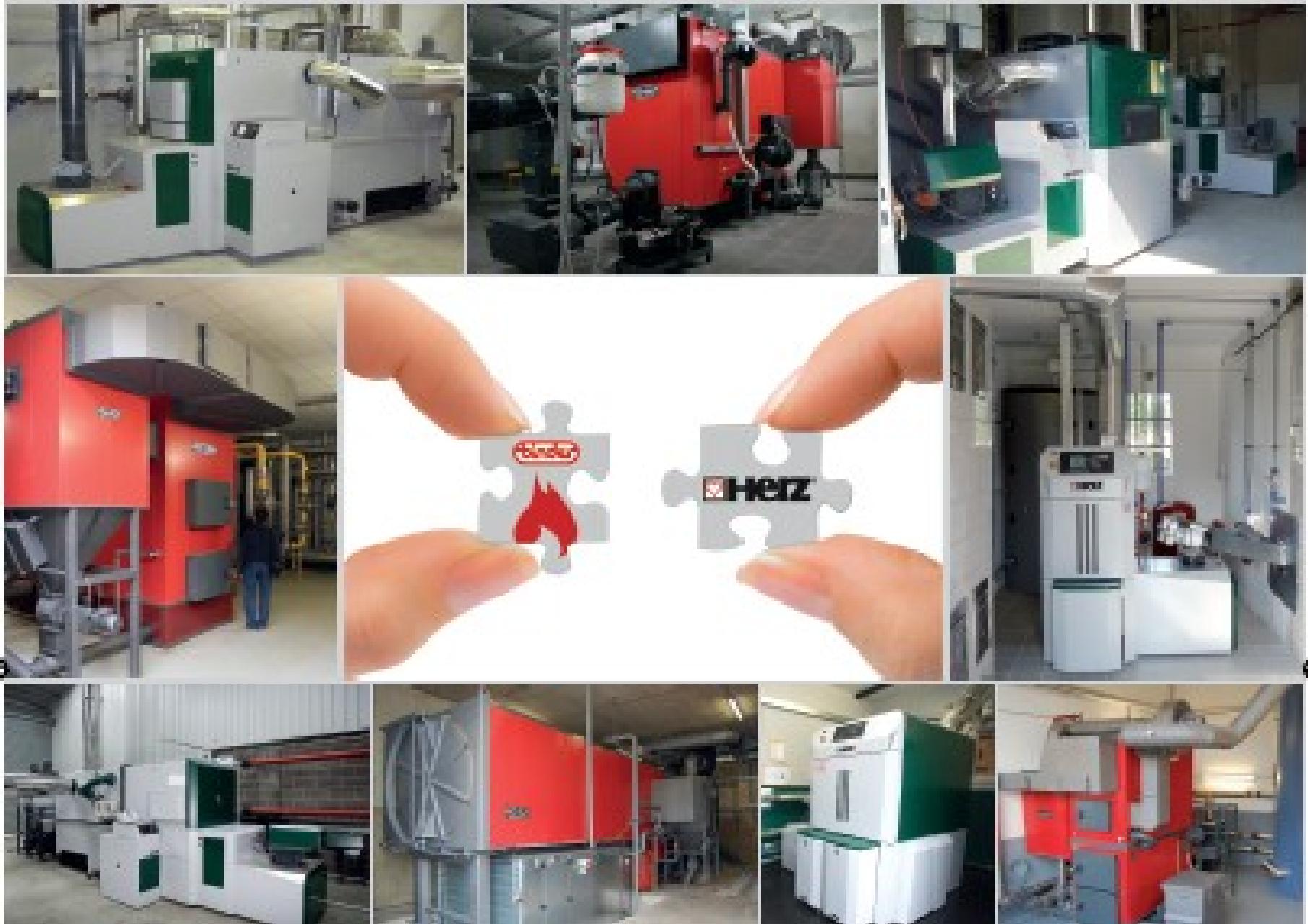


- Investicija: € 20.000.000,-
 - Od toga 50% mašine
- Nova radnja mesta ~250
- Zemljište: ~ 40.000m² / Izgrađenost u prvoj fazi: 12.000m²
- Kancelarije, proizvodnja, ispitivanje, tehnička laboratorija, institut



Novi član u Herz grupi (do 20 MW)

New member in HERZ group





www.binder-gmbh.at

Energy from Biomass



- Kotlove do 20MW
- Bärnbach
- ~ 80 zaposlenih

Kotlovi na cepanice

firestar

BioControl	T-Control	Lambda	ECO
18 kW	20 kW	18 kW	20 kW
30 kW	20 kW	30 kW	30 kW
40 kW	30 kW	40 kW	40 kW

Pelet

pelletstar

T-Control	ECO	CONDENS
10 kW	10 kW	10 kW
20 kW	20 kW	12 kW
30 kW	30 kW	14 kW
45 kW	45 kW	16 kW
60 kW	60 kW	

Kombi pelletfire

20 kW
30 kW
40 kW
60 kW
80 kW
101 kW
130 kW
151 kW
180 kW
201 kW
251 kW
301 kW
351 kW
401 kW
499 kW

firematic

Tipping grate

20 kW
35 kW
45 kW
60 kW
80 kW
101 kW
130 kW
151 kW
180 kW
201 kW
251 kW
301 kW
351 kW
401 kW
499 kW

BioMatic

300 kW
350 kW
400 kW
450 kW
500 kW
600 kW
800 kW
1000 kW
1250 kW
1500 kW

BioFire

500 kW
600 kW
800 kW
1000 kW
1250 kW
1500 kW

Tehnika spremnika

Spremniči PTV-a
Spremniči toplove
Higijenski moduli



Kontejnerska postrojenja



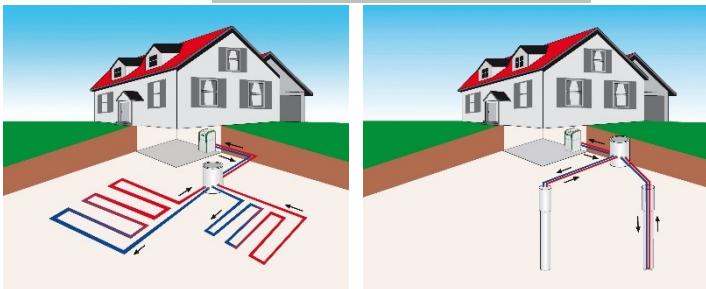
Sistemi za punjenje



Proizvodi – toplotne pumpe



rasolina / voda



commotherm SW



hybrid tower SW

voda / voda



commotherm WW



hybrid tower WW

vazduh / voda



commotherm LW-A



pitka voda

**commotherm BWP
300 and 500l**



Fresh water module
BioFresh eco
WP-Fresh hydro



Type	3~ (3x400 VAC)	1~ (1x230VAC)
5	5,7 kW	4,8 kW
7	7,3 kW	7,4 kW
10	10,6 kW	8,8 kW
12	11,7 kW	11,5 kW
15	14,4 kW	-
23	22,5 kW	-
30	30,1 kW	-
40	39,1 kW	-
60	60,2 kW	-
80	78,2 kW	-

Type	3~ (3x400 VAC)	1~ (1x230VAC)
5	7,4 kW	5,8 kW
7	9,5 kW	8,8 kW
10	13,8 kW	11,7kW
12	15,1 kW	14,4 kW
15	18,5 kW	-
30	30,5 kW	-
40	40,8 kW	-
60	61,0 kW	-
80	81,6 kW	-

Type	3~ (3x400 VAC)
6	6,4 kW
8	7,9 kW
10	9,94 kW
13	12,46 kW
17	15,75 kW
23	21,2 kW
30	28,3 kW
40	36,8 kW
60	56,6 kW
80	73,6 kW



Toplovodni kotlovi (≤ 110 °C)



Vrelovodni kotlovi (> 110 °C)



Kotlovi na zasićenu paru



Vazdušni izmjenjivači toplote



Ložišta



ORC-procesi & CHP-postrojenja

Postrojenja sa termičkim uljem



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Energy from Biomass

Što treba uzeti u obzir kada se planira?

What should be considered when planning?

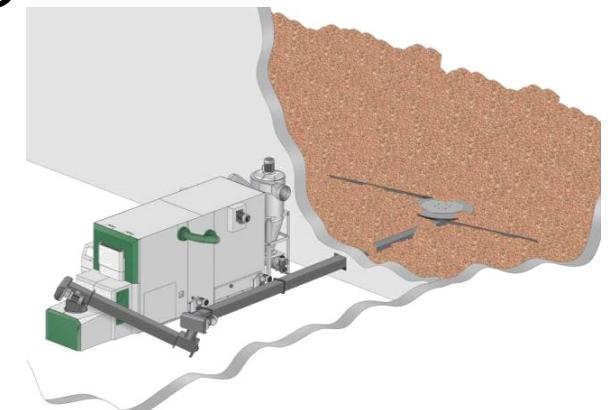
4 važna kriterijuma:

Potražnja za grejanjem - koliko kW treba

Gorivo - koji materijal je dostupan?

Mesto za opremu - šta imamo na raspolaganju?

Emisije - Koja ograničenja trebamo ispoštovati?



4 important criteria:

Demand for heating – how much kW I need?

Fuel - which material is available?

Space and place - what do I have?

Emissions - what limits should I keep?

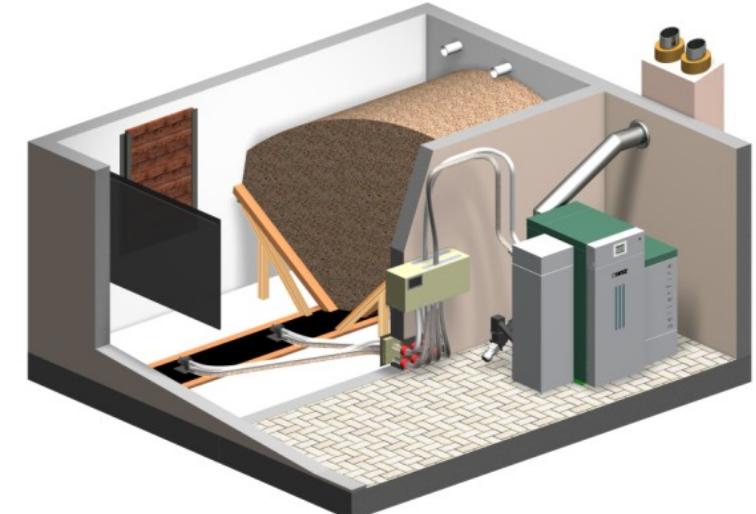


Zavisi od:

Kotla - veličina kotla i kolika kg/h treba transportovati

Gorivo - koji materijal upotrebljavamo?

Mesto - šta imamo na raspolaganju? Velike udaljenosti?



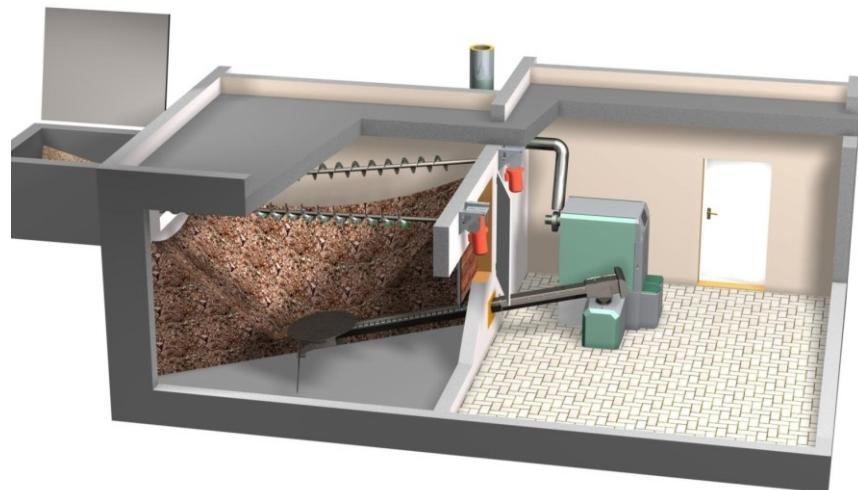
It depends on:

boiler - the size of the boiler and how much kg / h should be transported

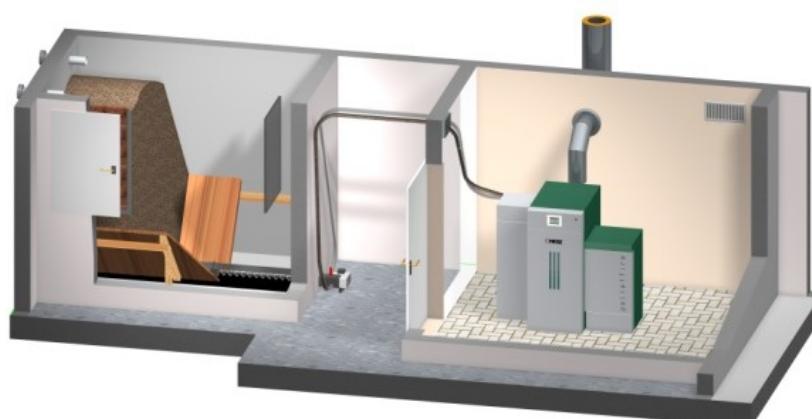
Fuel - what material is used?

Place and Space - what do I have? long distances?

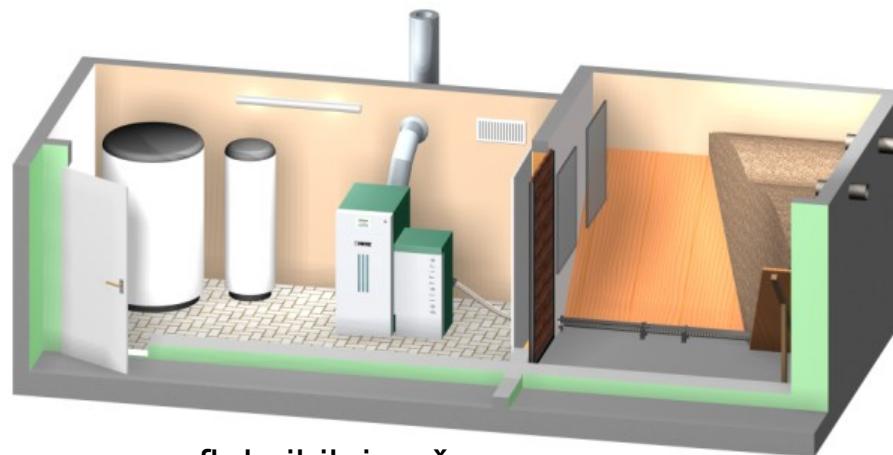




Puž sa mešačem
i dva puža za punjenje – za sečku i pelet
*Screw with agitator and two filling screws–
for use of wood chips and pellets*



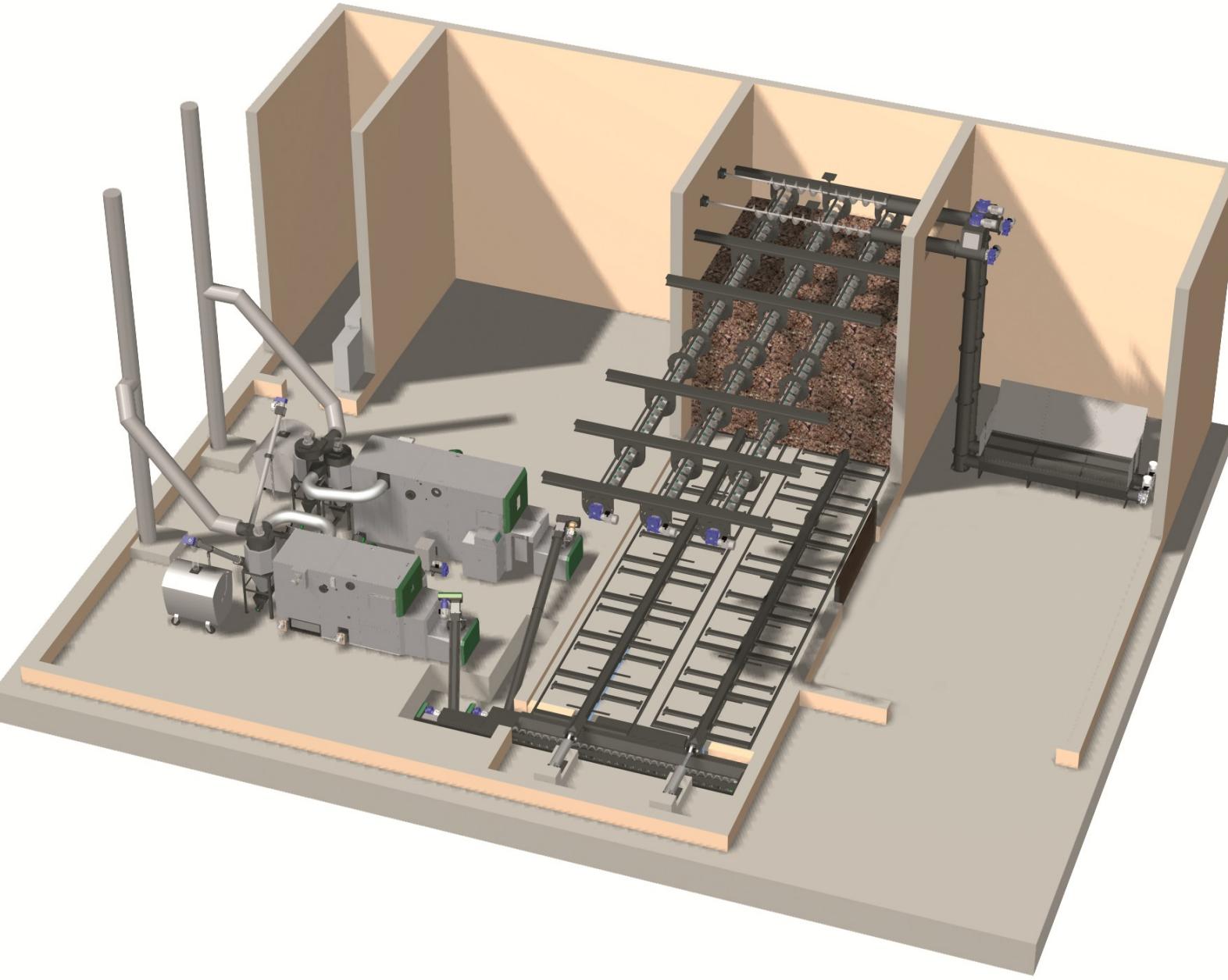
Doprema usisavanjem – za pelete
Suction system for use of pellets



fleksibilni puž – za
pelete
*Flexible screw – for
pellets*

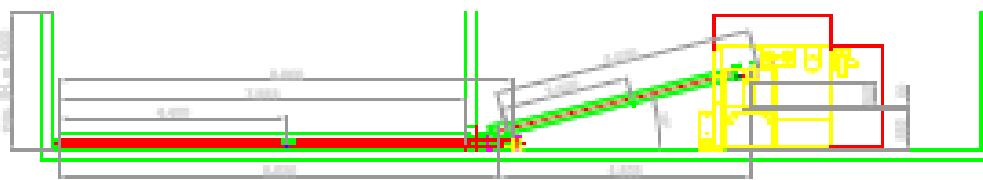
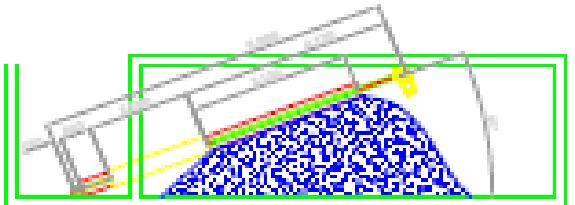


Doprema iz platnenog silosa – za pelete
Additonal bag silo system – for pellets

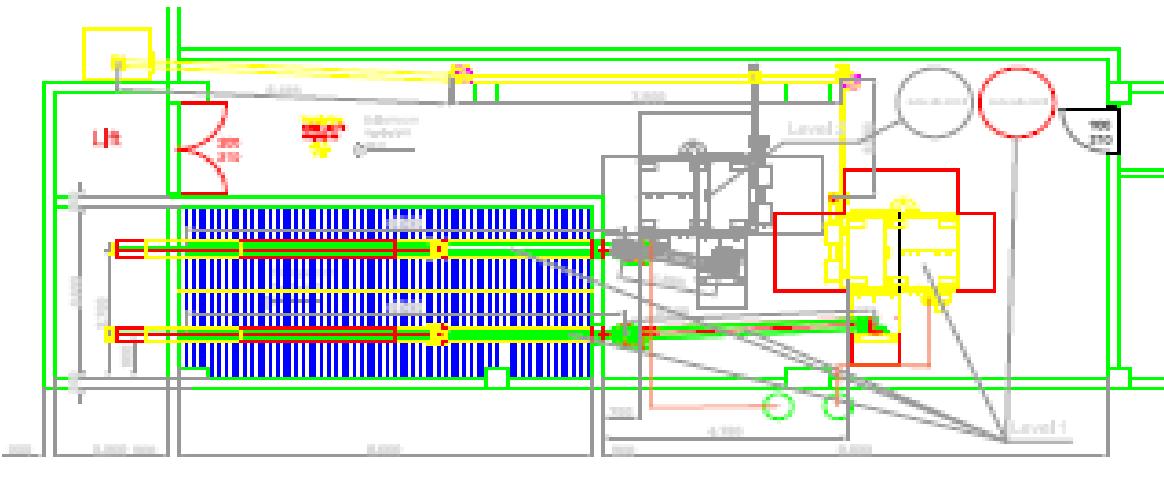


- Dva kotla u kaskadi
- Hidraulički pomični pod
- Svaki kotao ima svoja dva puža koje ga „hrane“
- Punjenje preko vertikalnog sistema i dodatna 3 puža za distribuciju ($\sim 60m^3/h$)

- *Two boilers in cascade*
- *Hydraulic walking floor*
- *Every boiler has its own “feeding” system with two screws*
- *filling with vertical transportsystem and distributin screws ($\sim 60m^3/h$)*



Groundview



Pneumatic Bulkhead	1000	1000	1000	1000	1000
Level 1	4.000	4.000	4.000	4.000	4.000
Level 2	3.000	3.000	3.000	3.000	3.000
Level 3	2.000	2.000	2.000	2.000	2.000
Level 4	1.000	1.000	1.000	1.000	1.000

- New standard: 400 T/h
- Comparison: "Our Bio-combined solution" - The lighting solution!
- Standard series of 500-600 t/h
- up to 750 t/h for filling different bins, full load
- Central
- Offer lighting solution
- Offer combined
- Standard solution
- All installations are individually developed for specific application areas.
- Options - see p. 55
- Options: see p. 56

range of performance **[t/h]** 100,0 – 2.000

chimney diameter **[m²]** 1,00 – 10,00

necessary volume need chimney **[m³/h]** 1.000 – 10.000

chimney height **[m]** 1,00 – 10,00

All installations for Biomass with 100% cellular wood or wood waste are also necessary, wood ash or cellulose for dry heat applications (dry heating).

All required resources for biomass in the 100/100/100 are below except the chimney.

Biomass solution:

HERZ solution:

You determine the layout of all components in different wood or wood waste systems. All options for this level of versatility.

Biomass filling:

HERZ solution:

Offer wood & wood waste

Offer wood ash & wood waste

All solutions of the 100/100/100 are compatible.

Standard:

All installations of the 100/100/100 are compatible.

Standard:

Offer wood & wood waste

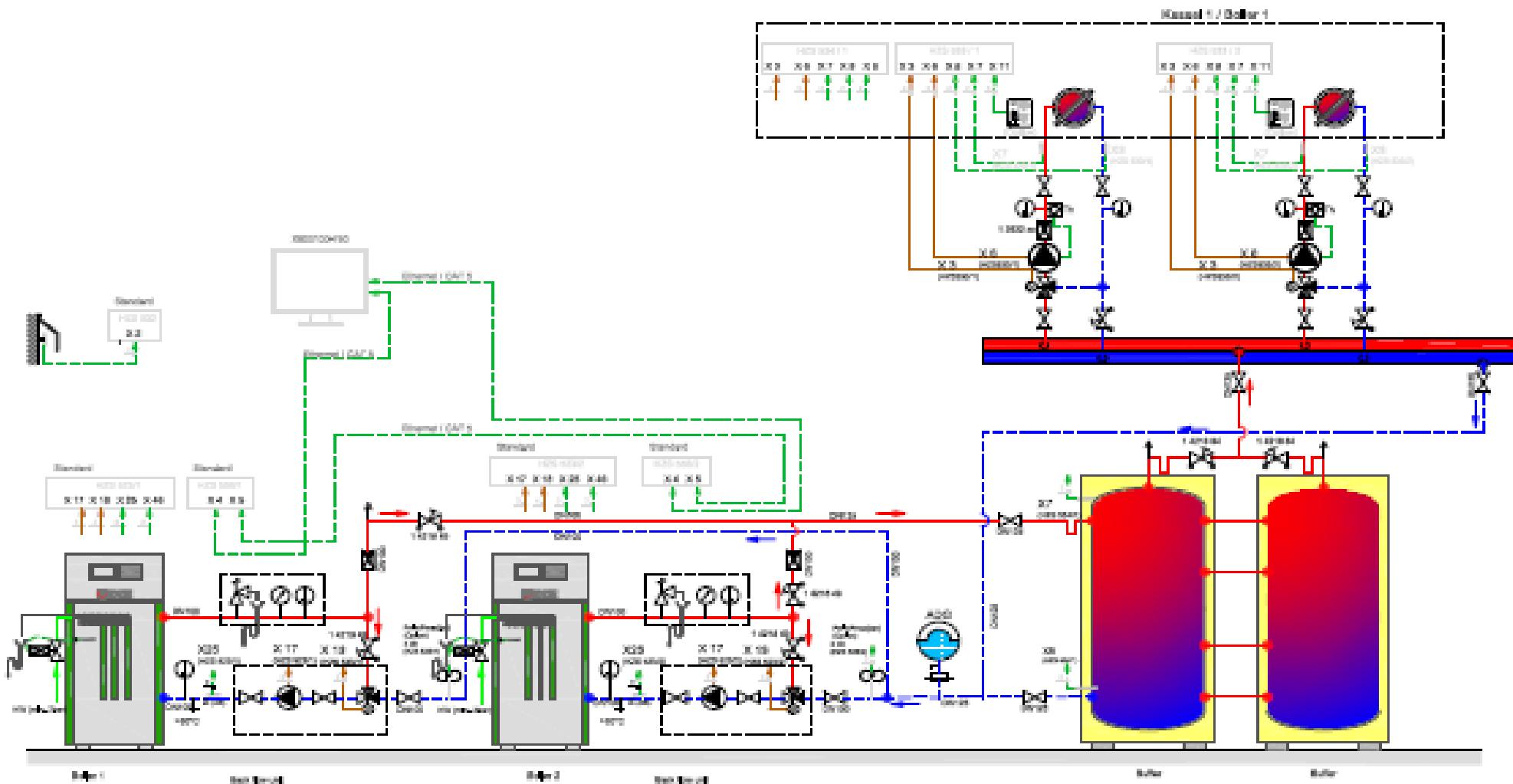
Offer wood ash & wood waste

All solutions of the 100/100/100 are compatible.

Offer wood & wood waste:

Offer wood ash & wood waste

Različiti sistemi punjenja

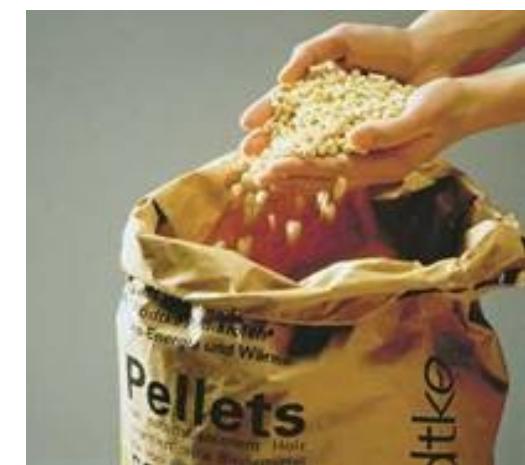




Drvena sečka
wood-chips

**Drvene
cepance**
log-wood

Drveni pelet
pellets



Sadržaj vode - water content:

sveže - harvested: 40% - 60%

sušeno - air-dry: 15% - 20%

pelet - pellets: <= 10%



Heat values (comparison):

1 litra ulja / 1 m³ gas

1liter oil / 1m³ gas (~ 10 kWh/l or m³)

~ 2,5 kg sušeno drvo

~ 2,5 kg wood (dry) (~ 4 kWh/kg)

~ 3 kg Drvna sečka

~ 3 kg woodchips (~ 3,3 kWh/kg)

depending on wood type (soft/hard) and water content

~ 2 kg pellete

~ 2 kg pellets (~ 4,9 kWh/kg)



Ovo je samo za
orientaciju!
Values are for
orientation!

	Feuerungssysteme →	RRF	SRF-S	SRF-H	TSRF	PSRF
	piljevina od brušenja	●			●	
	piljevina od rezanja	●			●	
	piljevina od glodanja	●	●		●	
	ostaci ploča od iverice	●	●		●	
	sečka iz šume	●	●		●	
	sečka iz poljopriv.		●	●		
	industrijska sečka		●	●		

	Sistemi sagorevanja →	RRF	SRF-S	SRF-H	TSRF	PSRF
	kora			●		
	drobljeno, lomljeno i drvo za pakiranje			●		
	energetski biljni zasadi		●	●		
	ostatci u proizvodnji sokova, ostaci presovanja		●	●		
	pelet od drva	●			●	
	industrijski peleti	●			●	
	treset i agro peleti				●	

	Combustion systems →	RRF	SRF-S	SRF-H	TSRF
	Swarf	●			●
	Saw dust	●			●
	Shavings- millings	●	●		●
	Chipboard, MDF	●	●		●
	Virgin wood chips	●	●		●
	Chip from landscape managment		●	●	
	Industrial wood chips		●	●	

	Combustion systems →	RRF	SRF-S	SRF-H	TSRF
	Bark			●	
	Shredded demolition & packaging wood			●	
	Wood baes energy crops (chaffed)		●	●	
	Pomace, juice production residues		●	●	
	Wood pellets	●		●	
	Industrial pellets	●		●	
	Turf pellets, agro-pellets			●	

- pelet od šećerne trska – *pellets of sugar cane*
- pelet od ostataka suncokreta – *pellets of the remnants of sunflower*
- semenke bundeve – *pumpkin seeds*
- koštice od trešnje - *pits from cherries*
- Pasulj, žitarice i dr. – *beans, cereals and others*
- pelet od treseta – *peat pellets*
- životinjski izmet, kosti - *animal manure, bones*
- ...

- Maksimalna sigurnost kroz servisne usluge - jedan put godine od strane ovlašćenog servisera HERZ-a
 - Veća efikasnost kroz optimalno podešavanje
 - Ispitivanje funkcije električnih i mehaničkih komponenti, kao i sigurnosni uređaji TRVB 118
 - Nadogradnje novijih softvera
 - Duži vek zahvaljujući stručnom održavanju
-
- *The highest possible safety due to a plant service per year by the HERZ customer service*
 - *Better efficiency thanks to optimal settings*
 - *Functional testing of electrical and mechanical components as well as safety devices according to TRVB 118*
 - *software updates*
 - *Longer service life thanks to professional support*
 - *Check the boiler body and the parts for wear*
 - *More favorable to individual maintenance*

Nahwärmeversorgung Neckenmarkt AT:
Local heating plant in Neckenmarkt AT:

2x400 kW + 800 kW



Reference



Nahwärmeversorgung Neckenmarkt AT:
Local heating plant in Neckenmarkt AT:

- 4 Rührwerke je Ø 5 ...eter, 1000m³ Lagerraum
4 agitators Ø 5 metres, 1000m³ storage room
- Hack_utbefüllun_von Oben
wood chips fillig from above



Nahwärmeversorgung Neckenmarkt AT:
Local heating plant in Neckenmarkt AT:

- 800 kW BioFire

BioFire



Nahwärmeversorgung Neckenmarkt AT:
Local heating plant in Neckenmarkt AT:

- 4 Rührwerke je Ø 5 m
4 agitators . . m
- 1000m³ Lagerraum
1000m³ storage room



Kesselhaus in Rohožník (Slowakei): 

District Heating plant in Rohožník (Slovakia): BioFire 3 x 800kW



Wärme aus Biomasse für / Heat for:

- 10 Wohnhäuser / 10 houses
- Öffentliche Gebäude / public buildings:
 - Grundschule
 - Kindergarten
 - Kulturhaus
 - Haus der Dienstleistungen
 - Polizeistation
- Heizung / heating
- Warmwasserbereitung / water heating



Nahwärmeverversorgung Sankt Martin (AT):

Local Heating plant Sankt Martin (AT):

- 2x500 kW
- 2-reihige Schubstangenaustragung
2-row hydraulic walking floor
- Wärmeversorgung für ca. 70 Einfamilienhäuser
heat for 70 houses



Nahwärmeversorgung Sankt Martin (AT): *Local Heating plant Sankt Martin (AT):*



Hydraulikraum mit Aggregat und Zylinder:
Hydraulic room:



Kesselraum / Boiler room:



- Engleska, plastenici
- Snaga: 300 kW
- Gorivo: drvna sečka, biljni energetski zasad
- Ušteda: ca. 50.000 l lož ulja
- 130 tona CO₂ /godina



- Mađarska, proizvođač prozora
- Snaga: 2.200 kW
- Gorivo: Drvni otpad, ploče od iverice, MDF-ploče
- Ušteda: ca. 615.000 l lož ulja
1,8 tona CO₂ /godina



- Spanija, Industrija kozmetike
- Snaga: 500 kW
- Gorivo: pelet
- Ušteda: ca. 72.000 l lož ulja
220 tona CO₂ /godina



- Koolskamp, Belgija
- Snaga: 1.200 kW
- Gorivo: drvna sečka
- Ušteda: ca. 360.000 l lož ulja
1.980 tona CO₂ /godina



- Kanada, platenici
- Snaga: 6.000 kW
- Gorivo: drvena sečka, piljevina
- Ušteda: ca. 1.500.000 l lož ulja
4.500 tona CO₂ /godina



- Austrija, fabrika čokolade
- Tip kotla: kotao na zasićenu paru RRK 640-850
- Snaga: 840 kW,
- Gorivo: drvena sečka, kakao lјuska
- Ušteda: ca. 200.000 l lož ulja
280 tona CO₂ /godina



KRAJ - END

*Hvala na pažnji!
Thanks for attention!*



HERZ-Biomassekessel
unterbieten die strengsten
Emissionsvorschriften.



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