



# Wood chips and pellet Boiler

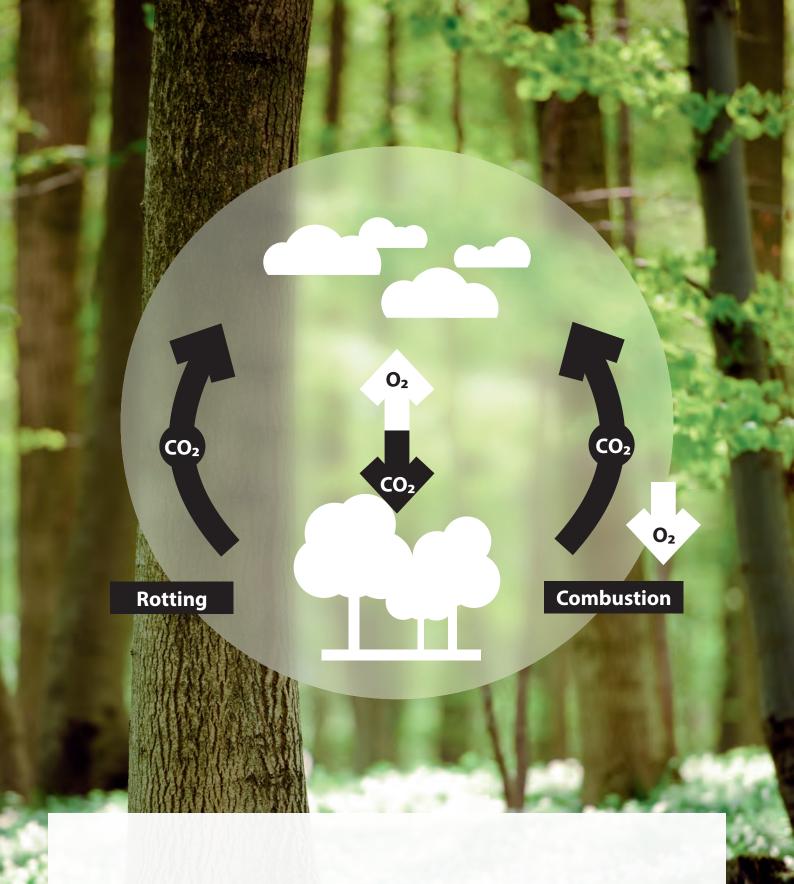
12 - 95 kW





experience and competence for than





# **ENERGY IN THE CYCLE OF NATURE**

During growth, trees require  $CO_2$ , which they take from the air and storage in the wood and leaves. When wood is burnt or decomposes,  $CO_2$  is released. Only as much  $CO_2$  is released as the tree absorbed from the atmosphere in the course of its growth.

So if you heat with wood, you heat sustainably in the cycle of nature, i.e. it is  ${\rm CO_2}$ -neutral.





**HDG Managing Director Martin Ecker** 

# Quality of Germany

Climate friendly heating. With Wood!

# PERFECT RESULTS WITH INNOVATIVE THINKING AN SUSTAINABLE ACTION

For more than 40 years, HDG has been dealing with the topic of heating with wood and renewable fuels. We have continuously developed our products and services – always gearing them towards the needs of the market and customers.

We are a Bavarian family company and the experts for wood heating from Germany. HDG is proud to produce in the region and to be able to offer its interested parties flexible solutions. Over 100,000 satisfied customers speak for themselves.

HDG is a success because people trust the boilers. The basis for this are robust products, detailed and honest advice, individual support in planning and, last but not least, responsible action and human appreciation both internally and externally.

Martin Ecker

**HDG Managing Director** 

# **MODERN FAMILY BUSINESS**

1978 COMPANY FOUNDATION BY KARL & THERESE ACKERMANN

As a modern family business, we still rely on the values and ideals of the past.

Customer satisfaction and long-term employees are vital for us.

FINAL ASSEMBLY

MATHIAS VIEHHAUSER

MASTER ELECTRICIAN WITH HDG SINCE 2010

Decency and sincerity, responsibility for employees, are at the core of our ideals.





# HDG COMPACT 30 / 40 / 50 / 65 / 80 / 95

NEW: The latest version of the HDG Compact 30-95, the automatic heating system for burning wood chips and pellets, combines proven technology with innovative extensions. The improved cleaning system now standard across the range results in a lower purchase costs, quicker installation time and reduced connections.















# **BIOMASS POWERHOUSE IN ACTION**

- ✓ Single and multi-family houses
- ✓ Farms and Country Houses
- ✓ Wood processing companies
- ✓ Hotels and Restaurants
- ✓ Municipal buildings and industry
- ✓ Local heating networks



# HDG COMPACT 30-95 in detail

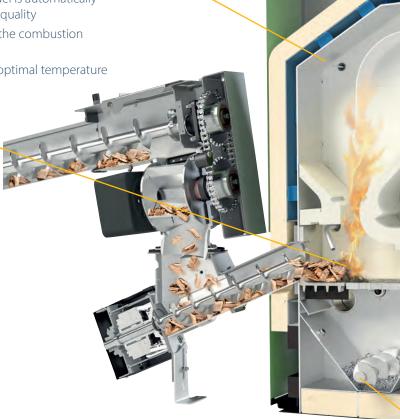
# ONLY AT HDG: UNIQUE COMBUSTION CHAMBER TEMPERATURE SENSOR

- Continuous operation in the optimal performance range even with fluctuating fuel quality
- Constant performance as the amount of fuel is automatically increased or decreased depending on the quality
- Protection of the components by limiting the combustion chamber temperature
- High combustion quality by ensuring the optimal temperature

# HOT COMBUSTION CHAMBER TAKES CARE OF LOW EMISSIONS

- Modular structure combines functionality and durability
- Overfill protection with integrated safety shut-down via heat-resistant stainless steel button tube
- Reliable and quick ignition of the fuel
- Low emissions thanks to the "hot" combustion chamber with a high combustion temperature





# **HDG TIPPING GRATE TECHNOLOGY - SIMPLY CLEVER**



When closed, the tilting grate forms the ideal environment for a bed of embers and thus for optimal combustion.



For ash removal, the solid cast iron (9 kg) tilting grate is rotated by more than 90°. This removes all combustion residues



Due to the residual glow zone, re-ignition is quick and efficient. Embers retained during grate cleaning allow for quick ignition.





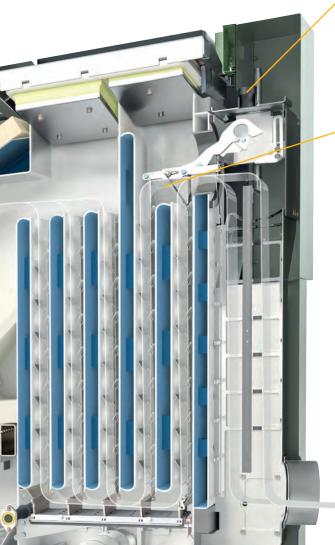
 Measures the residual oxygen in the exhaust gas as a reference variable for combustion





# AUTOMATIC CLEANING OF ALL HEAT EXCHANGER SURFACES

- Cleaning of all heat exchanger surfaces by removing the fly ash for maximum heat transfer
- Minimum clearances for service work needed
- **NEW:** movable turbulators for absolutely clean heat exchanger surfaces
- **NEW:** Improved accessibility and longer service life thanks to the innovative drive mechanism in the cool, lower chamber.



# FULLY AUTOMATIC ASH REMOVAL OF ALL COMBUSTION RESIDUES

- Ash removal auger for combustion chamber ash as well as fly ash and filter ash
- Ash is compressed into the container with 40 l capacity (optional 230 l) for long emptying intervals
- The 230L container can be transported with any tractor or forklift with Euro mount connection



# NEW: INTEGRATED FINE DUST FILTER

With our fine dust separator Technology, ash-rich fuels can be used

Integration in the boiler means that only 5 cm more space is required. All fine dust particles are automatically cleaned off, collected and just like the other combustion residues are conveyed into the central ash container

- Use of ash-rich fuels from residual forest wood
- Electrostatic separator guarantees the lowest fine dust values – from heating up to burnout
- Thanks to full integration only around 5 cm additional space is required 1
- Completely automaticCleaning of the electrode and separator surfaces 2
- Integrated filter ash removal of all residues to front ash container 3
- Low flue pipe connection ideal for existing chimneys 4





# **USE THE ENTIRE TREE WITH HDG!**

Up until now, it has been difficult to burn wood chips from branches, treetops and wood thinnings. With HDG, this is now different: thanks to the Vario discharge system and integrated fine dust separator, coarse and ash-rich fuel can now also be used.

# Possible with HDG –

# Conventional -





















# **Brash Dried**

Forced Dried P45S formerly G50



- Softwood and hardwood
- Mostly knots and tops or wood from thinning
- Coarser chips



# FROM STORAGE TO BOILER

The fuel is transported through the discharge auger 1

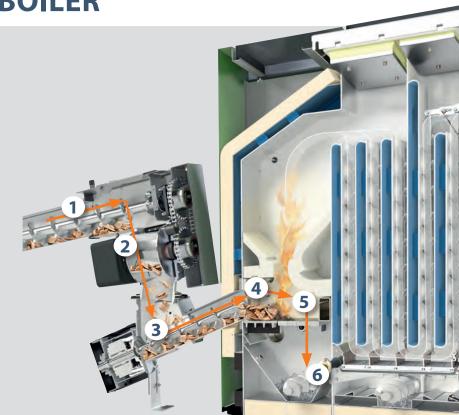
The rotary valve 2 reduces oversized fuel and decouples the fuel supply from the combustion chamber to ensure complete burn-back protection.

The stoker auger **3** doses the fuel into the combustion chamber via a light barrier as required.

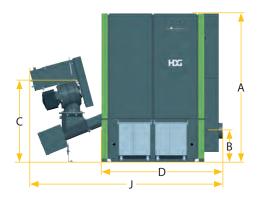
The heat-resistant stainless steel overfill tube 4 reliably protects against filling

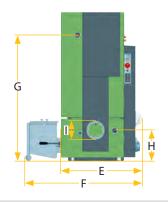
On the grate 5 the fuel is ignited automatically.

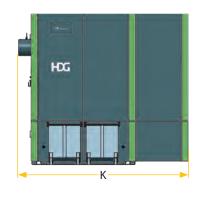
A large-sized screw auger 6 then transports the combustion residue into the ash container.



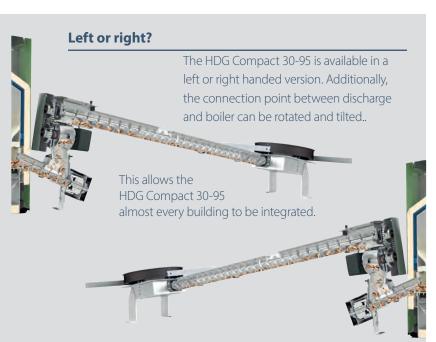








		Uni	HDG Compact 30 (E)	HDG Compact 40 (E)	HDG Compact 50 (E)	HDG Compact 65 (E)	HDG Compact 80 (E)	HDG Compact 95 (E)
		Uni	Chip	Chip	Chip / Pellet	Chip / Pellet	Chip / Pellet	Chip / Pellet
Heat output		kW	30,0	40,0	50,0	65,0	80,0	95,0
Smallest heat output		kW	9,0	12,0	15,0	19,5	24,0	28,5
Boiler efficiency at nominal heat output 1)		%	94,5	94,0	93,4 / 93,9	93,3 / 93,6	93,1 / 93,2	93,0 / 92,8
Flue gas temperature (Tw) at nominal heat output		°C	140	150	160	180	160	180
Exhaust gas mass flow at nominal heat output		kg/	s 0,018	0,024	0,030 / 0,027	0,038 / 0,033	0,046 / 0,042	0,053 / 0,051
Water content		- 1	167	167	167	167	230	230
Operating pressure		ba	r 3	3	3	3	3	3
Required delivery pressure (Pw)		PA	5	5	5	5	7	7
Max. operating temperature		°C	89	89	89	89	89	89
Weight		kg	920 (950)	920 (950)	920 (950)	920 (950)	1200 (1235)	1200 (1235)
Height		mn	<b>1</b> 1660	1660	1660	1660	1660	1660
Height in the middle of the flue pipe		B mn	1 1280 (347)	1280 (347)	1280 (347)	1280 (347)	1280 (347)	1280 (347)
Height top edge rotary feeder (horizontal version)		C mn	<b>n</b> 900	900	900	900	900	900
Width without VBZ 120		D mn	1290 (1350)	1290 (1350)	1290 (1350)	1290 (1350)	1594 (1667)	1866** (1952**)
Depth		E mn	905	905	905	905	930	970
Depth with ash container	40 litre 230 litre	F mn		1300 1645	1300 1645	1300 1645	1320 1670	1360 1710
Height of the middle of the boiler flow		G mn	1400	1400	1400	1400	1450	1450
Height center boiler return		H mn	<b>1</b> 340	340	340	340	340	340
Flue pipe connection		l mn	<b>1</b> 150	150	180	180	180	180
Width with VBZ 120 and fine dust filter		J mn	a 2000 (2060)	2000 (2060)	2000 (2060)	2000 (2060)	2310 (2385)	2580** (2670**)
Width with TBZ 90 pellet suction system		K mn	1 -	-	1870 (1930)	1870 (1930)	2175 (2250)	2445** (2535**)
Energy efficiency class boiler			A+	A+	A+/A+	A+ / A+	-	-
Energy efficiency class boiler + controller (class VI)			A+	A+	A++/A++	A++ / A++	-	-



- \* In connection with flue gas fan and vacuum control
- \*\* With HDG Compact 95 including induced draft fan + 254 mm
- $^{1)}$  Values according to type test according to DIN EN 303-5 by TÜV-Süd
- <sup>2)</sup> Including induced draft fan



# **HDG EXPERT TIP**

The rapid controllability of the boiler means that there is no need to connect a thermal discharge safety device. This reduces the connection costs of the boiler, as no fresh water connection is necessary.

# FROM THE FUEL STORAGE TO THE BOILER

HDG offers different solutions – from the common spring core discharge system to articulated arm, screw and push floor system to customer-specific custom-made designs.



## THE BASIC PRINCIPLE

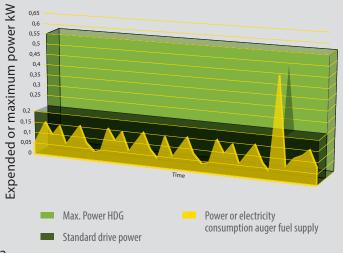
The discharge transports the material directly to the boiler. Depending on the size and shape of the warehouse.

#### FITS IN ALMOST EVERY STORAGE ROOM

Thanks to its special design, the HDG Vario delivery system can be used in square as well as rectangular or round storage rooms.

#### POWERFUL AND ENERGY-SAVING.

Thanks to the efficiency of the system, the energy consumption is reduced. As a result of this optimization, just 0.18 kW is sufficient to drive the stoker worm.



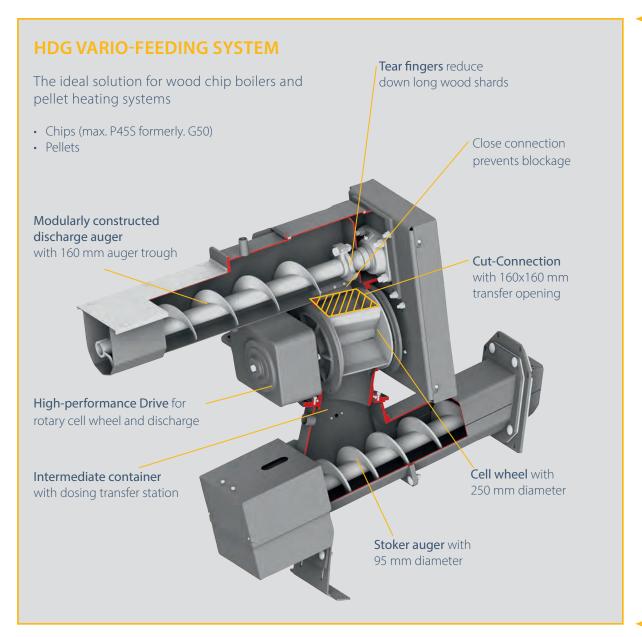
#### WOODEN INTERMEDIATE FLOOR POSSIBLE

The HDG Vario delivery system can be operated with or without a wooden intermediate floor. In both variants, energy-saving and reliable operation is guaranteed, However when using a wooden floor the frictional losses are reduced and result in further energy savings.



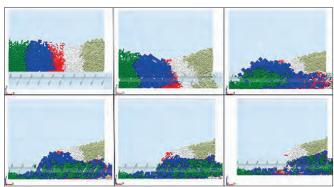
# HDG VARIO FEEDING SYSTEM WITH HDG CUT-CONNECTION

Sophisticated loading is essential for the safe and reliable operation of an automatic wood heating system. It doses the supplied fuel, guarantees re-fire safety via the rotary valve and crushes then feeds oversized fuel into the dosage auger.



# IN COOPERATION WITH THE TECHNICAL UNIVERSITY IN MUNICH ...

... the conveying behaviour of wood chips has been carefully tested and scientifically improved. The result is a highly reliable system with the lowest energy consumption.





# **HDG VARIO – FEEDING SYSTEM**

# for wood chips and pellets

The most common feeding system in combination with a HDG Compact 30-95 is the HDG Vario spring core system. The robust and flexible construction ensures a reliable fuel supply. The optimal range of applications is fuel storages from 2.0 to 5.5 meters in diameter.

# **OPTIMIZED AUGER CHANNEL**

The result of the cooperation with the Technical University of Munich is a design with higher filling capacity of the auger channel and an improved transport for a wide range of fuels. The special interval operation of the fuel dosing **reduces the start-up phases** (of the dosing auger) **by up to 80%**, which

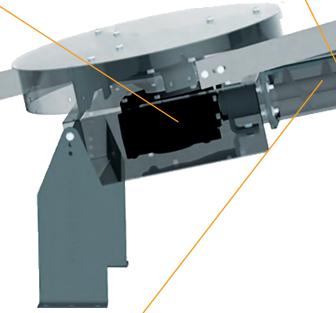
significantly reduces the power consumption in addition.

# 100% MAINTENANCE-FREE AND RELIABLE

HDG has supplied over 10,000 delivery auger systems. This experience forms the primary position for a completely maintenance-free transmission. The newly developed housing protects against damages.

# EXTRA STRONG SPRING BLADES (80 mm)

Move more fuel with less spring blades. This **optimizes material flow** and protects against unnecessary wear.



#### **CONICAL CONVEYOR AUGER**

The **conically progressively increasing conveyor auger** ensures **smooth material transport.** Particular attention has been paid to the **accessibility** for maintenance work. Thus, the auger channel is easily accessed via a screwed lid coupling outside the fuel storage room.





The cut connection with 160x160 mm large transfer opening between Discharge screw and star feeder prevents material clogging and guarantees reliable operation. Exchangeable, pull-ground Counter blades and the ripping finger shorten excessively long material.



Due to the inclined cutting edge, the pulling cut has a lot of power at the cutting point for reliable shredding.

## **4-CHAMBER CELL WHEEL LOCK**

The construction of the cell wheel (diameter 250 mm) offers absolute re-fire



resistance and **avoids** friction surfaces. This reduces component stress and increases service life.

The HDG Vario fuel delivery system is designed for easy transport and assembly

**EASY TO MOVE AND ASSEMBLE** 



# **POWERFUL DRIVE**

According to the motto "as little energy as possible as much energy as necessary" the powerful yet economical drive combines **low power** consumption with high power reserves.

# STOKER AUGER WITH DOSING CHAMBER

The stoker auger with intermediate chamber doses the fuel via a light barrier, thus guaranteeing a constant material feed. This ensures full performance even at different fuel storage levels. The fuel storage can **completely be emptied** while maximum boiler output is maintained.



# ◆ STORAGE

# **HDG FUEL STORAGE**

# We plan the best solution for you

With clever planning of the fuel storage and feeding system we can save unnecessary costs and work.

By implementing thousands of different systems, we have the necessary experience to be able to offer **the best solution for every situation**.

Our experienced team can help plan, design and create your ideal installation. 2D or 3D CAD drawings tailored to your installation simplify initial thoughts and final installation.

#### **ADAPT TO DIFFERENT CONDITIONS**

Which storage is ideal for which fuel and which space requirements?
What is the easiest way to deliver the fuel?
How is the fuel moved to the boiler?
Where is the boiler best placed?
We can design solutions for all of these questions.

No two installations are alike. Our experienced design team can help find a suitable solution to your fuel storage and feeding system.





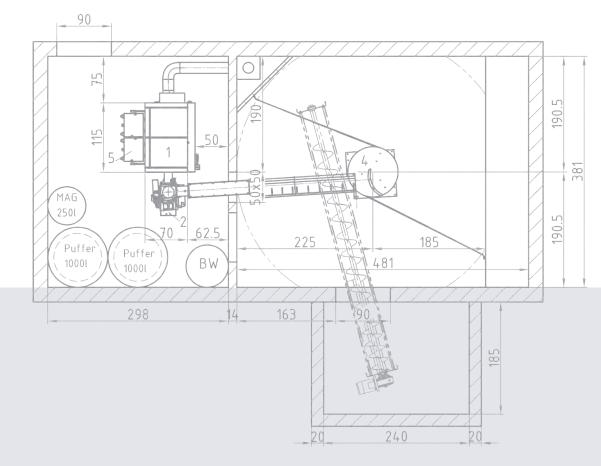
Example: Fuel storage underground with above-ground access hatch



Example: Fuel storage remote to the boiler. Pellets transported to the boiler by vacuum system.



The HDG heating cabin is an **extremely flexible** heating solution - especially when no suitable boiler room is available. Through the modular structure of the heating box, Heating systems up to 400 kW can be implemented. You can obtain further information about the HDG heating box from your HDG specialist advisor.





Example: Pellet storage with blown delivery



Example: Transport of fuel from a distant fuel storage via a second auger.



Example: Fuel storage in the basement with a cross auger to move fuel.



The HDG wood chip blower offers a **quick, easy and flexible solution** for filling fuel storages. With this, storage rooms can be filled with wood chips quickly and without great effort. Chip is poured onto the base then blown into the fuel storage. For more details, contact your HDG agent.

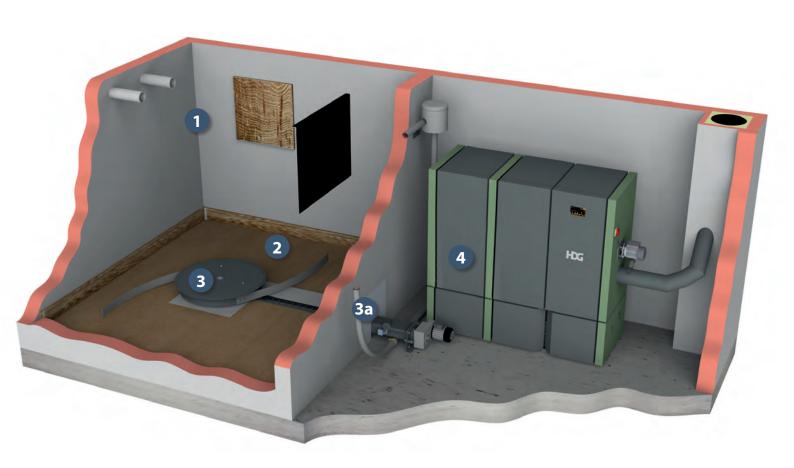


# THE HDG PELLET SUCTION SYSTEM

# The flexible transport for pellets

When operating the HDG Compact 50-95 with pellets, the HDG pellet suction system is a flexible and efficient transport solution.

- An ideal solution, if there are a boiler room and fuel storage, need to be apart
- Distances up to 25 meters can be overcome
- Ideal for old and renovated buildings
- Lowest use of space for the **highest storage capacity**



# THE HDG PELLET SUCTION SYSTEM

- 1 The pellets are conveniently **blown into the storage room**. A protective mat prevents them from breaking
- 2 There are various options for storing and feeding the pellets (e.g. square room, fabric silo, room with a sloping floor, etc.).
- 3 The FRA-PSS discharge transfers the pellets to the suction system
- The vaccum head **transports the pellets up to 25 meters** by means of suction hoses.
- The pellets are then placed in the intermediate container on the boiler. From there, **the system uses the fuel as required** and thus provides heat.



#### STORAGE AND FUEL SUPPLY FOR PELLETS



#### MOLE E3

- Perfect for storage rooms up to 36 m<sup>2</sup> of floor area, 100 m<sup>3</sup> storage volume or 55 t
- Quick assembly as there is no sloping floor necessary
- Gentle pellet removal from the surface



### **SUCTION PROBES**

- Very flexible use
- Available with 3 or 8 probes
- Highly adaptable



#### PELLET DISCHARGE SCREW AUGER

- Ideally suited for systems with larger demands
- Extremely robust design
- Can be used with and without agitator



#### **FABRIC SILO**

- The perfect solution that is suitable for almost every boiler room
- Quick installation
- Easy construction

#### THE ALTERNATIVES - THE RIGHT DELIVERY SYSTEM FOR EVERYONE

In addition to the HDG Vario spring core delivery system, HDG also offers alternative systems, which can be perfectly adapted to individual needs.



# HDG VARIO ARTICULATED ARM FUEL DELIVERY

#### Wood chips and pellets

If difficult or fibrous fuel materials are used frequently, the HDG articulated joint can be used as an alternative to the spring core extrusion arm discharge system. Thanks to the two pre-tensioned arm elements, even large storage rooms with a diameter of up to 6 meters and large filling heights can be reliably emptied.

# HDG PSZ PELLET ROOM DELIVERY

#### Pellets

The pellet storage delivery system without a separate agitator is the inexpensive alternative for pure pellet operation. A pressure relief plate protects the auger against the high bulk density of the pellets. The maximum filling level is 3 meters.

#### **CUSTOM MADE**

#### Wood chips and pellets

Customer-specific connections to current fuel delivery systems or alternatives are possible on request.

# **♦** REGULATION

# **HDG CONTROL**

The HDG Control is the intelligent control centre of your entire heating system. The intuitive control has a user-friendly, robust touch display, that can be operated with or without gloves. The structure of the management and the operation are clear and understandable. The settings and demands, such as time control, can be easily adjusted.



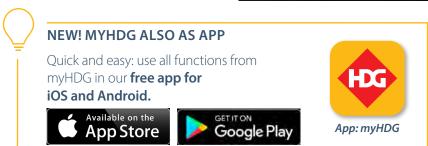
#### **DIVERSE FUNCTIONS**

The boiler's combustion and output control is carried out using the flue gas temperature sensor and the combustion chamber temperature sensor. In addition, HDG Control also regulates the entire heating system: buffer storage, external heat source, heating circuits, network pumps, domestic water storage, solar system.

#### **NO UNANSWERED QUESTIONS**

Should questions arise despite the intuitive operation, all parameters offer a help button to suggest and remind an action. Scroll and searching in the printed documentation is no longer necessary.



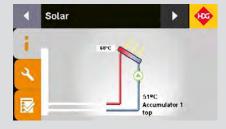




Clear presentation of the most important System data at a glance



Easily understandable, graphic overview even with complex systems



Integration of further heat sources such as solar systems or oil / gas boilers

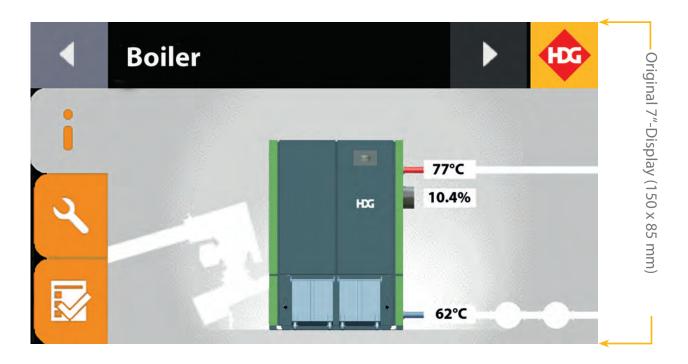


# HDG CONTROL WEB VISUALIZATION - THE LARGE DISPLAY WITH WEB ACCESS

HDG Control is available with web visualization on request.

The integrated web server can also be used while on the move using a smartphone, PC or tablet.

The remote access requires the boiler fitted with the 7" Touch screen.



# The BOILER in your pocket

Get the heating system on the screen, with a click of the mouse or a touch of your phone or tablet.

- With myHDG this is quick and easy at any time.
- Fast web access setup thanks to the free MyHDG communication portal.
- The system is entirely under your control thanks to the straightforward, graphic display the same operation as on the HDG boiler.
- Query and change all parameters, such as Operating condition, Temperature, etc. Information messages can be conveniently sent by email.
- With myHDG you can also manage several systems with just one access.
- Open to Smart Home thanks to the ModBus interface for building management or higher-level of regulation.
- Maximum data protection: Data remains on your system. The transmission takes place securely via HTTPS.



# **•**

# **HDG CONTROL**

# HDG hydraulic systems - individual planning for your system

HDG helps design the right system for your requirements. For installation, a hydraulic scheme diagram with a suitable electrical plan is created.

For commissioning, the number of the scheme is sufficient to configure the controller appropriately. The following illustration shows the necessary equipment for a touch control unit. Extensions are possible at any time.

#### **BUFFER STORAGE**

- Individual systems with and without buffer storage
- Regulation of up to two Buffer storage systems
- Fast installation HDG module Layered storage

# **HEATING CIRCUITS**

- Regulation of up to six Heating circuits
- Outside temperature controlled with different operating modes and individual weekly programs (normal, day, night, party, vacation, off)
- Different room control devices/room sensors depending on heating requests



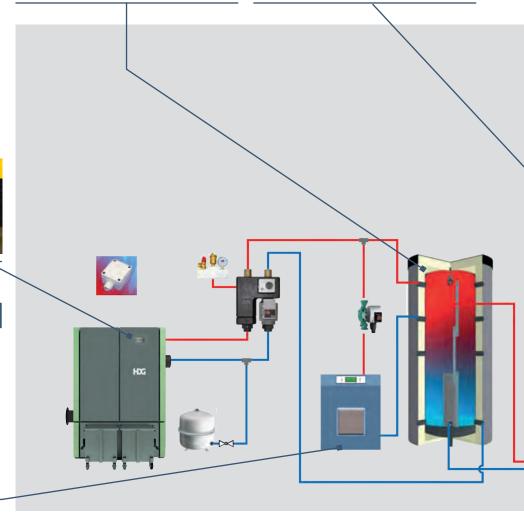
# EFFICIENT COMBUSTION CONTROL

- The HDG Control controls the entire combustion of the boiler
- Determination of the optimal air volume via the combustion chamber temperature sensor and lambda probe - control via combustion air fan, primary and secondary air servomotors
- As a result, optimum efficiency and the best possible fuel economy.



# **EXTERNAL HEAT SOURCE**

- Control of an external heating source (e.g. oil / gas boiler or electric immersion heater)
- A heat source can be used on the buffer storage tank in base or peak load function or directly to the consumers as an emergency load boiler
- Individual weekly programs for setting start times





#### **NETWORK PUMP**

- Control of up to two network pumps for local heating networks
- Only active when heat is from Consumer is requested
- Up to twelve different control variants are possible

# THERMAL SOLAR SYSTEM

- Control of a solar thermal system with a maximum of three zones
- Flexible with up to 20 variants on domestic water storage and / or buffer storage (heating sub-supportive) possible
- High efficiency through speed regulation of the solar pump via PWM signal

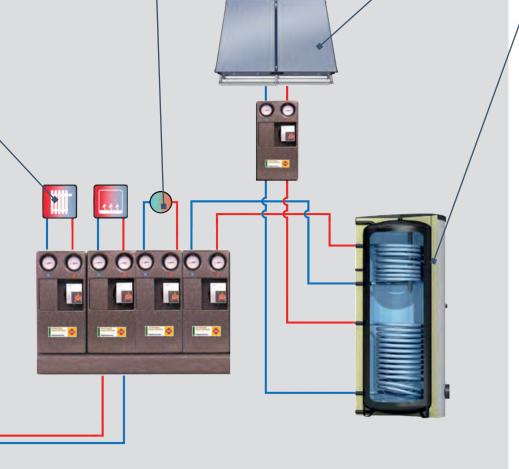
#### **WATER PREPARATION**

- Control of up to two external hot water storage tanks
- Flexible with individual weekly programs
- Safe due to legionnaire protection and priority for service water
- Alternatively, domestic hot water production can also directly integrated into the buffer or externally via freshwater station.









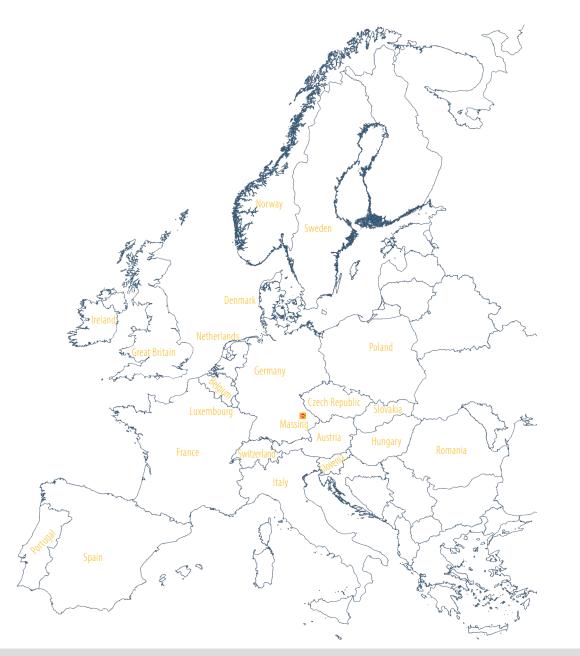
#### **HDG HYDRAULIC FINDER**

HDG revolutionizes hydraulic planning!

With the HDG hydraulic finder, specialist companies can carry out the complete hydraulic planning, including the terminal plan within seconds - at any time and completely free of charge.

The HDG hydraulic finder can be found on the HDG website and is already effective today on over 3,000 installations. Unique on the market, HDG is revolutionizing hydraulic planning with this innovation









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# Invented wood boilers for every application from 10 to 800 kW

- Log boiler
- Wood chip boiler
- Pellet boiler
- Combination boiler for logs / oil or for logs / pellet
- HDG buffer storage and system components

