

Safe and convenient handling of pellets for houses and multiple dwellings



MAFA knows how to handle pellets



Mats Andersson
MAFA, Ängelholm

"For more than 50 years here in Ängelholm, we have constructed and produced equipment for the handling and storage of bulk products. When fuel pellets for heating first became a reality roughly 10 years ago, we had a head start. Today, we are the market leader in Sweden and more than 50% of our production is for export.

To date, we have delivered more than 50,000 silos and containers for fuel pellets. Most are supplied with equipment for both filling and distribution to the burner and boiler.

To simplify the planning of your fuel pellets set up, we have a number of system solutions which are shown further in the brochure. More information and tips on assembly can be found on our web site; www.mafa.se

Contact your local representative for pellets materials and insist on MAFA - equipment, you deserve it.

We know how to handle fuel pellets like nobody else."



Chairman and owner



Heating with renewable raw materials



Fuel pellets are manufactured from by-products from the timber and milling industries.

We face an increased environmental threat, that is what all the experts are agreed on and the fact you are reading this brochure indicates to us that you too, take the threat to our environment seriously.

By moving over to heating from domestic renewable raw materials which are environmentally friendly, you are not only making a positive contribution to a country's balance of trade, but one that is beneficial to the future of our environment.

You can take full advantage of a fuel pellets heating system and save a great deal of time and effort by having bulk deliveries of pellets instead of buying them in bags. This means a considerably lower purchase cost, giving bigger savings and better overall for your budget.

What you need is a MAFA Villa equipped for storage and distribution of the pellets to the burner. You could then choose to have a 6 months supply of pellets in one delivery.

Convenient and economical.



MAFA's system solutions are convenient, safe and dependable



Bulk deliveries are the most economical.

We are accustomed that the heating of a house requires a little attention. Invest in a MAFA Villa-construction and it is the same, a little attention is all that is required. Bulk deliveries of fuel pellets put straight into a Villa-silo, convenient and so simple. The silo is supplied with a sensor that warns against overfilling and a filter that ensures dust free deliveries. If you then choose one of MAFA's transport systems to carry the pellets to the burner, you can take it easy. The transport system is delivered complete with flow protection which ensures trouble free operation. You only need to check the system occasionally to see if everything is functioning as it should be.

Rolf Johansson, from Glumslöv in Sweden:

“Environmental matters and lower running costs were the deciding factor”

Rolf is an independent consulting engineer and owns three large houses in Sweden. All need energy for space heating and hot water. All three houses were previously heated by electricity. Reasons for moving to pellets heating were twofold: lower costs and the environmental factor. I halved the cost and the houses became carbon neutral at the same time.

My choice was between a ground-source heat pump or a pellets system. Ground source heat pumps can have problems – amongst others they do not cope with a sudden cold snap as equally well as a pellets burning system. When the outside temperature demands full effect from a ground source heat pump, the pump requires extra electricity to ensure enough heat is produced. This means extra costs. With pellets one only has to increase the pellet burn rate to satisfy the increased heat demand.

I believe that electricity prices will continue to rise, perhaps even double in the next 3-5 years. The costs of pellets is not influenced by a sudden cold snap and, as a carbon neutral fuel will remain to be of political interest for a long time in the future.

(Business avoids Climate Change Levy and zero carbon housing are exempt from stamp tax in UK. In 2006 UK fossil natural gas and oil prices rose sharply on sudden demand and these sudden increases will not disappear. Ed.)

My final choice was a new pellets burner and boiler and the MAFA Vacuum Silo System. This system is now in place and supplies all three houses with space heating and hot water.

The system has been in operation for the winter of 2006-2007



Rolf Johansson, a consulting engineer, is well informed on environmental and heating issues.

and all cost projections are on target and the system has been totally problem free. The great news is that I have halved the operating costs by 50%”.



Maria Gerd, from Trollhättan in Sweden:

“Do not alter the core heating layout of the house”

Maria is employed by the Local Government Authority as an Independent Energy Advisor. She meets with the general public, large and small businesses and other organisations and voluntary associations in the area. Maria gives advice on many aspects of energy use. From how pensioners can cut down on their energy bills, to how businesses can cut back on their CO₂ footprint and save money at the same time. Maria says that one of the best solutions for providing the energy a home or business requires for space heating and hot water is a pellets burner and boiler, backed up by solar panels. This system maintains the houses original draught ventilation and avoids potential problems arising with damp and consequential mould in later years.

“It was a natural choice to change to a pellets firing system when my own oil-based central-heating system needed replacing. In my home we used 2m³ oil during a heating season and 10 000 kWh electricity.

We employed a certified installer to carry out the work and chose a new boiler with a pellets burner to be installed. The MAFA Vacuum Silo System was very conveniently configured to fit the boiler room and feed pellets to the burner. This new heating system has been working for us now since December 2006 and functions absolutely problem free.

Some extra good news is, I have noticed that our energy costs will fall by a considerable amount. We have now also taken out our old double glazed windows and changed to low heat-emission glass. We shall install a solar system later. My clear advice to all those who are thinking of changing their boiler is to use a carbon neutral system and change to a pellets burner, boi-



Energy Advisor, Maria Gerd, has been advising the inhabitants of Trollhättan on how to heat a house in the cheapest, most energy efficient and environmentally friendly way for the past 10 years.

ler combination complimented with a MAFA Vacuum Silo System.

In many cases it can also be good for the wallet as well as the environment to change from oil to pellets fuel even before the boiler in situ needs replacement”.



MAFA system solutions

MAFA has a wealth of experience of how best to store and transport pellets. MAFA have taken some examples to show how easy it is to use a Villa-silo in existing surroundings.

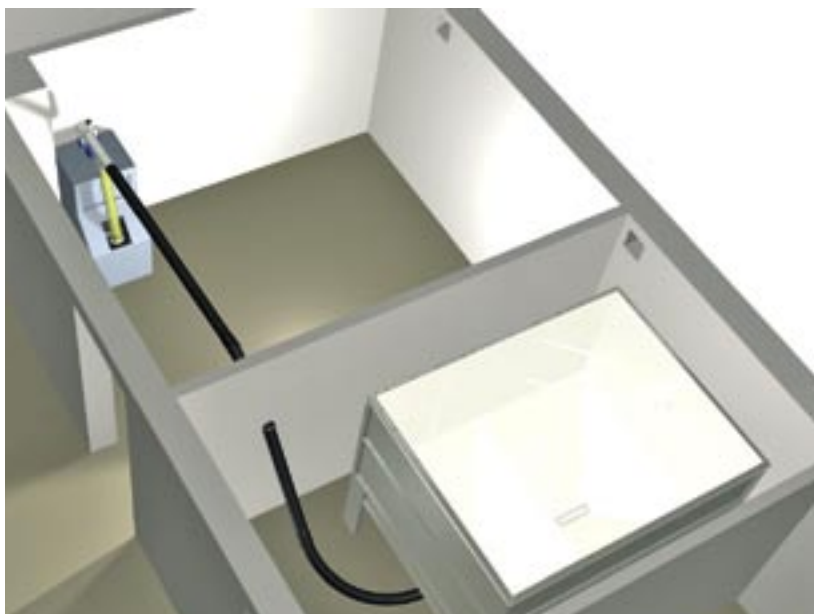
The system is flexible and easy to operate. The choice of system solution which is best suited for you depends on the brand of burner.

System solution 1

A simple installation in the cellar of the house where the supply of pellets is kept in an adjacent room.

The transport auger is connected directly to the burner which controls the flow. Air pressure is released through the ceiling filter. The filling pipe is located on an external wall of the house to enable the easy filling of pellets from bulk deliveries.

An indicator light sensor shows the delivery driver when the storage container is full.

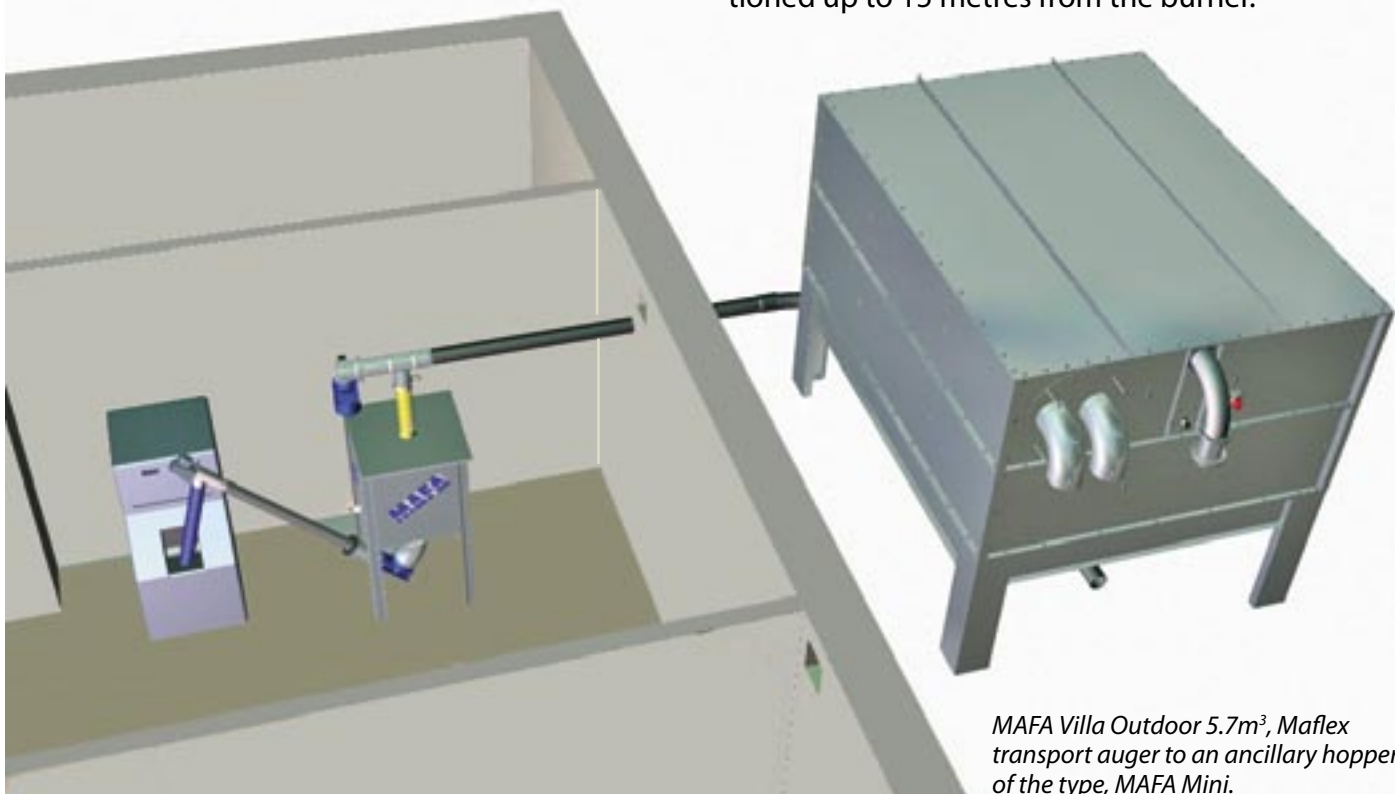


MAFA Villa Indoor 5.7m³, Maflex transport auger direct to the burner.

System solution 2

MAFA Villa Outdoor is positioned outside the boiler room on a level base. The transport auger feeds the pellets to an ancillary hopper of the type, MAFA Mini. The ancillary hopper is automatically

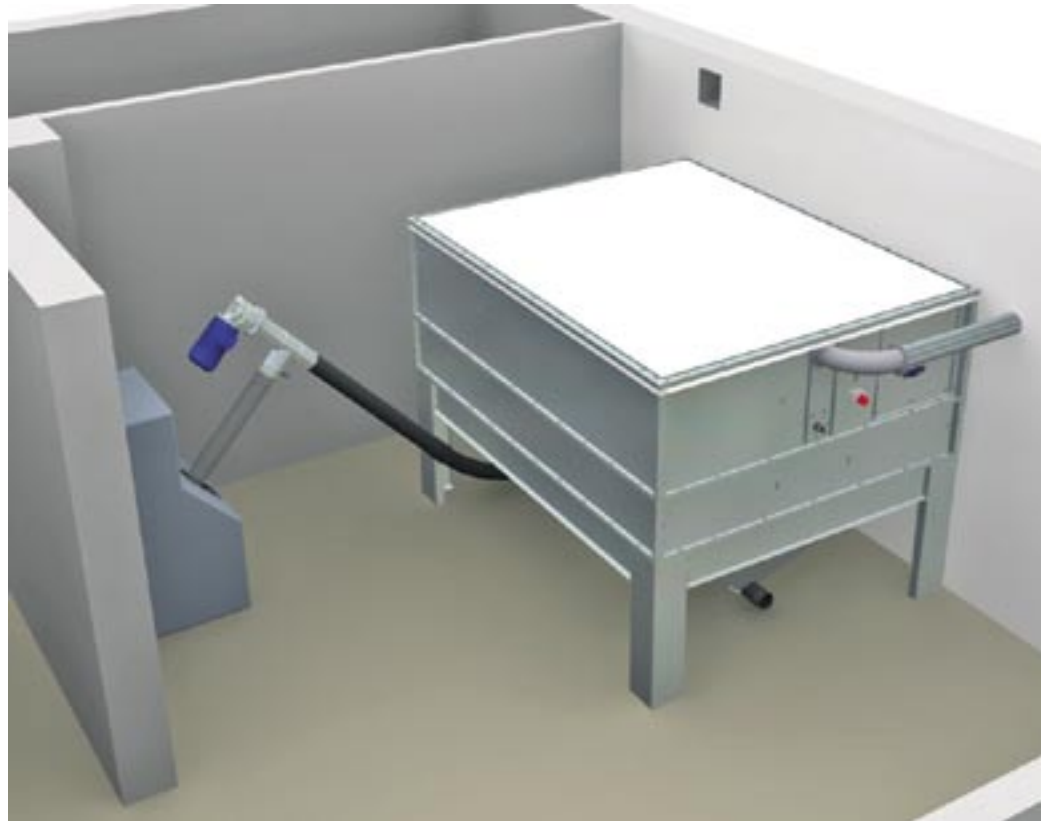
filled and can be seen as a backup in case pellets have not been ordered in time. Air pressure is released by way of a spring-loaded pressure hatch with hanging dust filters. The Villa-silo can be positioned up to 15 metres from the burner.



MAFA Villa Outdoor 5.7m³, Maflex transport auger to an ancillary hopper of the type, MAFA Mini.

System solution 3

In boiler rooms that are tight for space, a MAFA Villa can be positioned with the feed outlet located on the side to give a tighter angle to the burner.



*MAFA Villa Indoor
4.7 m³ side-emptying,
with Maflex transport
auger direct to the burner.*



MAFA's head office and modern production facilities are located in Ängelholm, North West Skåne.

Pär Norström from the pellets delivery company Oljebolaget i Skåne AB, Helsingborg, Sweden:

"MAFA offers tried and trusted products"



Pär Norström of Oljebolaget AB in Helsingborg, is very pleased with MAFA's product quality.

Pär has many years behind him delivering energy products to the Swedish energy market. He sells and delivers pellets and other pellet combustion equipment to the domestic and commercial sector.

He has been recommending MAFA products to his domestic and commercial customers for many years. After the launch of the MAFA Vacuum Silo System, Pär has found many more satisfied customers.

"This equipment is tried and tested and satisfies all my demands. I will not market or recommend any product that has not undergone rigorous testing and performs its tasks with flying colours. I myself have worked alongside the development team at MAFA and can personally recommend the quality and workmanship of the MAFA Vacuum Silo System.

Installation and instruction manuals are a very important part of the product and here once again MAFA products show their strengths and high quality.

This system should always be first on the list when considering the switch to pellet firing burner systems.

Sven Lassen from Grästorpe, Sweden.

"Complete construction kits simplify installation"

Sven has many years experience working in the biomass energy sector. He is a board member of the leading Pellets Users Association in Sweden (Pellsam). He uses and recommends the pellets burner and boiler combination linked to a MAFA Vacuum Silo System.

Sven says:

"This carbon neutral system works well and MAFA have very cleverly solved the old problem of fuel replenishment to the burner. Before, we always had the problem of fitting the delivery system into tight spaces.

Another very important thing is, that to obtain the best price for pellets we always buy in bulk. This vacuum system is the best so far, as it is possible to safely store the pellets outside of the building if needed. The system is fully weather protected, which means good quality pellets on tap at all times.

The system feeds from the silo to the burner. Our silo can hold up to 3 ton of pellets. This amount will usually last over a winter and allows the owner to obtain the best possible price for the pellets. And of course there is the added benefit of not having to rely on imported fossil fuels or fuel shortages.

I am very happy with this system and can certainly recommend it to all considering changing from fossil fuels to carbon neutral".



Sven Lassen of Sal-Tek, in Grästorpe, thinks that MAFA's assembly kits make installation easy.

MAFA Villa fulfils the authorities requirements and regulations and furthermore, is safety tested

The pellets market is expanding rapidly and there is a distinct lack of knowledge concerning bulk deliveries. Every year a sizeable number of homemade storage containers are damaged or destroyed. Whether this is down to design or equipment is difficult to say.

The Swedish Work Environment Authority has drawn up certain prerequisites for silos used in public. Nomenclature AFS 2005:2 applies to municipalities, state and other commercial buildings.

There are no such prerequisites for private use. Still, the silo owner ought to be assured that the silo is constructed in accordance with regulations, if only for his own safety.

MAFA have, together with LA-Consult in Ängelholm, developed a test method that guarantees to meet the requirements of the authorities. A pressure test was carried out under the supervision of eng. Lars Assarsson which demonstrated MAFA's Villa-silo is of the correct dimensions, thus fulfilling the authorities' requirements.

Pressure testing also showed that a MAFA Villa-silo can be filled by a delivery driver without any special knowledge. A Villa-silo is moreover, provided with over-filling protection, a capacity sensor with an indicator light to assist the driver during filling.

A Villa-silo correctly assembled with the right equipment, can be safely filled without the pellets damaging or distorting the structure in any way.



Eng. Lars Assarsson of LA-Consult in Ängelholm has safety tested MAFA's Villa-silo and found that it meets the requirements of the authorities.

MAFA Villa is safe, convenient and economical

- Attractive price
- Self emptying
- Convenient handling
- High safety
- Easily located
- Tested and reliable
- Quick assembly
- Several discharge solutions



With MAFA Villa, storing and handling your fuel pellets is easy, convenient and safe. Manufactured in maintenance free Aluzink sheet delivered in several variants:

MAFA Villa Indoor – manufactured in four sizes.

MAFA Villa Outdoor – manufactured in two sizes.

MAFA Villa Chapel – manufactured in one size.

Leaflet for MAFA Villa can be printed or downloaded at our site;
www.mafa.se

MAFA Villa - equipment and fitting details

Bulk store

MAFA Villa Indoor, 5,7 m³, RSK 6115335
 MAFA Villa Indoor, 4,7 m³
 MAFA Villa Indoor, 9,2 m³
 MAFA Villa Indoor thin, 4,1 m³
 MAFA Villa Outdoor, 5,7 m³, RSK 6115336
 MAFA Villa Outdoor, 9,2 m³
 MAFA Villa Chapel, 5,7 m³, RSK 6115337
 MAFA Villa Kon, 0,76 m³

Maflex auger 90/75, base package*

Maflex to Baxi MultiHeat
 Maflex to EcoTec, Ariterm, CTC
 Maflex to EcoTec, Ariterm, CTC, 1-phase
 Maflex to AgroTec
 Maflex to Janfire
 Maflex to KMP Micro, Bio-Sol intermediate inlet
 Maflex to intermediate store, type Mini
 Maflex to intermediate store, type Mini, 1-phase
 Maflex to Värmebaronen store 100 litres
 Maflex to Eurofire external feeder unit
 Maflex to MAFA MaVac, Pellvac, 1-phase
 Maflex to Vacuum Biotech, 1-phase
 Maflex to PellX, KMP, 1-phase

* inc. 3-phase worm gear motor, 6+2 metre auger in silo and 2 pcs. 45° bends

Maflex options

Tube dia 90 mm incl. Hose clamp, 2 m length
 Bend 90° (needs 1,4 m spiral) incl. hose clamp
 Bend 45° (needs 0,8 m spiral) incl. hose clamp
 Spiral SF 75, per metre

Refilling

Set of 2 m filling tube for VILLA Indoor*
 * transport tube 2 metre, coupling sleeve, protection cover, bolt set and rubber gasket

Tube system, extensions

Transport tube 0,5 m with flange
 Transport tube 1,0 m with flange
 Transport tube 2,0 m med flange
 Transport tube 3,0 m with flange
 Bend 90° with flange
 Bend 90° with flange, long radius
 Bend 45° with flange
 Wall clamp vertical
 Wall clamp horizontal
 Rubber gasket for tube coupling
 Bolt set for tube coupling
 Protection cover for filling tube
 Tube coupling

Art. no.

345S
 345S-1
 345S-9
 330S
 347S
 347S-9
 348S
 354

3912V
 3913V
 3913-10V
 3918V
 3914V
 3915V
 3916V
 3916-10V
 3919V
 3921V
 3922V
 3923V
 3924V

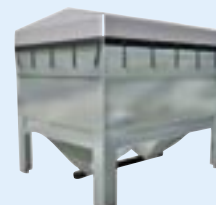
2943S-2
 2945S
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 757310

265

T050
 T100
 T200
 T300
 B190
 B190L
 B145
 44
 45
 43
 166
 2961
 S1810115



MAFA Villa 345S



MAFA Villa 348S



MAFA Villa 347S



MAFA Kon 354



Maflex 3913V



Maflex 3916V



Maflex 3922 V

Maflex Tube
2943S-2



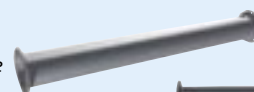
Maflex Bend 90°
2945S



Maflex Spiral
757310



Transport tube
T100



Bend 90°
B190



Bend 90°
long radius,
B190L



Wallclamp 44



Rubber
gasket 43



Bend 45° B145



Protection for
filling tube 2961

Tube coupling
S1810115



Electrical control units

Control unit for 1 auger (outlet set 3913V)
Control unit for 1 auger (outlet set 3918V, 3921V, 3915V Bio-sol)
Control unit for 1 auger (outlet set 3914V)
Control unit for 1 auger (outlet set 3912V)
Control unit for 1 auger (outlet set 3915V KMP Micro)
Control unit for 1 auger (outlet set 3916V, 3919V)
Electrical operating control for 1 auger (outlet set 3916-10V)
Set for automatic filling of Mini*
Set level sensor 230 V (NC/NO) for min. level
* cover with inlet, 2 capacitive sensors and screw cap

Ventilation set

Ventilation set inc. dust filter for Villa 347S
Ventilation set inc. dust filter for Villa 347S-9

Optional parts

Mounting fixtures for cladding
Inspection hatch 400 mm, inc. quick release clamp
Viewing glass 100 mm

Pellet bins with accessories

MAFA Micro 127 l, adjustable outlet, RSK nr 6115338
MAFA Mini 300 l, adjustable outlet, RSK nr 6115330
MAFA Midi 730 l, adjustable outlet, RSK nr 6115331

Cover for Micro
Cover for Micro with 100 mm inlet for external filling
Cover for Mini
Cover for Mini with 100 mm inlet for external filling
Cover for Midi
Cover for Midi with 100 mm inlet for external filling

Extension section Mini, height 550 mm, 210 litre
Extension section Midi, height 600 mm, 520 litre
Extension legs Mini (per unit)
Set with adjustable outlet for Micro/Mini/Midi
End bearing set for Micro/Mini/Midi
Tube coupling for connection of Janfire steel auger

Feeding auger

Maflex auger 75/55, length 3 m straight
Maflex auger 75/55, length 4 m with one 45° bend

Art. no.

EL 20

EL 20-25

EL 20-37

EL 20-55

EL 20S

EL 201-55

EL 202

3917

N6

3902

3904

3870

3837

2017S

Art. no.

2825

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S1810115

M75

M751



Capacitive sensor 131



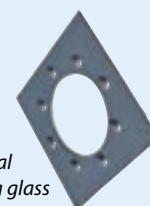
Alarm lamp 212



Screw cap 3010



Inspection hatch 3837



Optional viewing glass 2017S



MAFA Micro 2825



MAFA Mini 2810



MAFA Midi 2815



Cover for Mini 2847



Cover with inlet for Mini 2845



Extension section Mini 2811



Maflex auger 75/55 M75



Do your own calculations



Consider the economics.

That you are able to cut your variable heating costs by perhaps more than half.

And not forgetting; security, convenience, reliability, and last but not least, the environmental benefits for our children's future.



Contact your local retailer for additional information and prices on MAFA's safe and convenient equipment for environmentally friendly heating with fuel pellets.

Retailer:

Satisfied customers are the best we know !



www.mafa.se