ПРЕССЫ ТАБЛЕТОЧНЫЕ PERFORMA, MODUL

Технические характеристики

The PERFORMA™ Range of Tablet Presses

Original, Effective and Economical – PERFORMA™ Lite The essence of robust and reliable performance

The GEA PERFORMA™ Lite is a robust, high performance, fully automatic tablet press that is ideally suited to heavy duty, high-yield applications. The PERFORMA™ Lite is the original GEA press, the technology behind the entire pharmaceutical range. It is flexible, reliable, fully accessible and offers outstanding, cost-effective productivity.

The PERFORMA™ Lite includes many standard features and, as with all GEA tablet presses, it also benefits from the unique pre-compression Air Compensator, providing highly sensitive weight control and the option to extend dwell times by up to 300% without reducing linear speed. The main compression Air Compressor remains fixed to provide tool protection.

Large, spring-loaded doors and the absence of corner pillars or columns allow easy access for cleaning and routine maintenance. The PERFORMA™ Lite is compact, simple to operate, produces high quality tablets and has gained a reputation for both economy and a rapid return on investment throughout the global pharmaceutical industry. Not a copy, not a reproduction, the first-in-class PERFORMA™ Lite may well be just the solution you need!

The PERFORMA™ Range of Tablet Presses

Exchangeable Turret

A key feature is the exchangeable turret, which allows maximum flexibility and enables product changeover in just 30 minutes using a semi-automatic exchange sequence. This minimizes downtime, maximizes productivity and allows easy access to the compression area for cleaning and maintenance.

Data Collection

The MULTI-CONTROL 5 is the latest GEA control system for rotary presses. The system's hardware and software are designed to allow for full compliancy with the 21 CFR PART 11 guideline. It is a fully automated monitoring, control and reporting system based on a PLC/PC hardware configuration.

MC5 features

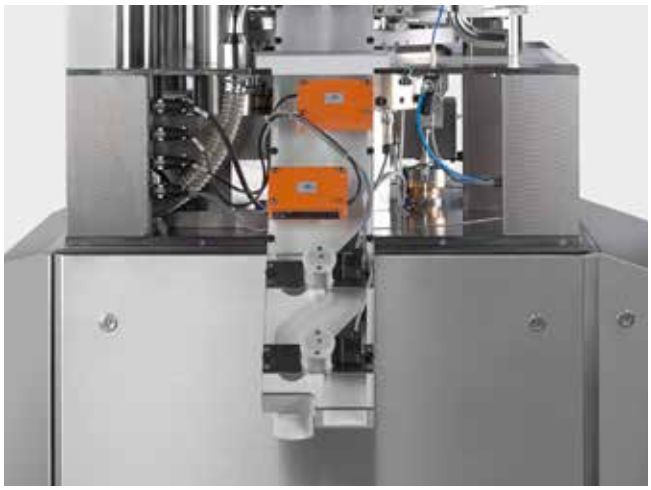
- Standalone PC application (all-in-one), independent from Windows operating system
- Microsoft Windows 7 operating system (optional Windows 8)
- 21.5" HD multi-touch widescreen
- Desktop PC or industrial IPC
- Siemens PLC (S7-300) for machine control
- Software design and lifecycle management according to GAMP and internal ISO procedures (QMS)
- Integrated help system, with user manual, machine operation manual, mechanical and electrical drawings.

Benefits

- Fast product changeover
- Accurate tablet weight control at pre-compression
- Extended dwell times and high throughput (up to 320,000 tablets/h).

Service Station

Customer service is much more than providing spare parts, it's about keeping our customers happy and their plants performing well, years after the initial sale. That's fundamental to us; it's what we do.



The PERFORMA™ Range of Tablet Presses

Small, Fast and Versatile – PERFORMA™ P
Advanced dual control for small- to medium-scale production

The compact yet high performance PERFORMA™ P features GEA's unique Advanced Dual Control system that provides precise tablet weight control (by measuring the tablet height at pre-compression), the ability to adjust the dwell time at both pre- and main compression by up to 300%, and a choice between controlling the individual hardness of every tablet or the average hardness of the batch within set tolerances. This flexibility is ideal for small–medium production levels or for R&D operations when the ability to adjust parameters quickly and easily is paramount. The powerful PERFORMA™ P competes extremely well with other, much larger presses, offering double the output of similarly sized machines.

Exchangeable Turret and Exchangeable Die Disc The PERFORMA™ P features both an exchangeable turret, which enables format changeover in just 30 minutes using a semi-automatic exchange sequence, easy cleaning, and ready access to the compression area for maintenance, and an Exchangeable Die Disc (EDD) that enables the off-line fitting and locking of the dies in the disc. Using the EDD, dies can easily be blanked off to test a formulation, allowing just a single tablet to be produced per turret revolution to minimize the use of raw materials. Otherwise, the PERFORMA™ P can be used in full production mode or, if higher throughput is required, production can be seamlessly transferred to a higher capacity GEA machine.

Bilayer Capability

Offering both single and bilayer production, the extraordinary flexibility of the PERFORMA™ P means that it can be converted to operate in bilayer mode for short-term bilayer tablet production.

Features

- Exchangeable turret and die disc
- High sensitivity weight control for small tablets and those requiring low compression forces
- Dual reject feature (weight and hardness)
- Latest GEA HMI for complete process control, including peripherals, for lights-out operation
- Optional bilayer operation.

Benefits

- Medium throughput up to 286,000 tablets/h
- Flexible operation for small–medium production and R&D operations
- Maintain the same dwell time regardless of the linear speed of the machine
- Individual control of tablet hardness.

Service Station

Proactivity is key to good after sales service. It's not enough to be reactive to our customers' needs. Our role is to prevent problems
and predict future requirements, so that our customers never need to worry.

GEA'S PERFORMA™ P AT SANICO, BELGIUM

At their tableting facility, Sanico uses a large number of conventional rotary tablet presses, which control tablet weight using compression force measurement and do not have extended dwell time capability. The MODUL™ P and PERFORMA™ P, by contrast, allow for both equal thickness (ETC) and equal force compression (EFC) to be measured and, consequently, offer extended and freely adjustable dwell times at pre-compression and main compression.

The only way to extend the dwell time on a conventional machine is to reduce the turret rotation speed, which will inevitably lead to a lower machine output. The purpose of the collaboration between Sanico and GEA was mainly to investigate, qualify and, when possible, quantify, the advantages of GEA's innovative compression modes compared with conventional tablet presses. Sanico's conventional presses are medium-scale machines with 24–47 punch stations, depending on the exact configuration. During a 6-month period, more than 20 different formulations were tested on the PERFORMA™ P and its performance in terms of machine speed and tablet quality was compared with that of the conventional presses.

The results were quite sensational. The additional dry granulation step required to compress several formulations on the conventional machines to achieve the desired tablet quality is no longer required — thanks to the extended dwell time; machine speeds of 2–4 times the speed of conventional machines were reached; in some cases, an important increase in tablet hardness was achieved; and in many cases, capping was seen to decrease significantly or disappear completely. The above process improvements enable substantial savings in production costs and a sizable reduction in product lead times. For non-problematic formulations, GEA's innovative compression technology was able to make a considerable difference: speed increases from 25–70% have been achieved for these formulations.

The MODUL™ Range of Tablet Presses

Unmatched Productivity and Flexibility. Exchangeable Compression Module innovation that sets the MODUL™ range apart

The Exchangeable Compression Module (ECM) is the unique, distinctive feature that sets the GEA MODUL™ tablet press apart. The patented ECM is a tremendous improvement on the exchangeable turret concept and offers very high containment with incomparable productivity and flexibility for tablet compression. Much more than a conventional exchangeable die table, the ECM is a sealed unit that's isolated from
the remainder of the tablet press and not only contains the turret and compression tooling, but all the press's product-contact parts as well.

At the end of a production run, the ECM can be removed from the machine in just 15 minutes. No machine cleaning is required, as all product-contact parts and powder residues are encapsulated in and removed with the ECM; the inside and outside of the press are left perfectly clean.
A duplicate, clean ECM can then be installed in the machine in another 15 minutes.

Providing both operator and product safety, the ECM can be easily removed and exchanged with a replacement unit in just 30 minutes for fast product changeover and the complete line can be back in full production in less than two hours. Offering easy cleaning, high productivity and removing any risk of cross-contamination, this extremely short changeover time results
in unmatched productivity and flexibility.

Service Station

Original replacement parts are critical to keeping tablet presses performing well and extending their operational lives. Our hub stores in Belgium, India, Japan, China, Mexico and the USA provide a fast service to keep plants ru

The MODUL™ Range of Tablet Presses

Unmatched Productivity and Flexibility.

Standard ECM

The standard ECM provides a closed environment that ensures contamination levels outside the machine remain below 10
µg/m³. This is ideally suited for non-potent pharmaceutical applications in which a dust-tight seal provides adequate protection when the doors of the press are opened. The ECM can then be safely removed for cleaning in a designated area, usually with a simple air hose. There is no further need to clean the inside of the press or the room in which it operates.

High-Containment ECM with Wash-off-Line (WOL-ECM) Capabilities

The WOL-ECM has been specifically designed for tableting operations using highly potent APIs to keep operators safe from harmful compounds, without the use of cumbersome air suits, and to prevent cross-contamination. The WOL-ECM maintains the concentration of harmful APIs in the environment around the tablet press below 1 µg/m³.

Made from corrosion-resistant materials, the WOL-ECM can be removed from the press and washed separately, using strong detergents, without any risk of damage. Washing takes place in a sealed environment using a special wash skid that avoids the need to open the ECM or remove any components (such as punches) and uses the minimum amount of water and detergent. The WOL-ECM can be opened for final manual rinsing and drying without any risk of toxic material becoming airborne. All electrical components, or components that cannot be constructed from suitably corrosion resistant materials, such as cams and bearings, are kept outside the confines of the ECM so do not require cleaning.

The fast product changeover time of just 30 minutes is particularly significant for high containment operations as the same operation on a standard isolator-based system can take up to 16 hours.

Benefits

- Fast product changeover
- Reduced downtime
- Dust protection for working environment
- Easy cleaning in safe area
- Wash-off-Line facility for high containment applications
- No need for air suits.

A Range of Opportunities and Solutions

MODUL™ P — ECM technology with advanced dual control for R&D and small– medium production for single and bilayer tableting

The GEA MODUL™ P and MODUL™ S tablet presses provide similar performance and control characteristics to their equivalent models from the PERFORMA™ range — with one essential difference: the ECM. The MODUL™ P is ideally suited for formulation development, clinical trial production and small-batch/multi-product production. The extremely short changeover time offered by the MODUL™ P results in a tremendous increase in productivity, especially when the production schedule involves a succession of many small batches.

The MODUL™ P features the unique Exchangeable Compression Module (ECM) for standard and high containment applications. The ECM encloses all product-contact parts in a sealed unit and can quickly and easily be removed from the machine in a contained manner for cleaning and replaced with a pre-prepared unit to allow production to resume in 30 minutes.

While the contaminated ECM is cleaned off-line, production with another ECM can be resumed on the machine, which doesn't require any cleaning. With two ECMs and duplicated peripherals, a changeover time of less than 2 hours can be achieved for the entire production line. The ECM is available in a standard or Wash-off-Line version.

Features

- Standard or Wash-off-Line ECM
- Single and bilayer capabilities in standard and washable execution
- Choice of different compression modes (force control, dual control and advanced dual control)
- High sensitivity weight control for small tablets and those requiring low compression forces
- Dual reject feature
- Latest GEA HMI for complete process control, including peripherals, for lights-out operation.

Benefits

- Fast product changeover, improved productivity and a safe working environment
- Extended dwell time at pre- and main compression without any loss of linear speed
- Individual control of tablet hardness
- Flexible operation for small-medium production and R&D operations with seamless scale-up
- Medium throughput of up to 244,800 tablets/h.

A Range of Opportunities and Solutions

MODUL™ Q — sets new standards in efficiency, productivity and reliability

The MODUL™ Q rotary tablet press sets new standards in efficiency, productivity and reliability. Like its predecessors, the MODUL™ Q features GEA's Exchangeable Compression Module (ECM). However, the next generation version of the ECM has fewer parts, is even more convenient to use and offers a higher level of containment performance. The feeder height and ejection finger height can be set outside the machine, with the ECM positioned on its trolley. Dust-free operation is also possible.

With easier access for cleaning and set-up operations and improved functionality, the MODUL™ Q also incorporates the Exchangeable Die Disc with conventional dies or die holes, which was only previously available on the PERFORMA™ P press.

Operationally, the MODUL™ Q has a bigger pitch diameter (300 mm) and, in terms of size, is positioned between the MODUL™ P and MODUL™ S. The use of A-type tooling is now possible, which allows a die table with 51 punch stations to be incorporated and an output of up to 367,200 tablets per hour.

A Range of Opportunities and Solutions

MODUL™ S — ECM technology for high throughput and fast changeover applications

The MODUL™ S features the unique Exchangeable Compression Module (ECM) for standard and high containment applications. The ECM retains all product-contact components within a sealed unit that can quickly and easily be removed
for cleaning and replaced with a pre-prepared unit to allow production to resume within 30 minutes.

The standard ECM maintains a contamination level outside the press of less than 10 µg/m^3, which is ideal for all non-toxic pharmaceutical operations. The ECM keeps the environment around the press dust free, allows fast product changeover and ensures that production can continue while the ECM is being cleaned. The Wash-off-Line ECM maintains
a contamination level outside the press of less than 1 µg/m3 for pharmaceutical tableting operations using highly potent or toxic compounds such as antibiotics, hormones or oncology drugs. This washable ECM can be removed from the machine in a contained manner and washed off line.

Dual Control for Flexibility and Performance

The MODUL™ S is the high output version of the MODUL™ P. It is a larger, heavier machine that benefits from the Standard Dual Control system that allows tablet weight, hardness and dwell times to be controlled to meet operational requirements. The larger turret on the MODUL™ S also provides a longer feeder length to achieve optimal residence times during die filling, especially for products that do not flow well. This helps to reduce capping at very high throughput levels.

Features

- Standard or Wash-off-Line ECM
- Tablet weight and hardness control
- High sensitivity weight control for small tablets and those requiring low compression forces
- Latest GEA HMI for complete process control, including peripherals, for lights-out operation.

Benefits

- Fast product changeover, improved productivity, cross-contamination prevention and a safe working environment
- High throughput of up to 405,000 tablets/h
- Reduced risk of capping and lamination
- Extended dwell time at pre-compression.

Service Station

Our on-site service guarantees a fast reaction time from our experienced engineers, providing know-how, commitment and practical
help when you need it most.

A Range of Opportunities and Solutions

MODUL™ D — double output or bilayer production

The MODUL™ D is the largest press tablet in the GEA range. It features the Dual Control system, an Exchangeable Compression Module (ECM) and all the standard features, with one important addition: double-sided production for super-high volume applications or bilayer production.

The MODUL™ D features a larger turret, containing up to 89 punch stations and making it capable of production levels in excess of 1 million tablets per hour. It is the machine of choice for high volume applications when minimal downtime and environmental protection are key.

Bilayer Production: The GEA Way

The MODUL™ D manufactures bilayer tablets using a unique GEA process: it measures the weight of each layer independently to ensure the correct drug delivery profile; however, most tablet presses can only accurately assess weight when a high force
is applied. High forces result in dense tablets that are difficult to bond together, making separation of the layers, or capping, almost inevitable.

Exchangeable Compression Module (ECM)

The MODUL™ D features the unique Exchangeable Compression Module (ECM) for standard and medium containment applications. The ECM retains all product-contact components within a sealed unit that can quickly and easily be removed for cleaning and replaced with a pre-prepared unit to allow production to resume within 30 minutes.

The standard ECM maintains a contamination level outside the press of less than 10 µg/m^3, which is ideal for all non-toxic pharmaceutical operations. The ECM keeps the environment around the press dust free, allows fast product changeover and ensures that production can continue while the ECM is being cleaned.

Dual Control for Flexibility and Performance

The MODUL™ D benefits from the Standard Dual Control system that allows tablet weight, hardness and dwell times to be controlled to meet operational requirements. The larger turret on the MODUL™ D also provides a longer feeder length to achieve optimal residence times during die filling, especially for products that do not flow well. This helps to reduce capping at very high throughput levels.

Data Sheets

Technical Data PERFORMA™ Lite

Tooling	D (EU or TSM)	B (EU or TSM)	BB (EU or TSM)	BBS (EU or TSM)
Maximum tablet diameter/length [mm]	25.4	16 (L=19)	13 (L=14.3)	11
Punch body diameter [mm]	25.4	19	19	19
Outside die diameter [mm]	38.1	30.16	24	22
Die height [mm]	23.81	22.22	22.22	22.22
Number of punch positions	24	30	36	39
Maximum fill depth [mm]	20	19	19	19
Top punch penetration [mm]	1 to 4	1 to 4	1 to 4	1 to 4
Maximum pre-compression force [kN]	10	10 10 (under extended dwell-time)		10
Maximum main compression force [kN]	100	100	100	100
Maximum output capacity [tab/h]	157,000	220,000	264,000	320,000

Machine Specifications/Requirements	
Electrical requirements	3 phase + PE; 380V/400V/415V/460V/480V — 50Hz/60Hz (nominal consumption 5.5 kW; power installed 9 kVA)
Compressed air requirements	clean & dry; 7–8 bar; 500 L/min
Dust extraction requirements	150 m³/h at 15 mbar
Machine dimensions & weight	W = 1050 mm x D = 1200 mm x H = 2000 mm — 2500 kg

Technical Data PERFORMA™ P

Tooling	D (EU or TSM)	B (EU or TSM)	BB (EU or TSM)	BBS (EU or TSM)	A (EU or TSM)
Maximum tablet diameter [mm]	25	16 (L=19)	13 (L=14.3)	11	11
Punch body diameter [mm]	25.4	19	19	19	12
Outside die diameter [mm]	38.1	30.16	24	22	(No die)
Die height [mm]	23.81	22.22	22.22	22.22	(No die)
Number of punch positions	24	30	36	39	51
Maximum fill depth [mm]	20	19	19	19	19

Single-Layer Setup					
Top punch penetration [mm]	1 to 4	1 to 4	1 to 4	1 to 4	1 to 4
Maximum pre-compression force [kN]	10	10	10 (under extended dwell-time)	10	10
Maximum main compression force [kN]	80	80 80 80 (60 kN in case of Equal Force Compression)			80
Maximum output capacity [tab/h]	157,000	220,000	264,000	286,000	374,000

Bilayer Setup					
Top punch penetration 2nd layer [mm]	9	9	9	9	9
Maximum pre-compression force [kN]	2.5	2.5	2.5	2.5	2.5
Maximum main compression force [kN]	80	80	80	80	80
Maximum output capacity [tab/h]	43,200	72,000	86,400	93,600	143,000

Machine Specifications/Requirements	
Electrical requirements	3 phase + PE; 380V/400V/415V/460V/480V — 50Hz/60Hz (nominal consumption 6 kW; power installed 11.9 kVA)
Compressed air requirements	Clean & dry; 7–8 bar; 500 L/m
Dust extraction requirements	150 m³/h at 15 mbar
Machine dimensions & weight	W = 1030 mm x D = 1555 mm x H = 2170 mm — 2500 kg

Data Sheets

Technical Data MODUL™ P

Tooling	D (EU or TSM)	B (EU or TSM)	BB (EU or TSM)	BBS (EU or TSM)
Maximum tablet diameter [mm]	25.4	16 (L=19)	13 (L=14.3)	11
Punch body diameter [mm]	25.4	19	19	19
Outside die diameter [mm]	38.1	30.16	24	22
Die height [mm]	23.81	22.22	22.22	22.22
Number of punch positions	21	26	31	34
Maximum fill depth [mm]	20	19	19	19

Single-Layer Setup				
Top punch penetration [mm]	1 to 4	1 to 4	1 to 4	1 to 4
Maximum pre-compression force [kN]	10	10 10 (under extended dwell-time)		10
Maximum main compression force [kN]	80	80	80	80
Maximum output capacity [tab/h]	126,000	187,000	223,000	244,800

Bilayer Setup				
Top punch penetration 2nd layer [mm]	9	9	9	9
Maximum pre-compression force [kN]	2,5	2,5	2,5	2,5
Maximum main compression force [kN]	80	80	80	80
Maximum output capacity [tab/h]	37,800	62,400	74,400	81,600

Machine Specifications/Requirements	
Electrical requirements	3 phase + PE – 380V/400V/415V/460V/480V — 50Hz/60Hz (nominal consumption 6 kW; power installed 11.9 kVA)
Compressed air requirements	clean & dry; 7–8 bar; 500 L/min
Dust extraction requirements	150 m^3/h at 15 mbar
Machine dimensions & weight	W = 1030 mm x D = 1555 mm x H = 2170 mm — 2500 kg

Technical Data MODUL™ Q

Tooling (EU or TSM)	D	B	BB	A
Maximum tablet diameter [mm]	25.4	16 (L=19)	13 (L=14,3)	11
Punch body diameter [mm]	25.4	19	19	12
Outside die diameter [mm]	38.1	30.16	24	(no die)
Die height [mm]	23.81	22.22	22.22	(no die)
Number of stations	24	30	36	51
Maximum fill depth [mm]	20	19	19	19
Top punch penetration [mm]	1 to 4	1 to 4	1 to 4	1 to 4
Maximum pre-compression force [kN]	10	10	10	10
Maximum compression force [kN]	80	80	80	80
Maximum output capacity [tab/h]	157,000	220,000	264,000	367,200

Machine Specifications/Requirements	
Electrical requirements	3 phase + PE; 380V/400V/415V/460V/480V — 50Hz/60Hz (nominal consumption 6 kW; power installed 11.9 kVA)
Compressed air requirements	clean & dry; 7–8 bar; 500 L/min
Dust extraction requirements	150 m^3/h at 15 mbar
Machine dimensions & weight	W = 1030 mm x D = 1555 mm x H = 2170 mm — 2500 kg

Data Sheets

Technical Data MODUL™ S

Tooling	D35 (EU or TSM)	D (EU or TSM)	B (EU or TSM)	BB (EU or TSM)	BBS (EU or TSM)
Maximum tablet diameter [mm]	35	25.4	16 (L=19)	13 (L=14.3) 11	
Punch body diameter [mm]	35	25.4	19	19	19
Outside die diameter [mm]	52	38.1	30.16	24	22
Die height [mm]	30	23.81	22.22	22.22	22.22
Number of punch positions	23	31	38	46	50
Maximum fill depth [mm]	20 (25)	20	19	19	19
Top punch penetration [mm]	1 to 4	1 to 4	1 to 4	1 to 4	1 to 4
Maximum pre-compression force [kN]	10	10	10 (under extended dwell-time)	10	10
Maximum main compression force [kN]	100	100	100	100	100
Maximum output capacity [tab/h]	119,000	136,000	274,000	331,000	374,000

Machine Specifications/Requirements	
Electrical requirements	3 phase + PE; 380V/400V/415V/460V/480V — 50Hz/60Hz (nominal consumption 12 kW; power installed 15.5 kVA)
Compressed air requirements	Clean & dry; 7–8 bar; 500 L/m
Dust extraction requirements	150 m^3/h at 15 mbar
Machine dimensions & weight	W = 1260 mm x D = 1300 mm x H = 2200 mm — 4100 kg

Technical Data MODUL™ D

Tooling	D35 (EU or TSM)	D (EU or TSM)	B (EU or TSM)	BB (EU or TSM)	BBS (EU or TSM)
Maximum tablet diameter [mm]	35	25.4	16 (L=19)	13 (L=14.3)	11
Punch body diameter [mm]	35	25.4	19	19	19
Outside die diameter [mm]	52	38.1	30.16	24	22
Die height [mm]	30	23.81	22.22	22.22	22.22
Number of punch positions	39	53	67	81	88
Maximum fill depth [mm]	20 (25)	20	19	19	19
Top punch penetration [mm]	1 to 4	1 to 4	1 to 4	1 to 4	1 to 4
Maximum pre-compression force [kN]	10	10	10 (under extended dwell-time)	10	10
Maximum main compression force [kN]	100	100	100	100	100
Maximum output capacity [tab/h]	350,000	540,000	722,000	875,000	1,069,000

Bilayer Setup					
Top punch penetration 2nd layer [mm]	11	11	11	11	11
Maximum pre-compression force [kN]	10	10	10	10	10
Maximum main compression force [kN]	100	100	100	100	100
Maximum output capacity [tab/h]	175,000	270,000	361,000	437,500	534,000

Machine Specifications/Requirements	
Electrical requirements	3 phase + PE; 380V/400V/415V/460V/480V — 50Hz/60Hz (nominal consumption 15 kW; power installed 30 kVA)
Compressed air requirements	Clean & dry; 7–8 bar; 500 L/m
Dust extraction requirements	150 m³/h at 15 mbar (single-layer) 230 m³/h at 30 mbar (bilayer)
Machine dimensions & weight	W =2000 mm x D = 1500 mm x H = 2250 mm — 6000 kg

По вопросам продаж и поддержки обращайтесь:

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