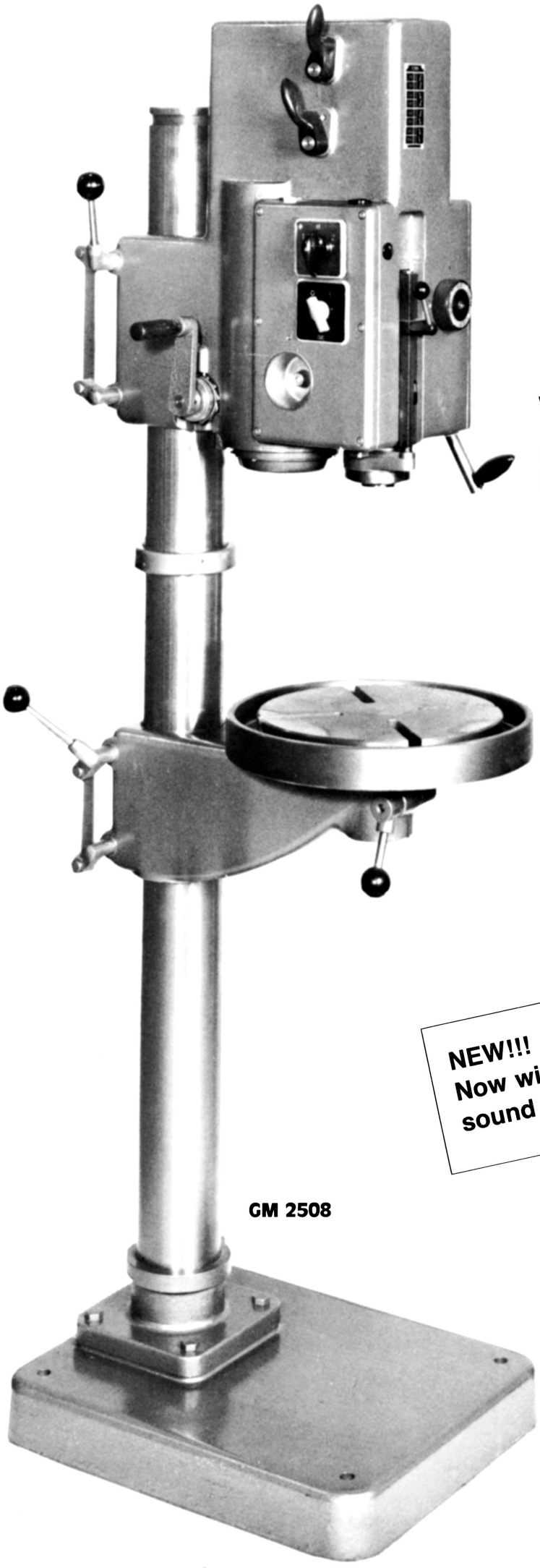
Leaflet No. 2501 E

ARBOGA Drilling Machines 2508 – 2512

with or without power feed

Single- and multiple units in floor and bench execution



GM 2508

NEW!!!
Now with helical gears for lower sound level.

ARBOGA MASKINER AB

ARBOGA Drilling Machines 2508 – 2512

G 2508

- Safety-catch in mechanism for positioning the drill head on the column.
- Easily adjustable counter-balance spring for quill–the operator can adjust it suit his own "feel" for different size of drill.
- Depth gauge graduated in inches and millimeters mounted on front of quill housing for easy setting and reading.
- Built-in drill ejector–it is not necessary to use a drill drift to change tools.
- 4 rates of power feed to the quill on GM and BM.
- Automatic spindle reverse for tapping (additional equipment).
- Wear resisting helical gears give the machines a low sound level and less need for spare parts.

The design of the drill heads and columns provides for flexibility in the make-up of different combinations. Combinations of bench or floor standing machines with or without power feed can be delivered.

The basic machine types are designated as follows:
- G 2508 and G 2512 floor standing pillar machines with manual feed.
- GM 2508 and GM 2512, floor mounting pillar models with power feed.
- B 2508 and B 2512, bench mounting models with manual feed.
- BM 2508 and BM 2512, bench mounting models with power feed.
- GL 2508 and GL 2512, floor standing pillar machines with manual feed and extended throat.

For all models there is a comprehensive range of additional equipment.

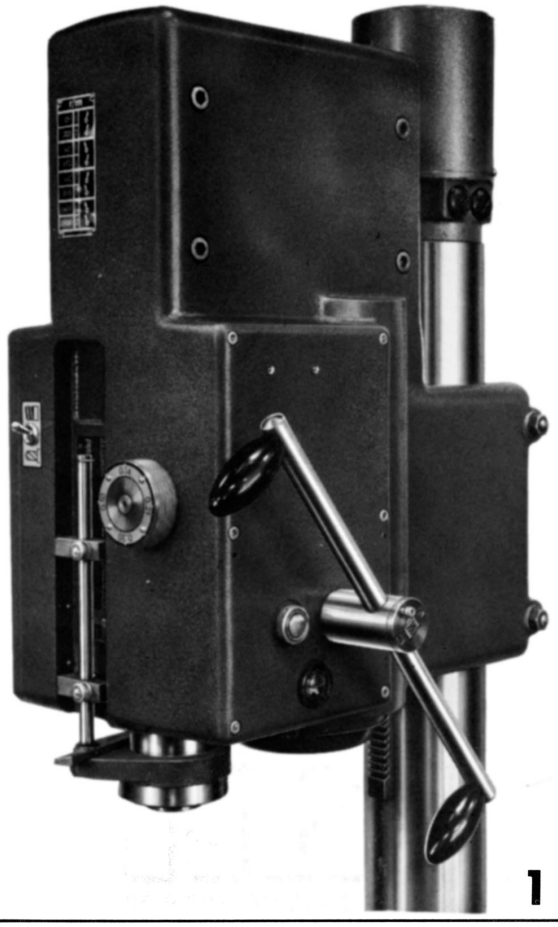
The motor stator is built-in to the drill head casting and is internally ventilated by means of a fan in accordance with form A. The stator windings are protected, by Class 130 insulation.

The motor on the Series 2512 can be connected in Star or Delta but on the Series 2508, the motor is of the 2-speed type (Dahlander principle). Both types are fitted with a thermal overload switch, no volt release and emergency stop. The required voltage has to be stated when placing the order.

On the Series 2508 **the spindle speeds** are selected by a combination of two levers controlling the gearbox and the motor pole-change switch.

On the Series 2512 spindle speed selection is by means of a two-speed gearbox and a combination of pick-off gears. Speed changes can be made within a few seconds as the gears incorporate easily engaged driving slots. Please refer to figure for further details. (Fig. 7.)

As standard equipment the machines of pillar type are fitted within **circular tables** but alternatives are available and are listed under the heading of equipment. All tables are provided with "T" slots and a coolant channel.



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ARBOGA Drilling Machines 2508 – 2512

The machines designated GM and BM (See specification) are provided with **four rates of power feed** which are selected by turning a clearly marked dial. The feeds are engaged by turning the hand lever through 90°. Disengagement occurs when the lever is returned to its normal operated position for hand feed or by being tripped out by means of the pre-set depth stop. (Fig. 1, 2 and 3.)

The Drill Head can be swung around the column and raised or lowered. The hand crank mechanism for raising or lowering the head is fitted with a friction clutch which ensures that it remains in position when the clamp is released prior to positioning. The drill heads are very compact and completely selfcontained with all controls for selection of the spindle speed and feed in the case of the power feed models (designated GM, BM) conveniently placed. (Fig. 1 and 4.)

Technical data

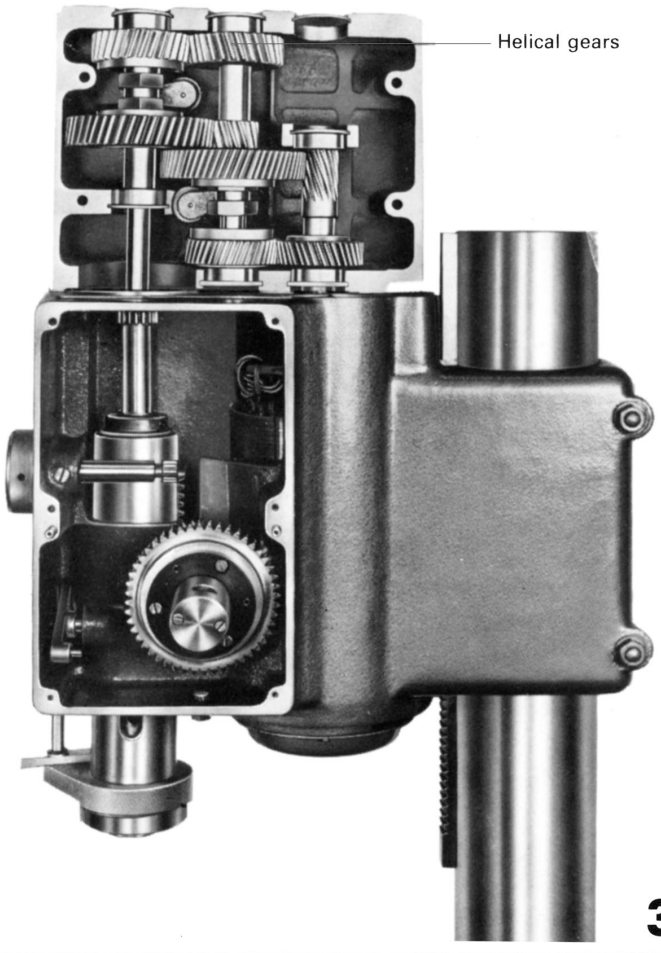
Type		B+G 2508 BM+GM				B+G 2512 BM+GM			
Max. drills for MT 3	mm	31				31			
Tapping capacity	unc	16				16			
Holes tapped/min	No	4				4			
Distance from spindle centre to column face	mm	225				225			
Spindle speeds	No	8				12			
Speeds	rev/min	100–2900[1])				200–3500[2])			
Speeds with reduction gearbox RV 12	rev/min	–				60–100			
Feed rates	No	–		4		–		4	
Feed per spindle rotation	mm	manual		0.10–0.30		manual		0.10–0.30	
Max. quill movement	mm	115				115			
Vertical movement of drill head	mm	330	220	270	220	330	220	270	220
Column diameter	mm	100				100			
Size of table ∅	mm		350		350		350		350
Vertical movement of table	mm		620		620		620		620
Max. distance spindle nose to table	mm	515	905	450	900	515	905	450	900
Spindle internal taper	morse No	3				3			
Motor size	Hp	0.85/1.0		1.2/1.4		1.0		1.4	
Motor speeds	rev/min	1400/2800				2800			
Weight:									
net	kg	95	160	125	195	95	160	125	195
gross (crate)	kg	120	205	155	235	120	205	155	235
gross (case)	kg	130	230	170	285	130	230	170	285
Volume	m^3	0.24	0.58	0.27	0.63	0.24	0.58	0.27	0.63

[1]) 100, 205, 345, 440, 695, 885, 1450, 2900

[2]) 200, 260, 345, 435, 560, 750, 950, 1280, 1640, 2080, 2800, 3500

Drilling capacity

Drilling capacity	2508+2512 BM+GM		
	Diam.	Feed	Speed
In steel, of ca 30–40 T tensile strength	21	0.30	200
	25	0.21	200
	28	0.14	200
	31	0.10	200
In cast-iron, with ca 200 Hb	31	0.30	200
	33	0.21	200
	36	0.14	200
	39	0.10	200



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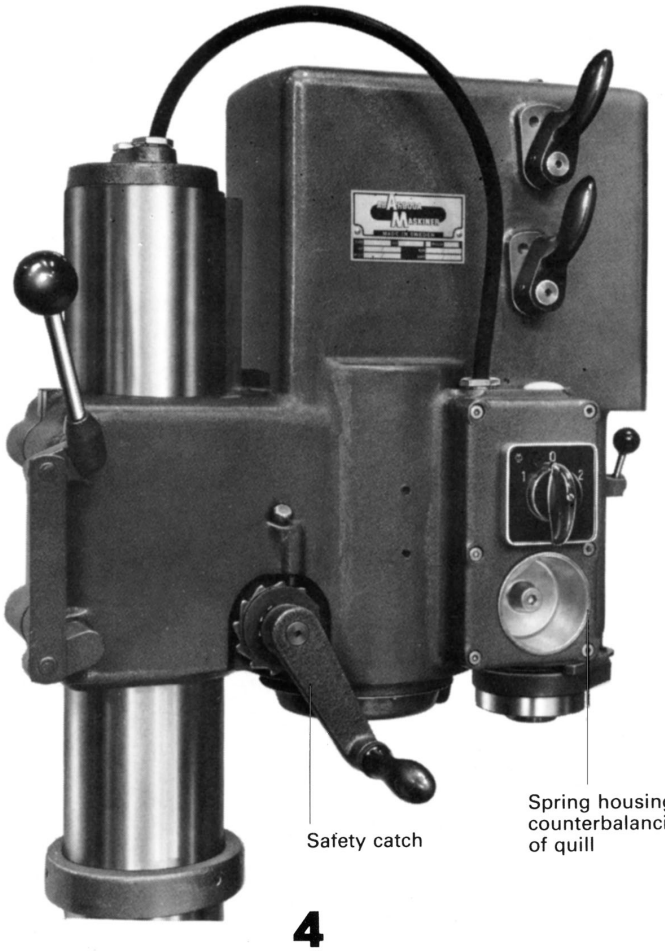

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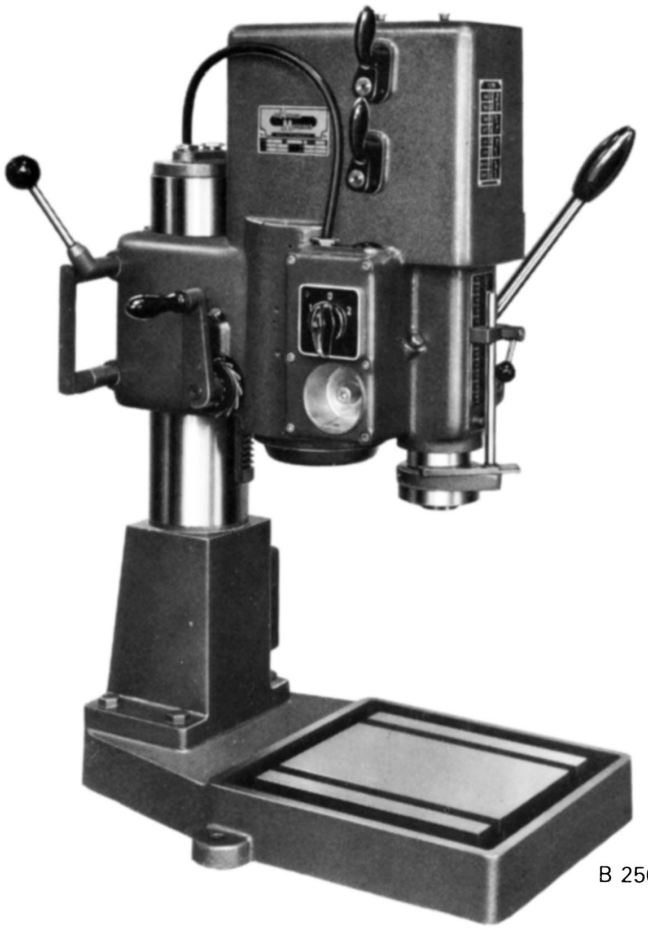
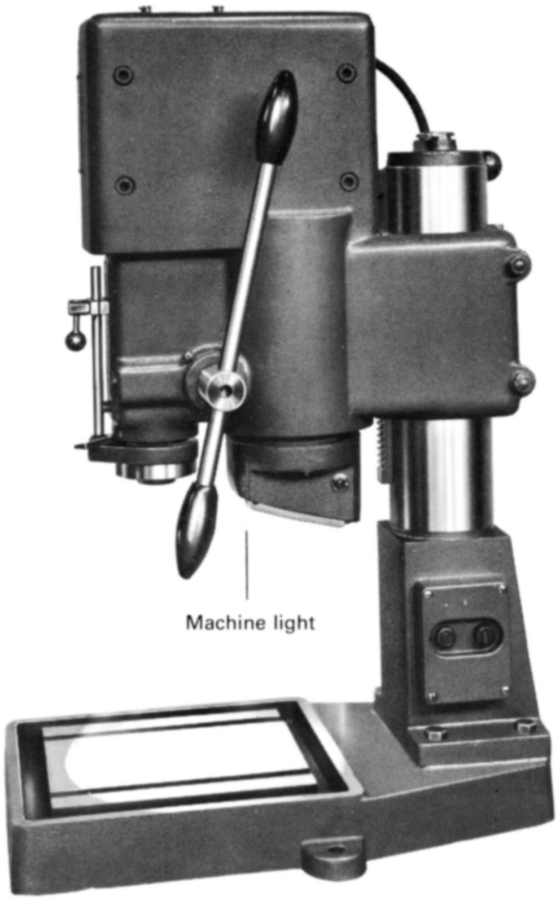
Drilling Machines 2508 – 2512



B 2508



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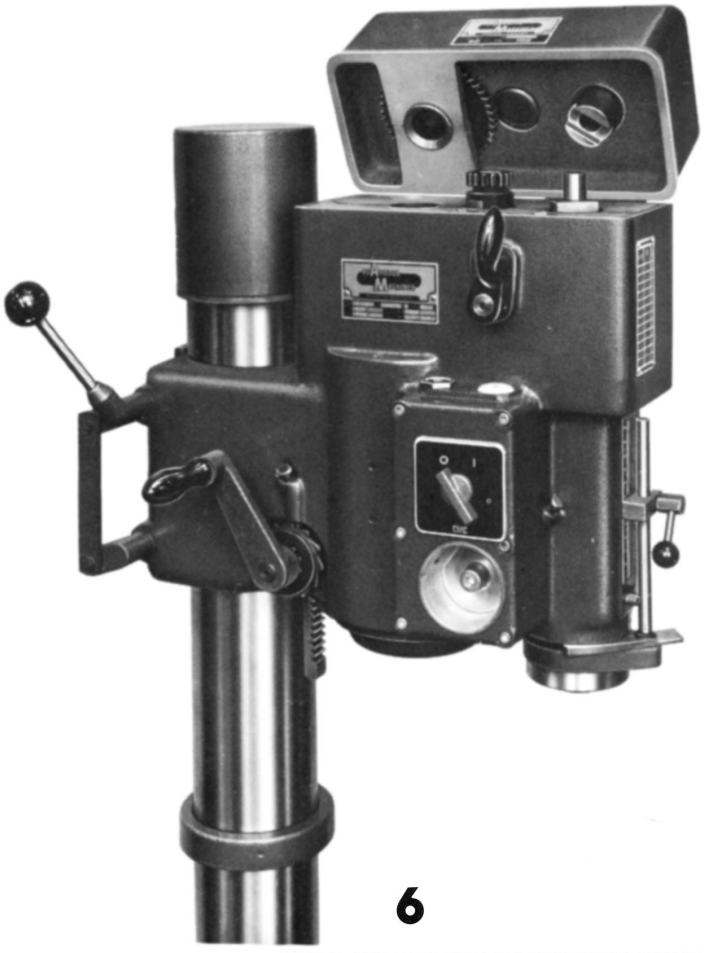

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Optional alternative and extra equipment

Tables

Rectangular 500×400 mm. (Fig. 10.)
Square table 400×400 mm with side mounting face 400×125 mm.

Baseplate

with working surface 400×420 mm. (Fig. 9.)

Spindle reversal

for tapping the machines can be fitted with a footoperated reversing switch or a contactor arrangement which provides for automatic reversal of the spindle at a preset depth. The contactors are switched by a pair of limit switches actuated by the depth gauge. (Fig. 1.)

Reduction gearbox for Series 2512

For tapping and reaming spindle speeds less than 200 r.p.m. may be required and to provide for that the RV reduction gearbox is available. The self-contained gearbox is mounted on the Series 2512 machines in place of a pair of the pick-off gears and provides low speeds of 60 and 100 r.p.m. (Fig. 6.)

Coolant equipment

consists of a tank with bracket to support the motor pump unit. In addition there is supplied suitable lengths of tubing, a delivery nozzle and brackets to secure them to the drill head. The coolant equipment can be supplied in a form suitable for each of the various single and multiple units. (Figs. 5 and 11.)

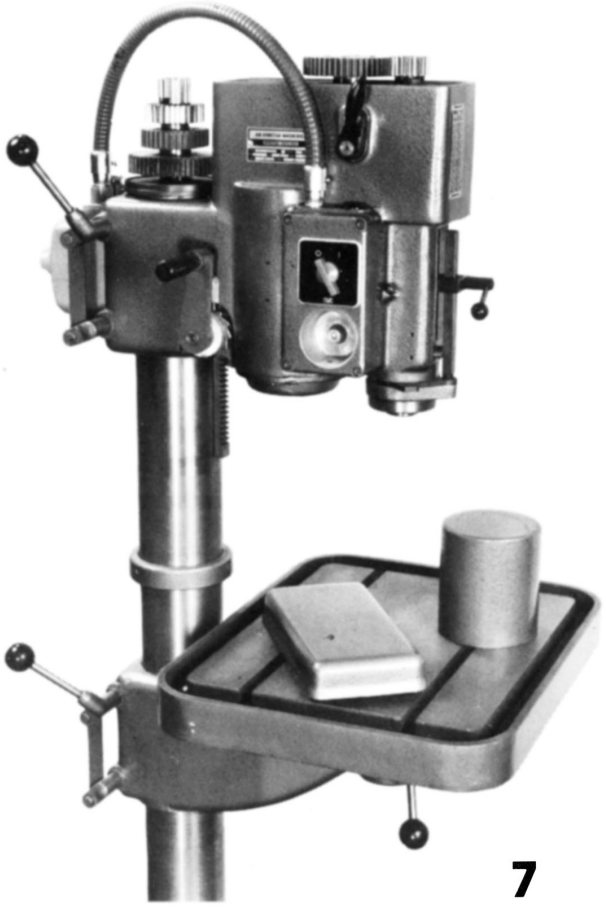
Multi-spindle heads

can be mounted on the quills of the different types of drill head if the flanged type quill is specified. (Fig. 8.)

Stand

for multi-spindle bench machines. (Fig. 13.)

Mist cooling attachment
Machine lighting M 25
Machine vice
Rotatable base plate for vice



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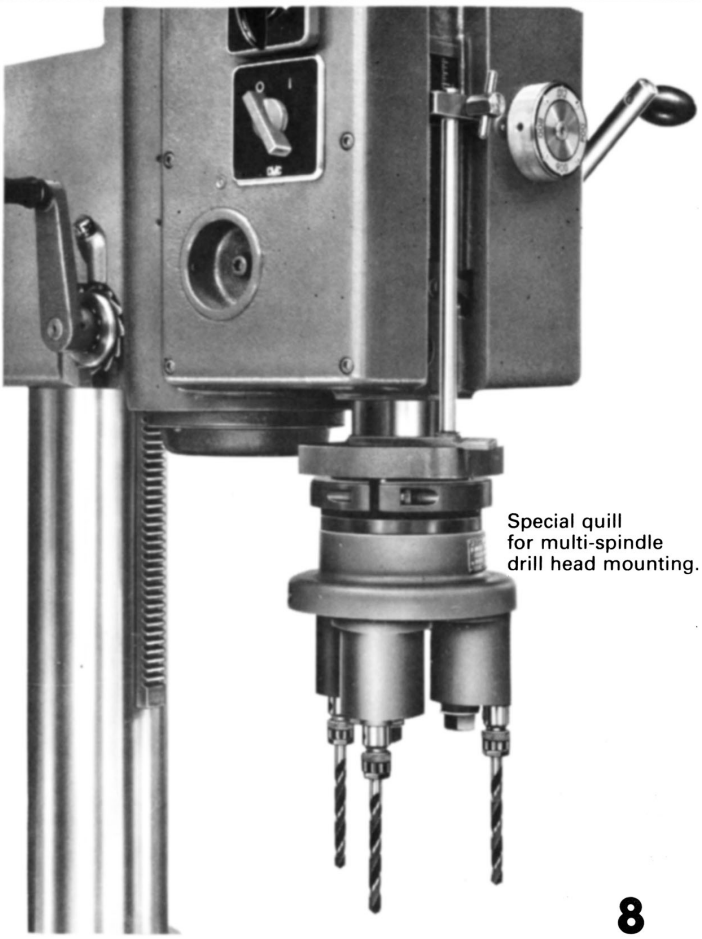
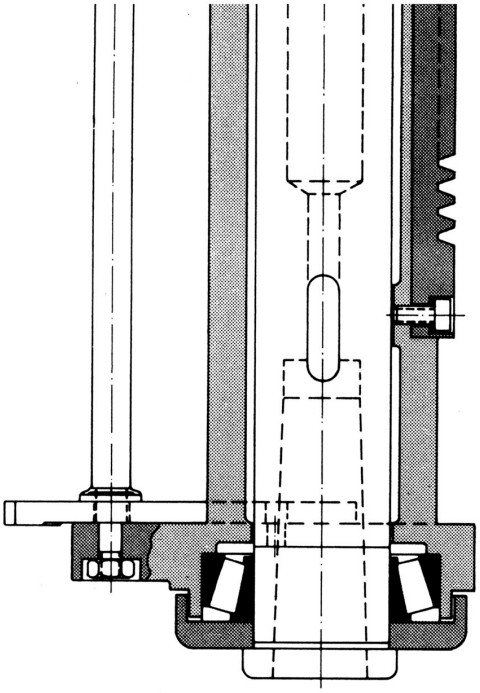


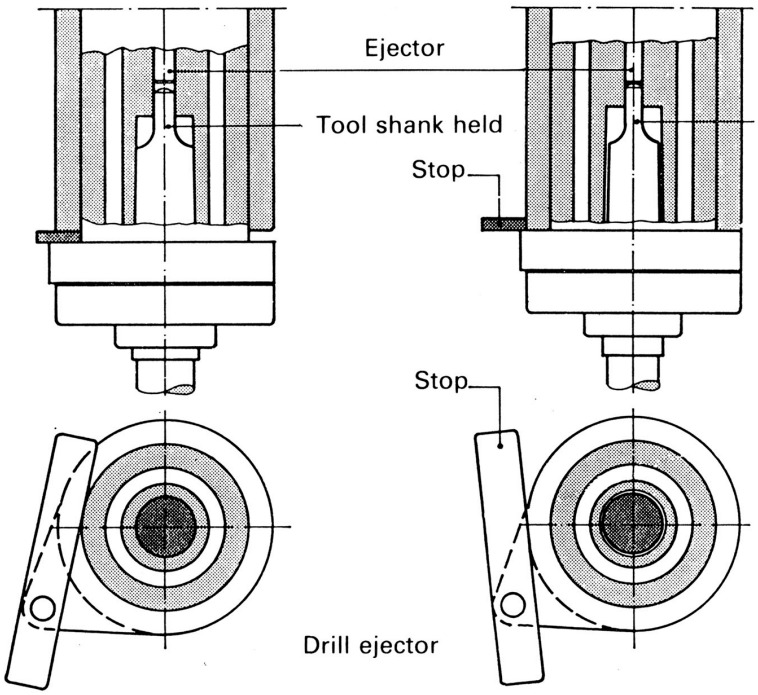
Special quill for multi-spindle drill head mounting.

8

Drilling Machines 2508 - 2512



The lower spindle bearing is located as near to the gauge line as possible in order to provide the greatest degree of stability. The quill is counterpoised by means of a spring which can be adjusted to provide the ease of movement suitable for the operator. (Fig. 4.)



A built-in drill ejector forms part of the spindle/quill assembly and enables tools to be released from the taper with the minimum of effort and without using a drift.

GL 2508

9

GM 2508

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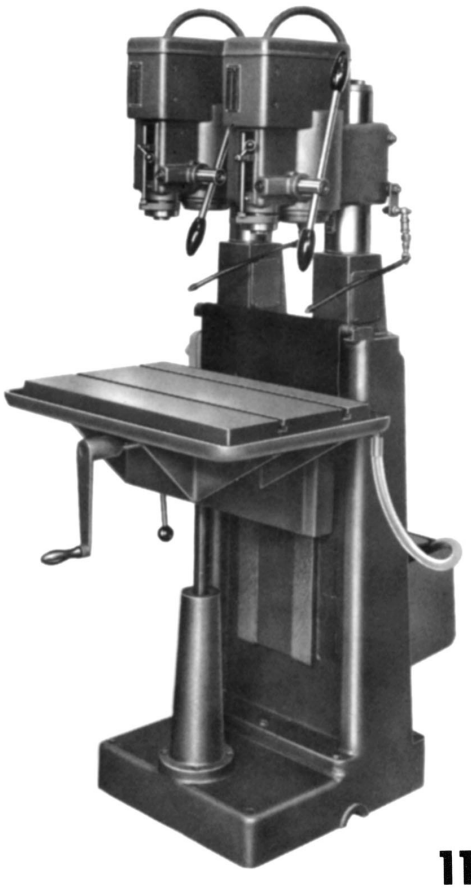


G2/2512

11

Larger throat and more quill movement

(Fig. 9.)

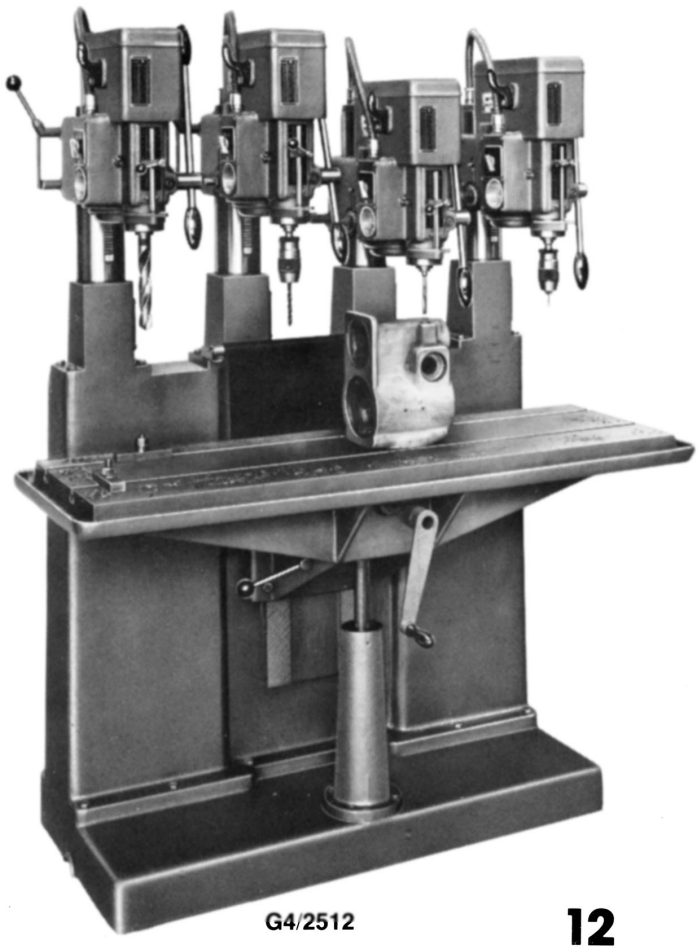
The floor models without power feed in this leaflet are available with a column to spindle centre distance of 305 mm and 150 mm quill travel. The designation is the same except for the addition of the letter "L" e.g. GL 2508 and GL 2512. These models are delivered with machined base plate as standard.

Multi-spindle units

Various types of drill heads may be combined to form **multi-spindle units** for either floor or bench mounting. Using the drill heads with manual feed up to four spindles may be mounted on a common base but as the heads featuring power feed are wider than the manual feed ones a maximum of three only may be accommodated.

As opposed to the heavy duty cast base with elevating table, (Fig. 12) machines may be built up using a table supported on gable ends secured with tie rods in which case the height of the table above floor level is 870 mm. (Fig. 13.) In the case of the heavy duty base the table has a range of adjustment of 380 mm.

Multi-head combinations are designated in the same way as the single spindle units with the exception that the number of heads is stated, for example G2M/2512 indicates a machine with two type 2512 heads with power feed mounted on a floor stand. B3/2508 indicates three type 2508 heads with manual feed mounted on a bench mounting base.



G4/2512

B3M/2512
(with stand)

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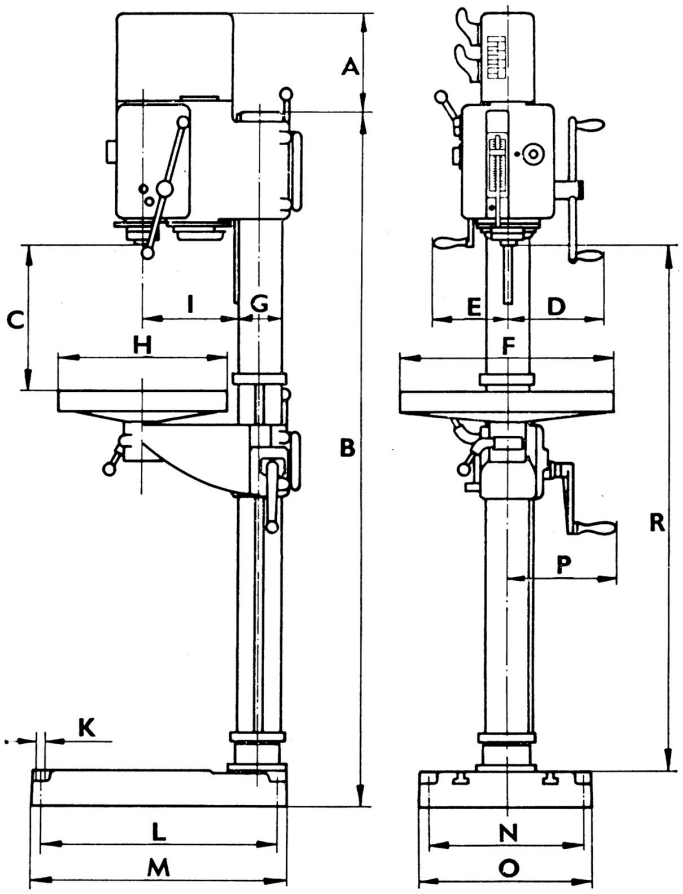
S-732 00 ARBOGA - SWEDEN
TELEPHONE +46/589-12820
TELEX 73200

Dimensions and weights for bench drilling machines

(see also pictures page 4)

Type	B 2508	B 2512	BM 2508	BM 2512
A max.	210	170	255	215
B	808	808	808	808
D	130	130	225	225
E	190	190	190	190
G	∅100	∅100	∅100	∅100
I	225	225	225	225
K	∅16	∅16	∅16	∅16
M	490	490	490	490
N	315	315	315	315
O	280	280	280	280
R max.	515	515	450	450
Weight kg (lbs)	90	90	120	120



Dimensions and weights

Execution	Standard baseplate and round table				Machined baseplate and rectangular table					
Type	G 2508	G 2512	GM 2508	GM 2512	G 2508	G 2512	GM 2508	GM 2512	GL 2508	GL 2512
A max.	210	170	255	215	210	170	255	215	210	170
B	1525	1525	1525	1525	1535	1535	1535	1535	1535	1535
C max.	905	905	900	900	905	905	900	900	900	900
D	130	130	225	225	130	130	225	225	130	130
E	190	190	190	190	190	190	190	190	190	190
F	–	–	–	–	500	500	500	500	500	500
G	∅100	∅100	∅100	∅100	∅100	∅100	∅100	∅100	∅100	∅100
H	∅350	∅350	∅350	∅350	400	400	400	400	400	400
I	225	225	225	225	225	225	225	225	305	305
K	∅16	∅16	∅16	∅16	∅16	∅16	∅16	∅16	∅16	∅16
L	420	420	420	420	630	630	630	630	630	630
M	500	500	500	500	670	670	670	670	670	670
N	320	320	320	320	Front 360 Back 230	Front 360 Back 230	Front 360 Back 230	Front 360 Back 230	Front 360 Back 230	Front 360 Back 230
O	400	400	400	400	400	400	400	400	400	400
P	260	260	260	260	260	260	260	260	260	260
R max.	–	–	–	–	1200	1200	1195	1195	1200	1200
Weight, kg (lbs)	160	160	195	195	193	193	228	228	210	210

Multiplespindle Machines

Type	G 2508 G 2512	GM 2508 GM 2512	B 2508 B 2512	BM 2508 BM 2512
Number of spindles	2, 3 or 4	2 or 3	2, 3 or 4	2 or 3
Distance between spindles, centre-to-centre ... mm	300	450 (600 for 2 sp.)	300	450 (600 for 2 sp)
Max. clearence spindle to table ..... mm	910	850	515	450
Machined surface of table 2 sp. ..... mm	640×400	940×400	660×480	960×480
Machined surface of table 3 sp. ..... mm	940×400	1240×400	960×480	1260×480
Machined surface of table 4 sp. ..... mm	1240×400	–	1260×480	–
Vertical travel of table ..... mm	380	380	–	–
Distance between foundation holes 2 sp. ..... mm	430×500	730×500	610×602	910×602
Distance between foundation holes 3 sp. ..... mm	730×500	1030×500	910×602	1210×602
Distance between foundation holes 4 sp. ..... mm	1030×500	–	1210×602	–
Weight net 2 sp. kg	520	590	315*	415*
Weight net 3 sp. kg	630	820	435*	570*
Weight net 4 sp. kg	850	–	565*	–

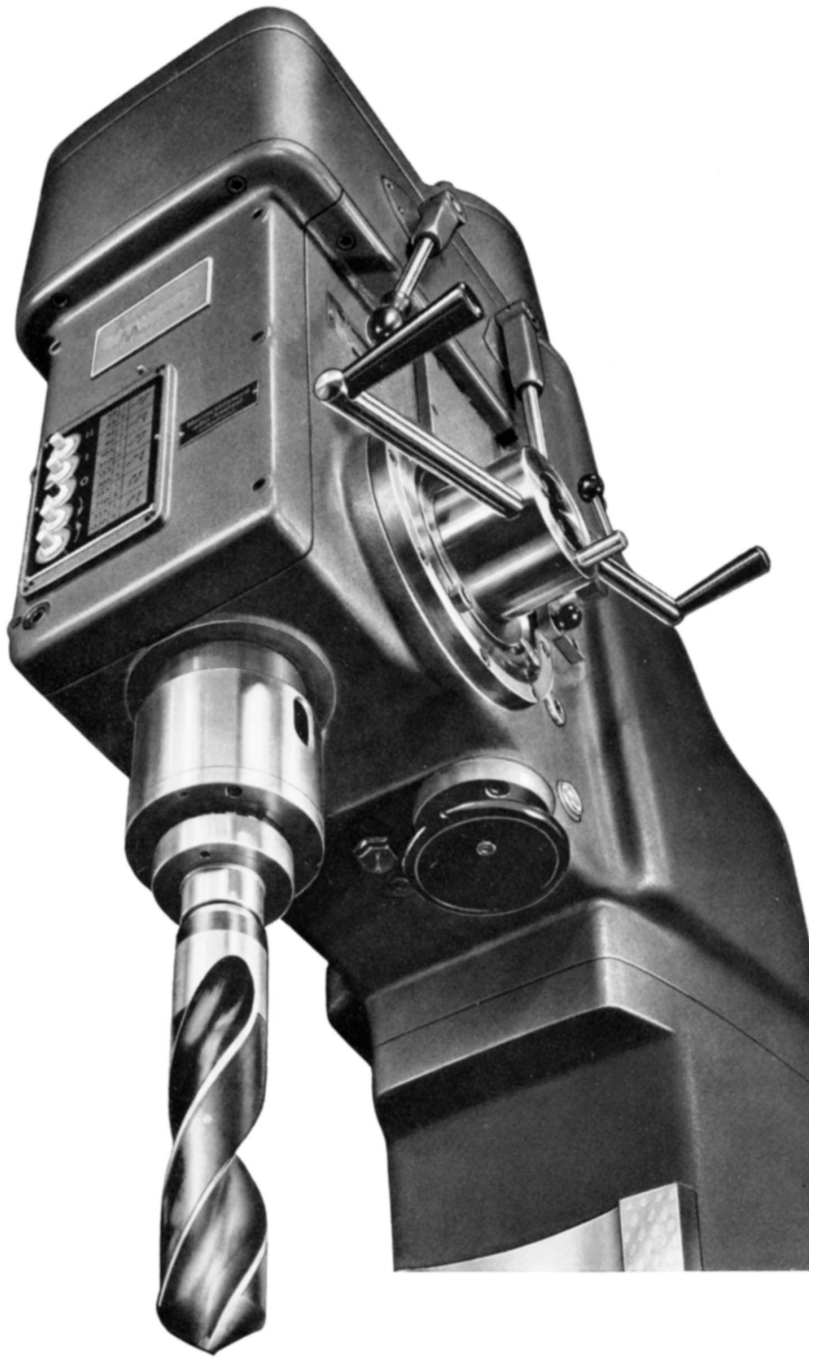
* Incl. stand of cast iron. 65 kos.

Leaflet No. 21 E

ARBOGA

Heavy Duty Drilling Machines

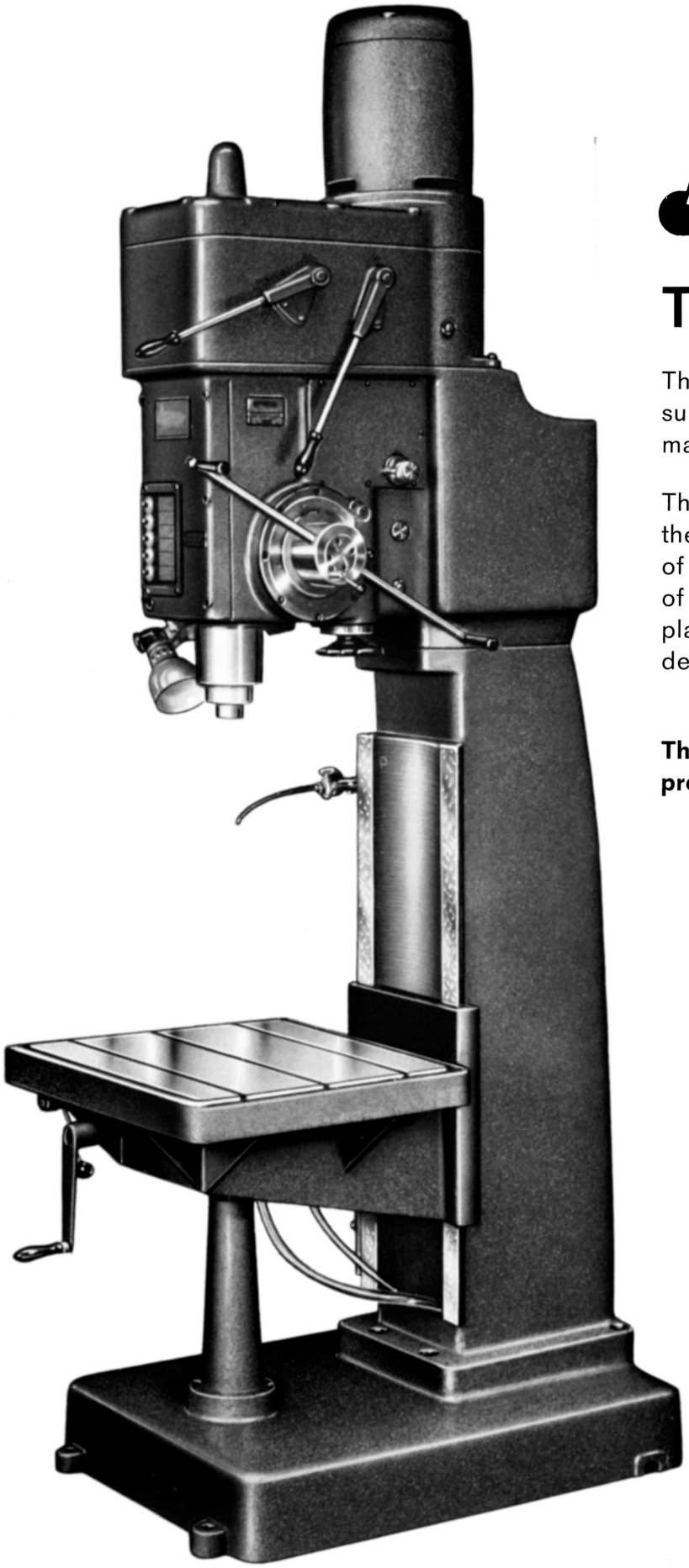
Column and pillar models of sturdy design



Series

5012

RHEMA MASCHINENBAU G.M.B.H., 5342 RHEINBREITBACH AM RHEIN/WESTGERMANY



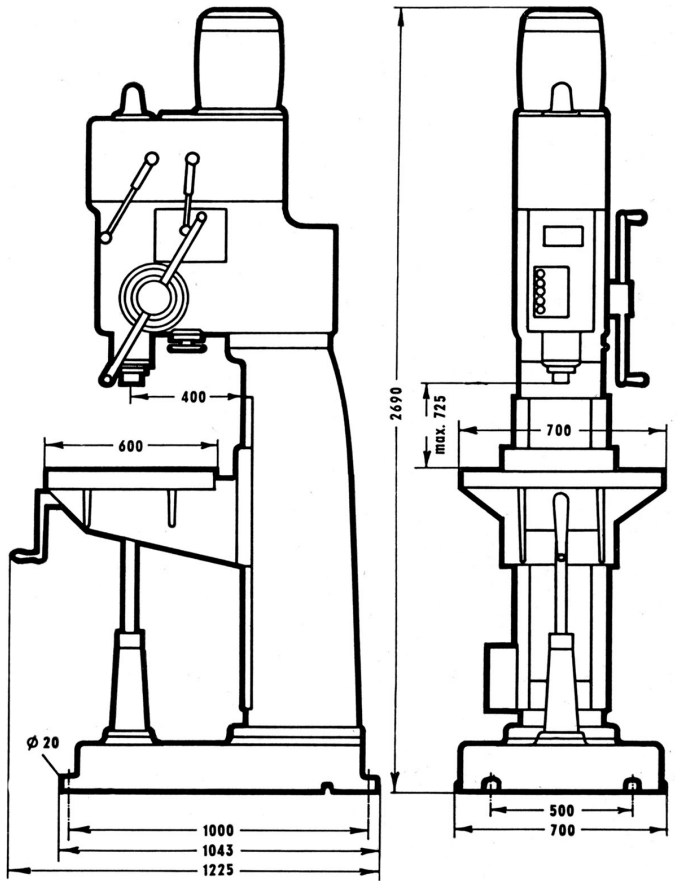
ARBOGA MASCHINEN

Type GSM 5012

This type is a production drilling machine and is suitable for sustained operation even at the maximum drilling capacity.

The elevating screw which is located exactly at the drilling center provides an efficient support of the large-dimensioned work table. As a result of this design, the heaviest workpieces can be placed on the table and then machined without detriment to the working accuracy of the machine.

This type of drilling machine is a combination of precision and stability.



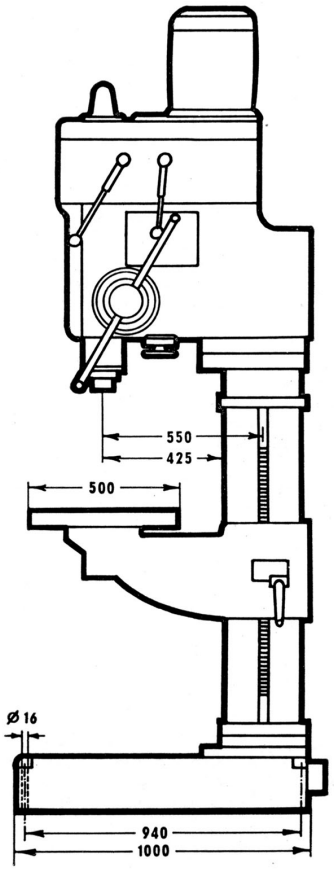
ARBOGA MASCHINEN

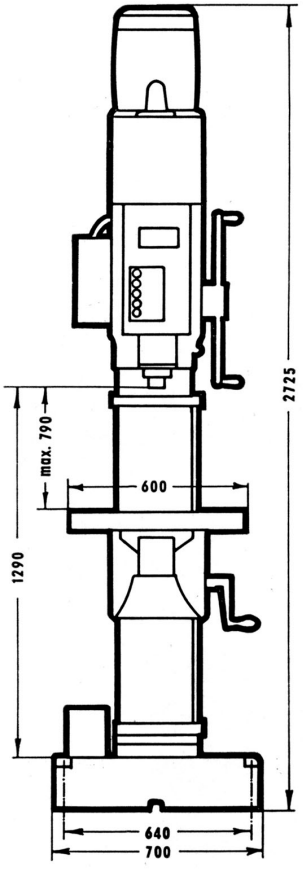
Type GM 5012

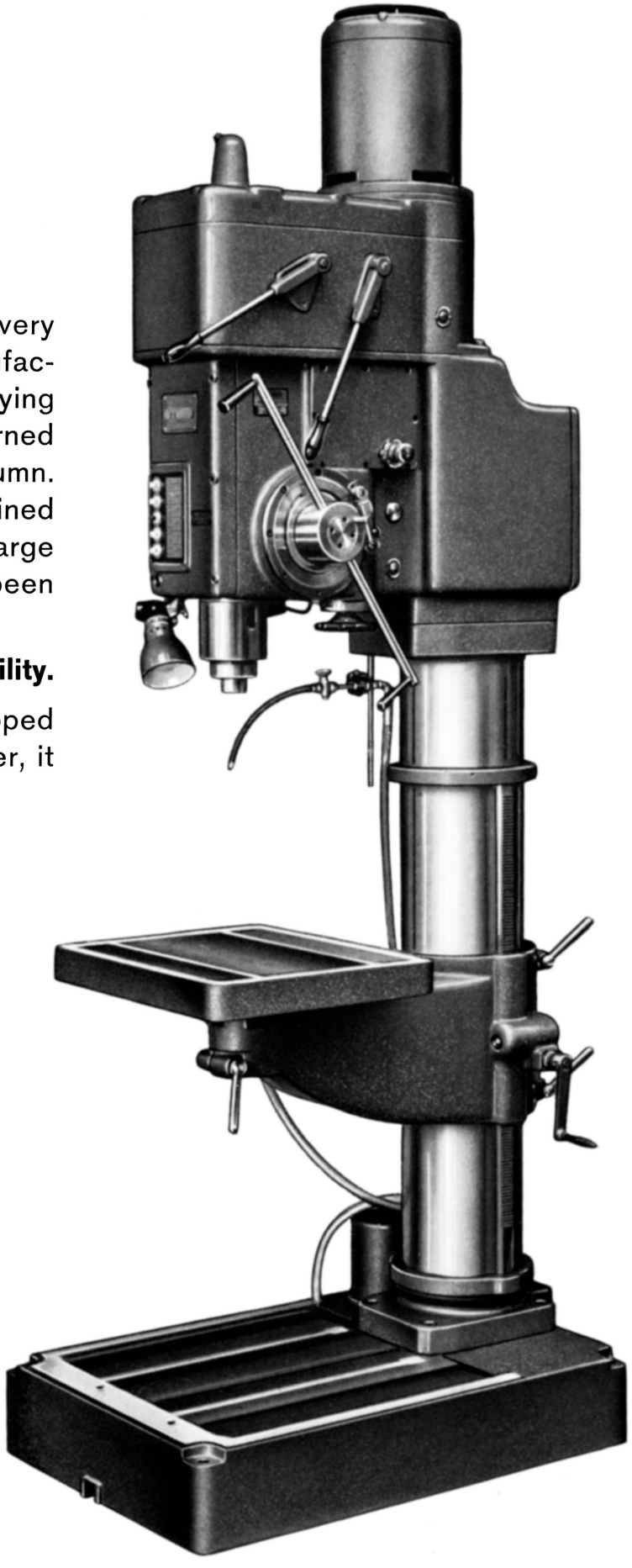
This column type drilling machine is of very rugged construction and well suited to manufacturing plants and workshops. The arm carrying the table can be adjusted vertically and turned through 360° around the 10" diameter column. The heavy base plate with "T" slots and machined upper faces can be used for the location of large and bulky workpieces after the arm has been swung away.

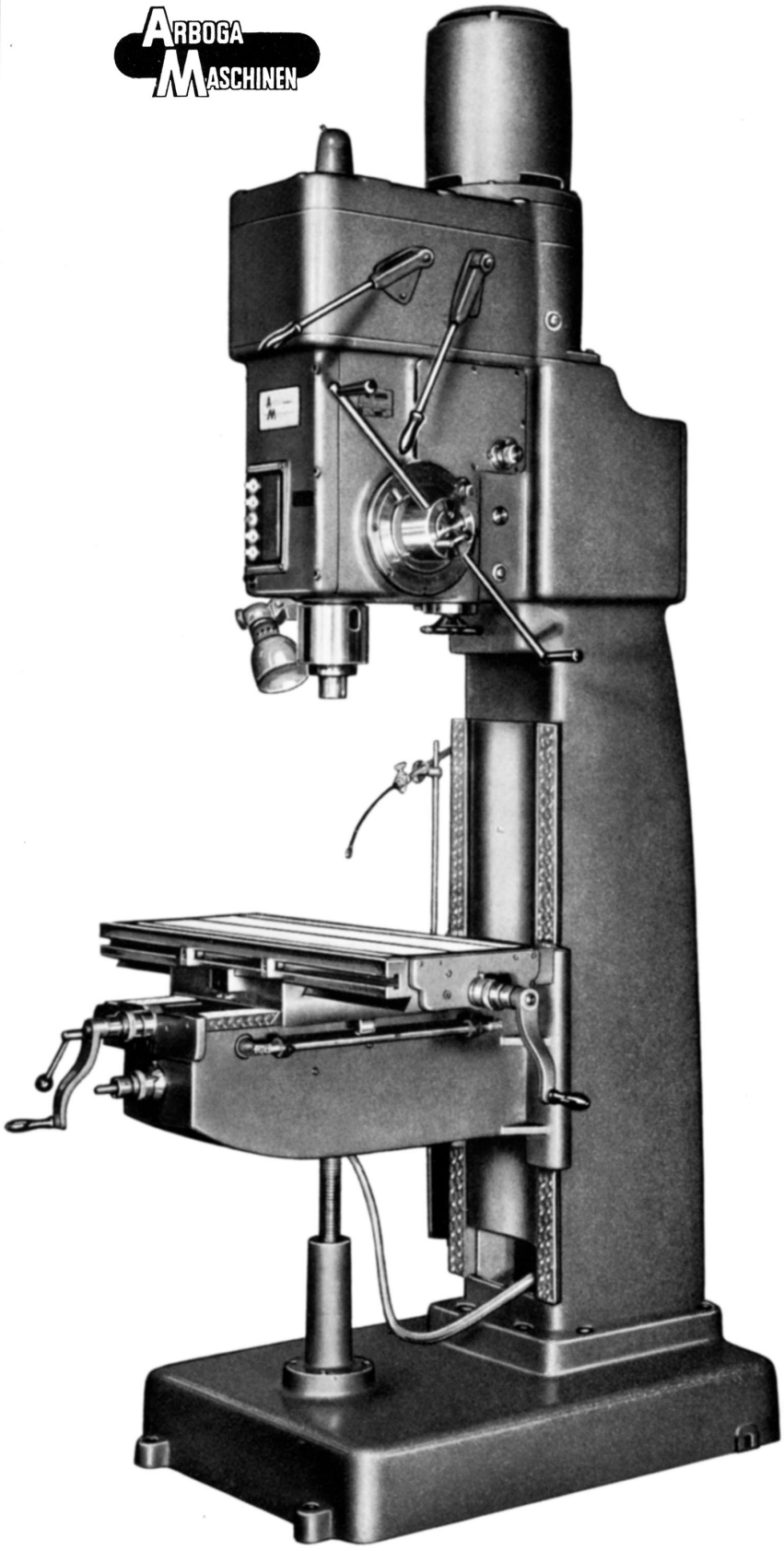
Also this type guarantees precision and stability.

In standard execution, the machine is equipped with a rectangular table. On request, however, it can be delivered with a circular table.







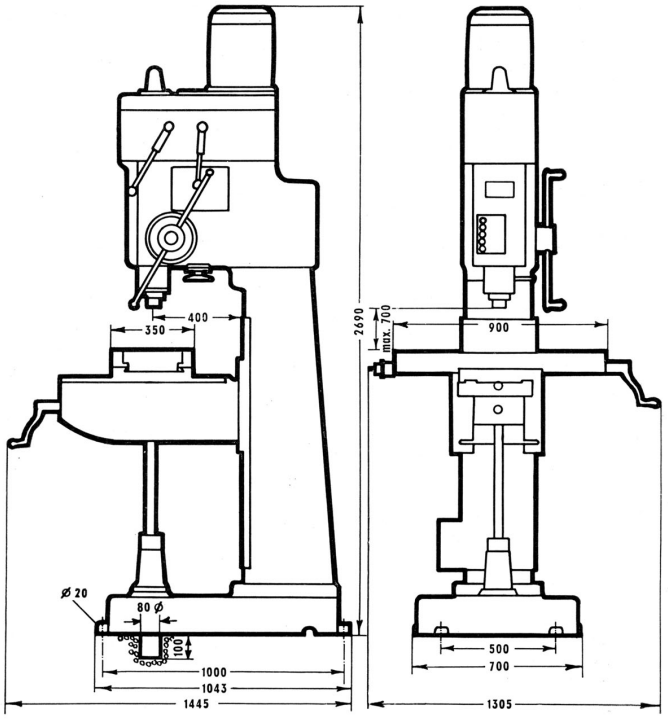


Type GSMK 5012

Instead of the standard table, this type of drilling machine has a coordinate table. It is equipped, for both directions, with high-accuracy rules and vernier scales as well as adjustable stops. The dials have divisions of 0,002". As a result of the inherent stability and accuracy of this machine type it can be used not only for drilling but also as a semi-jig borer. When working in combination with the coordinate table, the machine may be used for milling operations. The "ARBOGA Short Spindle" is the element which renders possible this application.

The type GSMK 5012 machine fills the gap which has existed up to now between the standard drilling machine and the jig borer.

Below the table elevating screw, provision must be made for a recess of about 4½" in depth in the foundation of the machine so that the table can be adjusted to the lowest possible position.



Drilling Machines of Serie 5012

meet the most exciting requirements as regards precision and stability. All operating elements are within easy reach. The component parts of the machines are made of the best suitable materials and manufactured with the requisite accuracy on modern plant.

As in the case of all ARBOGA drilling machines, the series 5012 machines are equipped with short spindle, i. e. the internal taper lies within the lower bearing. For more than 30 years, ARBOGA have used this type of bearing which is an outstanding feature of all ARBOGA Machines.

The drill spindle forged of special alloy steel and heat-treated has a diameter of 2 3/8" at its lower bearing. The spindle bearings are adjustable. Adjustment is made in a very simple manner, that is by tightening the adjustment nut for which provision is made at the lower spindle end. To do this, the corresponding locking washer must be released. No further parts need be dismantled to carry out the adjustment.

The direct drive of the machine is made by means of a pole-change motor flange mounted on top of the gear box.

Control of the machine is by means of push-buttons which, for easy access, are arranged on the front. The push-buttons act through air-break contactors controlling the forward and reverse movements of the motor. Using push-buttons I and II, the motor is switched for low or high speed. The push-buttons having arrows indicating the direction of rotation are for the control of forward and reverse movements.

Instead of air-break contactors, the machines can be fitted with polechange switches for which system there is a price reduction.

The motor is wound for one voltage only. **For this reason, the desired voltage must be specified in the order.**

Change of speeds is effected by means of two control levers arranged on the right side of the machine. The gear wheels are made of spherulitic cast iron. They are extremely resistant to wear and assure quiet running.

The power feed is driven from the drill spindle, through a four-stage feed gear box. The feed mechanism is equipped with an automatic overload protection device. When the spindle is rotating in reverse direction, the automatic feed is out of operation. The worm gear is enclosed in an oil bath.

Selection of the different feed rates is made by means of the dial at the right side of the machine.

Engagement of the power feed is made very simply by a 90° turn of the hand feed lever.

Disengagement of the feed is effected either automatically, by the adjustable depth stop on the scale connected to the feed shaft, or by turning the hand feed lever to the neutral position.

The hand feed is operated by lever and acts directly on the feed shaft. Fine adjustment of the feed is provided for by means of the hand wheel located below the spindle housing.

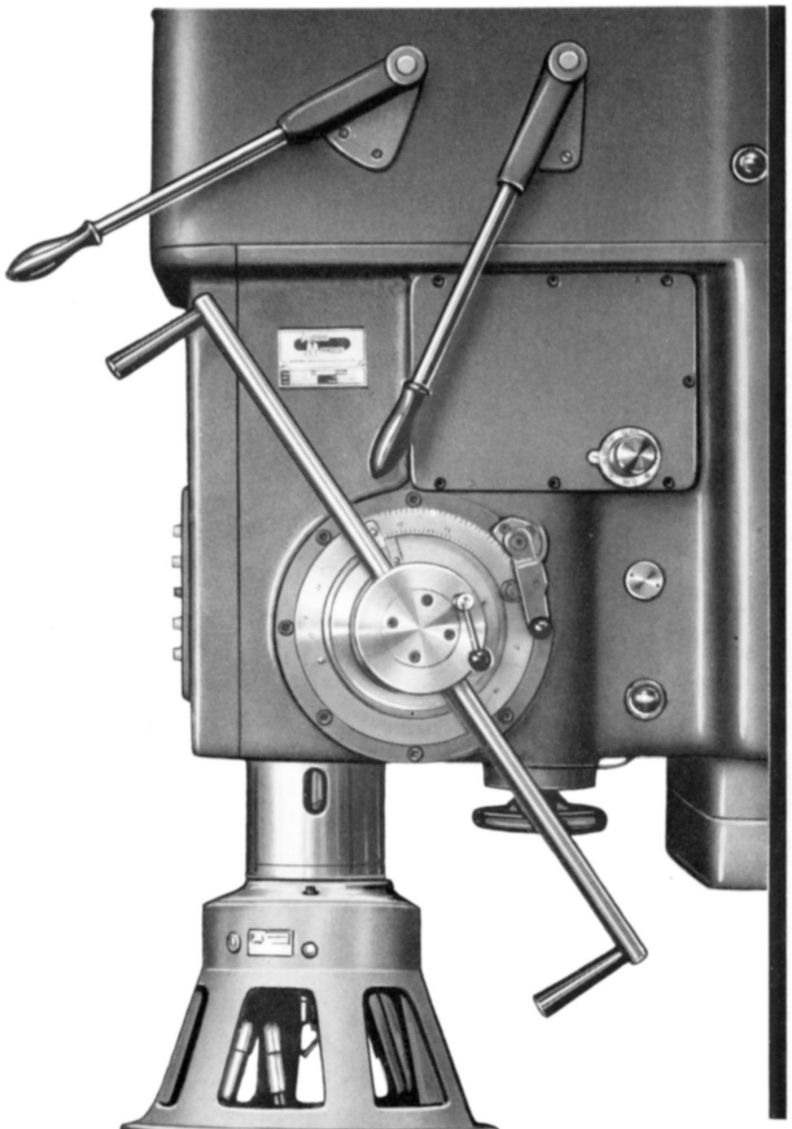
Lubrication of the main and feed gears is by means of two independent oil pumps.

The coolant pump supplied as standard equipment with each version of the machine is mounted in the base plate which serves as the resevoir.

One piece of extra equipment which is worthy of special note is the automatic spindle reversing device. When tapping blind holes or to a specified depth this device provides immediate and automatic reversal of the spindle at the pre-set depth.

TECHNICAL DATA	GM	GSM	GSMK
Drilling capacity:			
In steel of 30 to 40 Tons per sq. in. tensile strength			
Speed n = 92 r.p.m. — feed s = 0.016"		2"	
Speed n = 92 r.p.m. — feed s = 0.010"		2¼"	
Speed n = 92 r.p.m. — feed s = 0.006"		2½"	
In cast iron of approx. 200 Brinell Hardness			
Speed n = 92 r.p.m. — feed s = 0.016"		2½"	
Speed n = 92 r.p.m. — feed s = 0.010"		3"	
Speed n = 92 r.p.m. — feed s = 0.006"		3⅛"	
Number of spindle speeds			
Revolutions per minute *)		32, 46, 64, 92, 105, 152, 210, 305, 355, 515, 710, 1030	
Number of feeds		4	
Feeds per revolution of spindle *)		0.004", 0.006", 0.010", 0.016"	
Spindle taper		Morse taper shank No. 5	
Maximum quill movement		10¾"	
HP of motor		5 / 3	
Motor speeds r.p.m.		1400 / 700	
Distance spindle center to face of column/pillar (depth of throat)	16¾"	15¾"	15¾"
Maximum distance spindle nose to table	31"	28½"	27½"
Maximum distance spindle nose to base plate	50¾"	—	—
Vertical movement of work table	24¾"	19⅝"	19⅝"
Longitudinal movement of co-ordinate table	—	—	21"
Cross movement of co-ordinate table	—	—	13¾"
Dimensions of working table including coolant channel	24" × 20"	27" × 24"	35" × 14"
Clamping area of base plate	27" × 26"	—	—
Column diameter	10"	—	—
Net weight of machine, approx. Lbs.	2735	2735	2890

*) Alternative speed and feed ranges available.



❷

❶

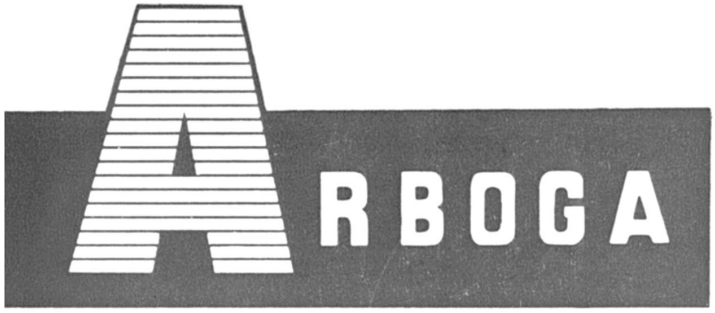
The large diameter quill ❶ with short spindle protrusion provides solid support for multi-spindle heads. ❷

Standard Equipment

Complete electrical equipment comprising:
Main motor
Push buttons for air-break contactors for low and high speeds
Push buttons for air-break contactors for reversing
Thermal overload protection for both speeds
Set of 3 fuses
Complete coolant equipment with overload breaker and 3 fuses
Operating instructions
AWF Machine Chart
Test certificate to DIN 8626

Optional Accessories

Multi-spindle drill head
Vice
Rotary feed table
Machine lamp
Automatic spindle reverse for tapping. (Applicable only when motor controlled by air-break contactors)
Cutter retaining equipment (Collet chuck with collets)
Other accessories on request.



Our designs are based on experience gained during more than 30 years in the field of drilling machine manufacture.

More than 100.000 ARBOGA Drilling Machines of different designs are in use all over the world.

The main features of the ARBOGA Drilling Machines

Honed tail spindle bore
Superfinished tail spindle
High accuracy — Acceptance Tests to DIN 8626
Advantages of direct drive
Rigidity owing to the short spindle
Universal application
Highest capacity

RHEMA-Maschinenbau G.m.b.H.

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