



VDF 120 E/1

W 35 · W 40 · W 45 · W 45 V · W 40 R · W 45 R · R 210 · R 260 · R 310 · R 360

Capacities and Dimensions of **VDF** Standard Lathes Models W 35, W 40, W 45, W 45 V

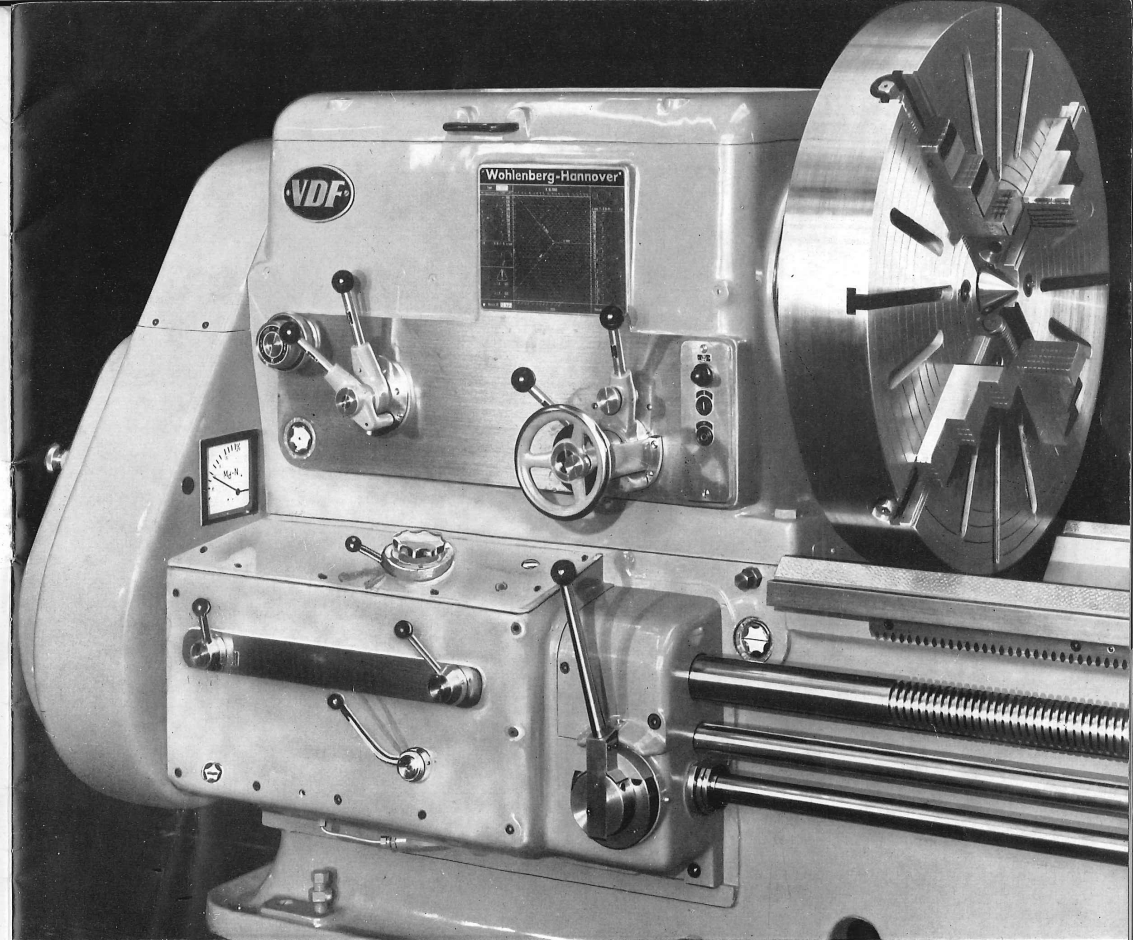
Specifications:	W 35	W 40	W 45	W 45 V	FLOOR SPACE AND WEIGHTS							
					Centre distances		Weight					
					Floor space		Without electrical equipment					
	W 35 - W 45 V		W 35	W 40	W 45	W 45 V						
	mm	in.	mm	in.	kg lbs.	kg lbs.	kg lbs.	kg lbs.	kg lbs.	kg lbs.		
Height of centres												
over flat ways mm	380	430	480	530								
over vees mm	15	17	19	20 ⁷ / ₈								
	350	400	450	500								
	13 ³ / ₄	15 ³ / ₄	17 ³ / ₄	19 ³ / ₄								
Swing												
Swing over bed mm	770	870	970	1070	1500	5225 x 1775	8200	8400	8600	8800		
	30 ¹ / ₄	34 ¹ / ₂	38 ¹ / ₄	42 ¹ / ₈	59	206 x 70	18000	18500	18950	19400		
Swing over carriage mm	480	580	680	780	2000	5725 x 1775	8700	8900	9100	9300		
	19	22 ⁷ / ₈	26 ⁷ / ₈	30 ⁵ / ₈	78 ³ / ₄	226 x 70	19200	19650	20100	20500		
Diameter of faceplate mm	800	900	900	1000	2500	6225 x 1775	9000	9200	9400	9600		
	31 ¹ / ₂	35 ¹ / ₂	35 ¹ / ₂	39 ³ / ₈	98 ¹ / ₂	245 x 70	19800	20260	20700	21170		
Gap bed and bridge (at extra cost)					3000	6725 x 1775	9250	9450	9650	9850		
Maximum dia. turned in gap mm	1060	1160	1260	1360	118	265 x 70	20400	20850	21300	21700		
Gap width in front of faceplate mm	450	450	450	450	3500	7225 x 1775	9550	9750	9950	10150		
	17 ³ / ₄	17 ³ / ₄	17 ³ / ₄	17 ³ / ₄	138	285 x 70	21000	21450	21900	22400		
Width of bed mm			630		4000	7725 x 1775	9800	10000	10200	10400		
			24 ³ / ₄		5000	8725 x 1775	10350	10550	10750	10950		
Length of bed: centre distance plus mm		2400			197	344 x 70	22800	23250	23700	24100		
			94 ¹ / ₂		6000	9725 x 1775	11200	11400	11600	11800		
Main spindle					236	383 x 70	24650	25100	25550	26000		
Hole through spindle mm			100		7000	10725 x 1777	11700	11900	12100	12300		
			4		276	423 x 70	25850	26300	26700	27100		
Dia. of spindle in front bearing mm			170		8000	11725 x 1775	13050	13250	13450	13650		
			6 ¹¹ / ₁₆		315	462 x 70	27000	27450	27900	30100		
Center sleeve hole - morse taper No.			6		9000	12725 x 1775	13600	13800	14000	14200		
Spindle speeds					354	501 x 70	28200	28650	29100	31300		
Number			36		10000	13725 x 1775	14150	14350	14550	14750		
24 in the roughing range r.p.m.			1,8 - 355		394	541 x 70	29850	29400	30300	32500		
12 in the finishing range r.p.m.			50 - 630									
Horsepower required, appr. HP/kW												
			30/22									
Tailstock												
Diameter of tailstockquill mm			120									
			4 ³ / ₄									
Morse taper No.			6									
Max. permiss. workpiece-weight												
between centres without steady appr. kg			4000									
			8000									
between centres with 1 steady appr. kg			5000									
			11000									
between centres with 2 steadies appr. kg			6300									
			13000									
Feeds												
24 longitudinal feeds per revolution mm			0.265 - 3.75									
			0.0104 - 0.147									
24 cross feeds per revolution mm			0.09 - 1.25									
			0.0035 - 0.05									
Fine feeds												
Onetenth of longitudinal and cross feeds												
Maximum torque mkg			1250									
			9025									
Thread cutting												
Number of Whitworth screw and pipe threads			70									
Range t.p.i.			1 ¹ / ₈ - 28									
Number of metric threads			69									
Range mm			1 - 224									
Number of module threads			56									
Range			0,25 - 56									
Number of DP threads			77									
Range DP			0,5 - 112									

Enquiries for greater turning lengths are solicited

Weight of electrical equipment approx. 450 kg - 990 lbs. With lathes up to and including 7000 mm - 276 in. centre distance all electrical controls are incorporated inside the machine. Lathes with centre distances 8000 mm = 315 in. and over are equipped with a cabinet accommodating the switch gear. (Weight of switch gear cabinet 150 kg = 330 lbs. approx.)

STANDARD EQUIPMENT

- 1 set of five change gears
 - 1 cast steel face plate with four hardened reversible jaws carried in T-slots
 - 1 stationary steady, 70 - 450 mm = 2³/₄ - 17³/₄ in. capacity (two steadies supplied with machines of 6000 mm = 236 in. centre distance and over)
 - 1 centre sleeve for main spindle
 - 2 dead centres, 60° nose angle, morse taper No. 6
 - 1 interchangeable live centre, 60° nose angle, morse taper No. 6, with quill support
 - Rapid power traverse of carriage on lathes with centre distances exceeding 4000 mm = 157¹/₂ in.
 - Leadscrew and feed rod support bearings (quantity according to centre distance)
 - Various levelling jacks (quantity according to centre distance)
 - 1 ammeter
 - 1 longitudinal stop
 - 1 transverse stop
 - 1 set of wrenches
 - 1 index plate for speeds
 - 1 index plate for thread-cutting and feed
 - 1 operator's handbook
- The top slide of model W35 is not equipped with a cross slide



The "W"-headstock combines a high roughing capacity and full utilisation of the input driving power with high accuracy and exceptional finish, assured by the flexible belt drive.

The table above is also deliverable in inch without extra charge.

The "W" headstock (German Patent) providing 36 spindle speeds has two fundamentally different types of spindle drive. In the roughing range from 1.8 to 355 r.p.m. the 24 lower speeds are transmitted to the spindle through the helical main driving gear located closely behind the front spindle bearing. In the finishing range from 50-630 r.p.m. the 12 upper speeds are transmitted to the spindle through an endless flexible flat belt (German Patent), with the main driving gear disengaged. The geometrical progression of the 36 spindle speeds in the roughing and finishing range is 1.25.

The special mounting of the pulley (German patent) makes it possible to place the endless belt loosely in position, and tension it by means of a few simple manipulations.

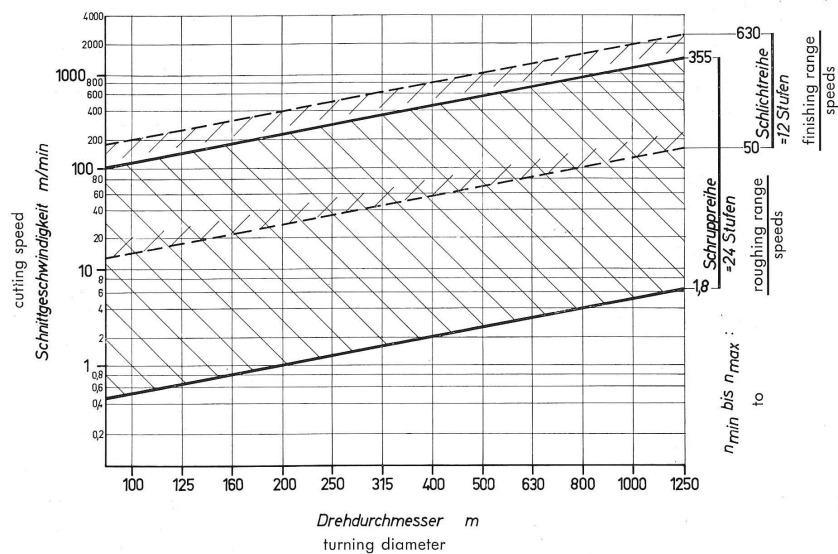
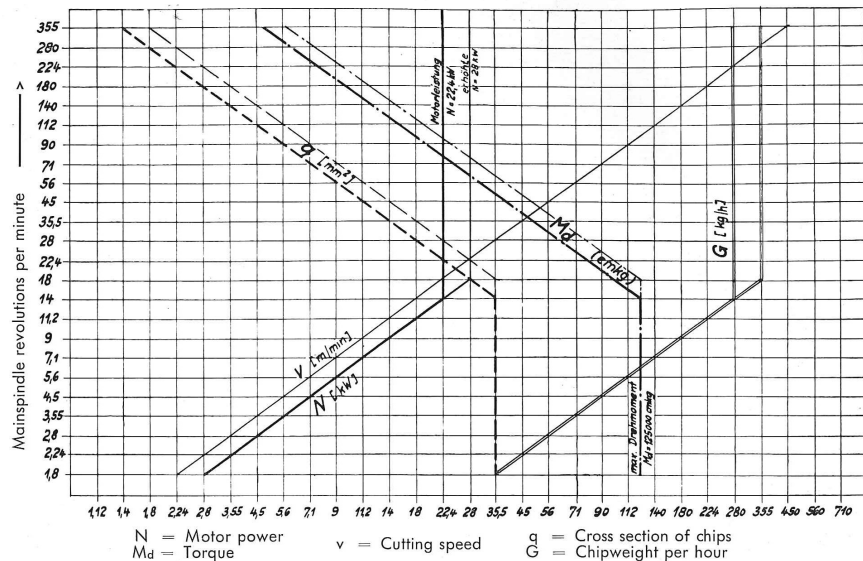
The spindle speeds are selected by conveniently placed levers on the headstock which control the sliding gears mounted on ground hexagon multiple spline shafts. All gears are hardened and profile ground. The oil pump with filter built into the headstock assures an ample and even supply of lubricant to all moving parts.

A coarse pitch screw-cutting mechanism with ratios of 1:4, 1:16, 1:64, permits the cutting of coarse pitches within the various spindle speed ranges.

The right table above giving the feeds in mm is also deliverable in inch without extra charge.

The spindle is mounted in high-precision roller bearings. A third bearing in the centre gives added support and assures adequate rigidity in the event of overload. Axial thrust is absorbed by ball bearings located next to the front spindle bearing.

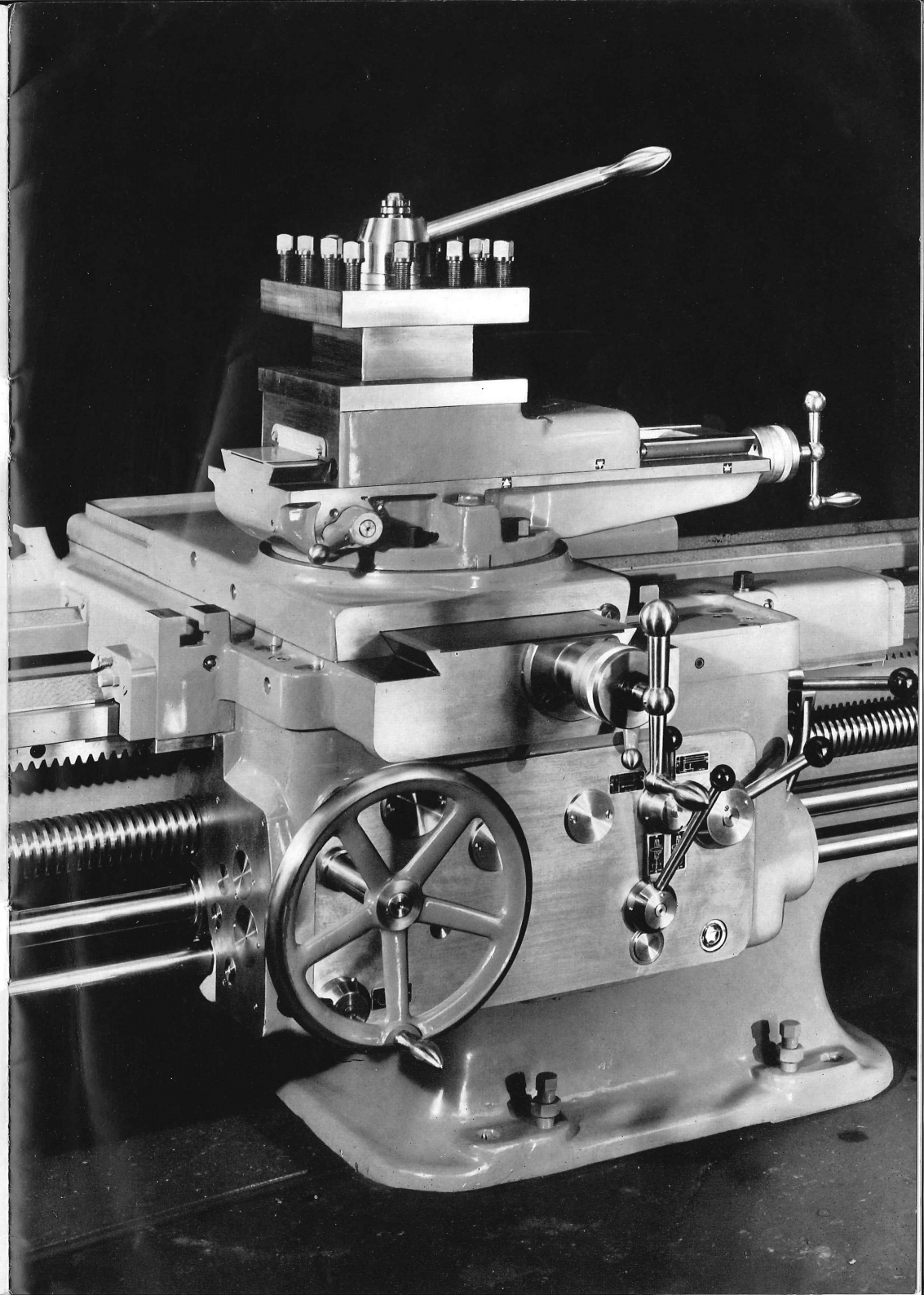
The cast steel faceplate has four hardened, reversible jaws carried in T-slots, assuring secure clamping of the work.

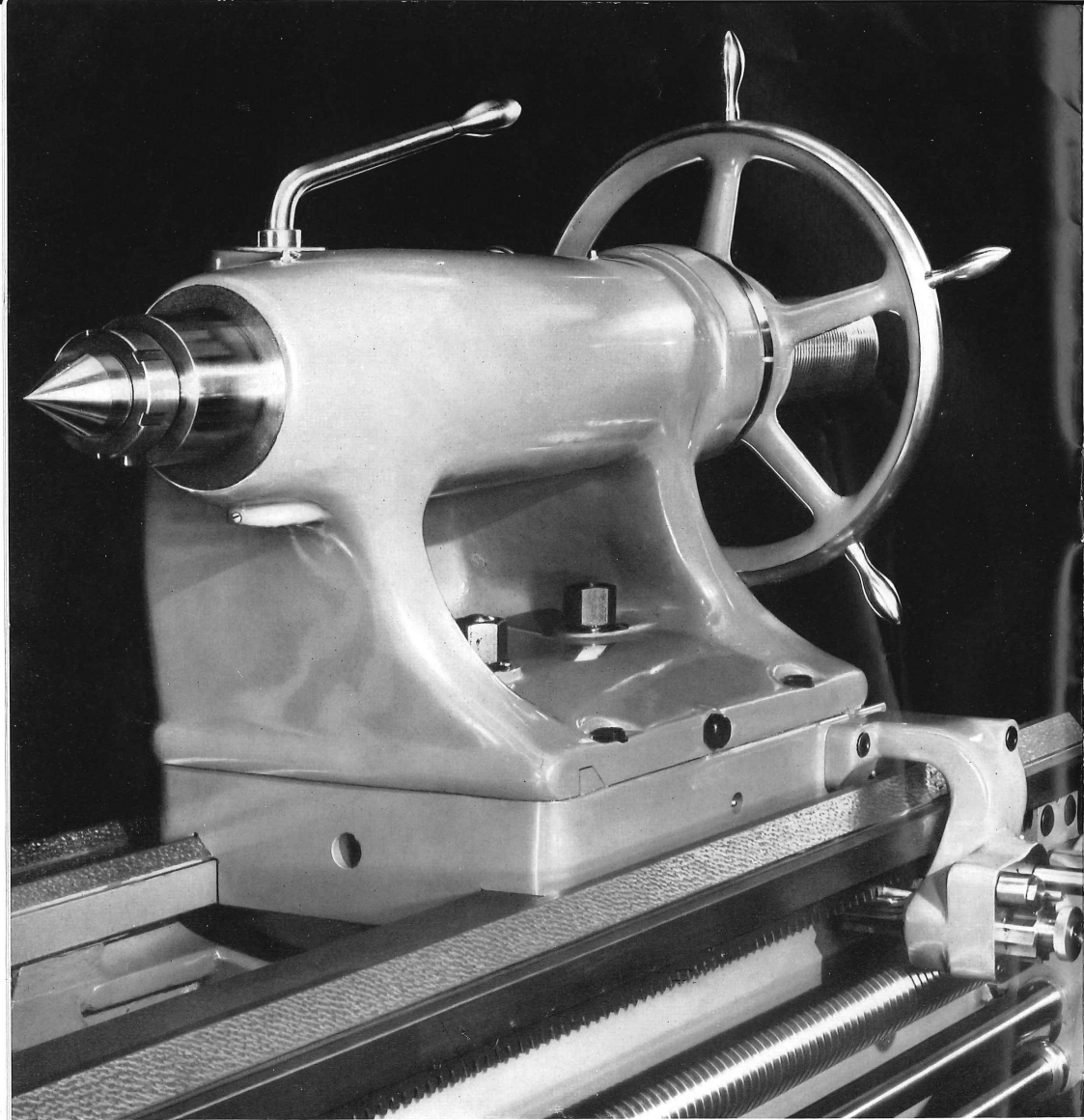


The feed gearbox drives alternately the leadscrew or feed shaft. The drive is derived from the headstock through reversing gears, and transmitted to the feed gearbox through change gears. The reversing gear train is used for reversing the leadscrew when cutting right or left-hand threads.

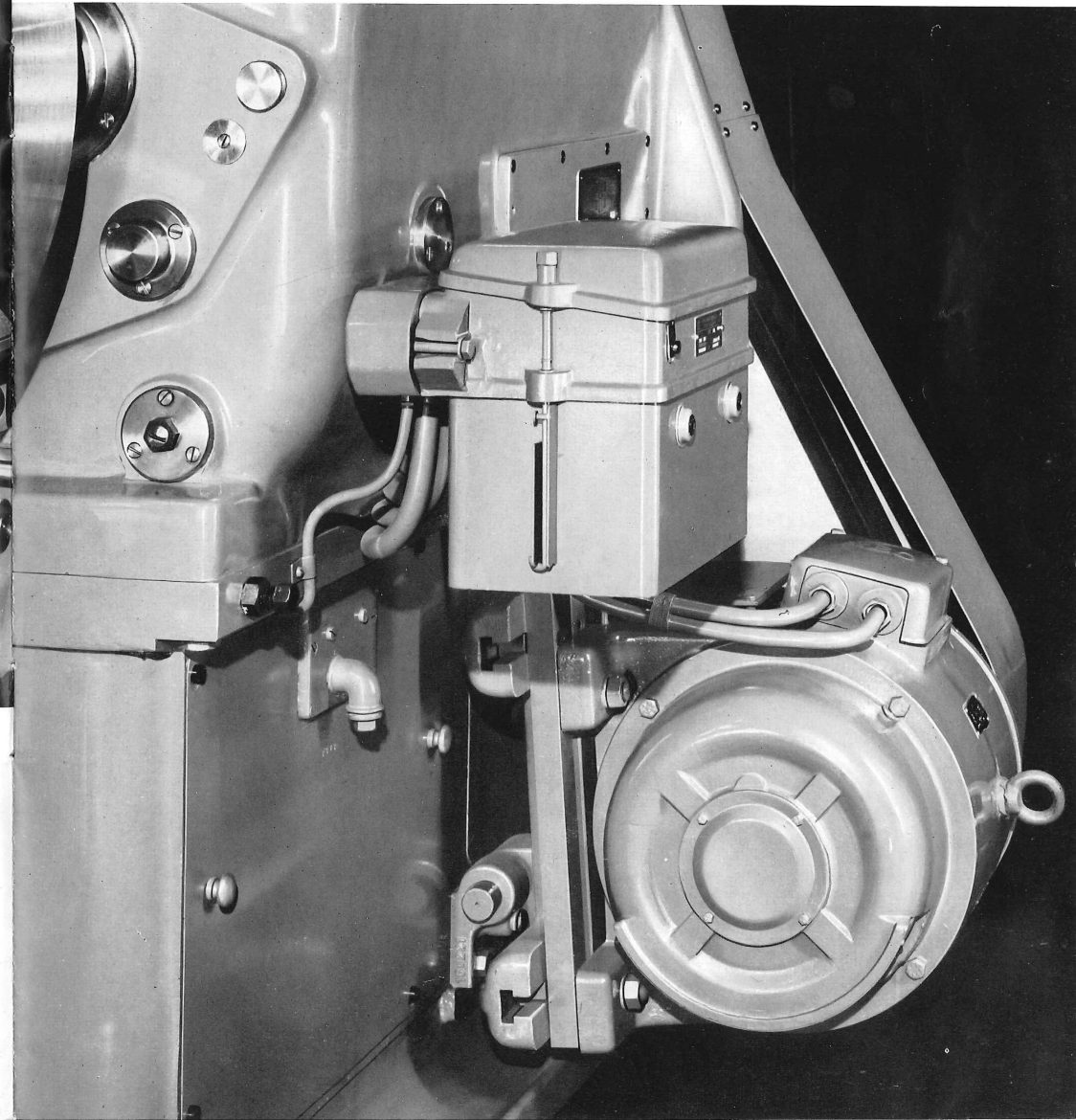
The leadscrew normally has a pitch of 12 mm and can, on request and without extra charge, also be delivered with $\frac{1}{2}$ inch. The bed rests on sturdy, cast-on legs. Substantial shears and diagonal ribbing prevent distortion of the bed, even when taking heavy roughing cuts.

The headstock base extends well forward to give the highly stressed bed section below the faceplate the necessary strength. Efficient swarf disposal is assured by wide openings in the bed and spacious swarf trays located underneath. The feed shaft, leadscrew and remote control shaft are placed underneath the front Vee way for maximum protection. The Vee ways are automatically lubricated from the carriage.

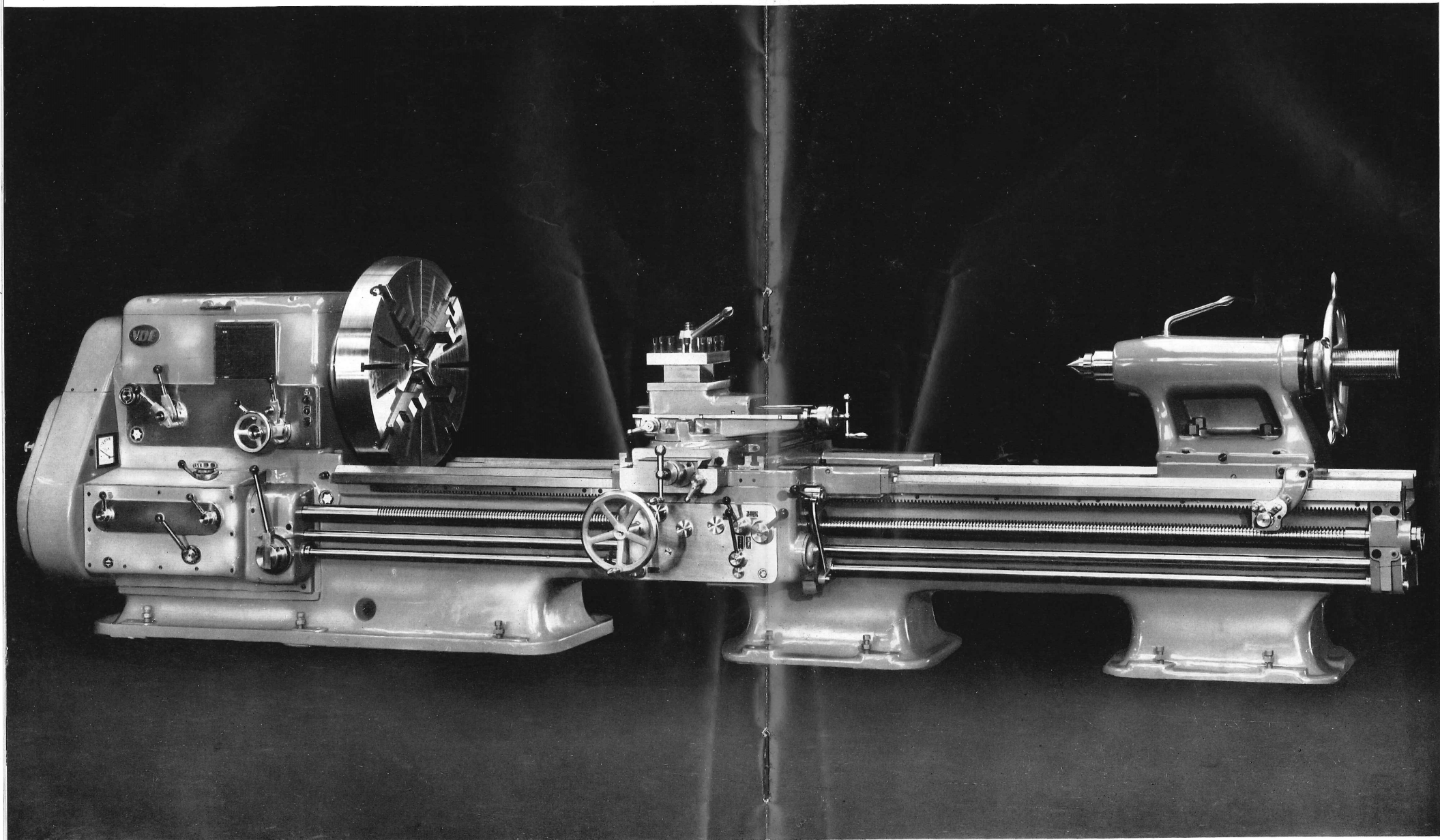




The machine is driven by a foot-mounted motor bolted to a hinged baseplate on the rear of the bed which can be adjusted through a screw for the purpose of tensioning the belt. The belt transmits the drive to the clutch shaft in the headstock. Start and reversal of the machine are controlled by a multiple disc clutch whilst the motor is running. The multiple disc clutch and electric disc brake are operated by fool-proof levers on the headstock and through a remote control shaft on the apron.



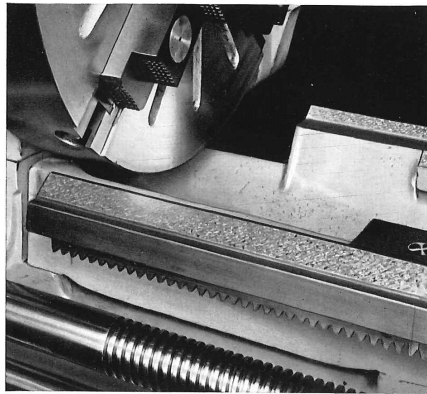
The sturdy tailstock with continuous quill rests on a separate prismatic way on the bed. The top part of the tailstock can be set over for accurate alignment with the transverse Vee guide. The tailstock can be moved manually along the bed by means of the crank handle on the front which turns a pinion engaging a rack. A locking pawl is provided to prevent the possibility of the tailstock backing away when machining heavy workpieces.



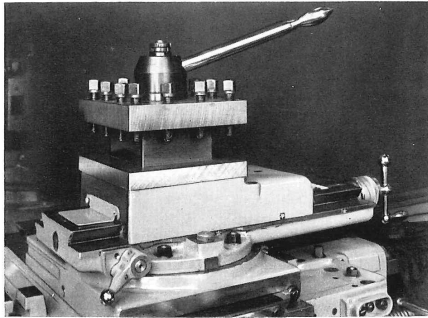
The long prismatic guideways of the carriage ensure smooth travel on the bed, even at heavy loads. Wipers on the ends of the guideways prevent the ingress of foreign matter between the carriage and bedways. All carriage slides are accurately guided in wide prismatic guideways with adjustable taper gibs. Dials on the traverse screws facilitate accurate setting of the tools. The top slide is normally equipped with a plain toolpost.

The apron with reversing gear train enables the reversal of the feed for the longitudinal and cross traverse of the top and bottom slide. The feed is engaged and disengaged through a drop worm. All moving parts and journals are automatically lubricated by a built-in pump.

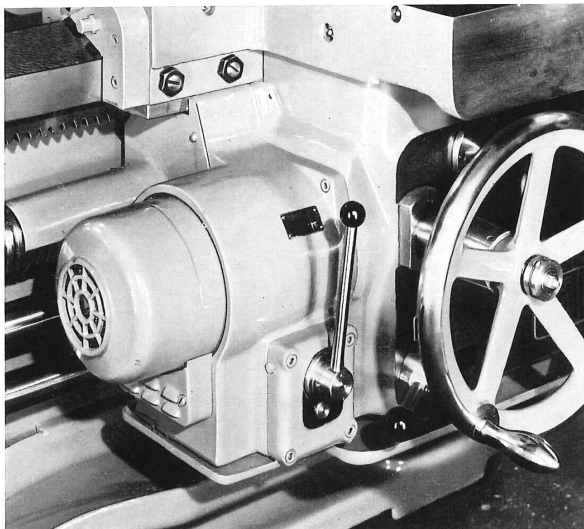
Model W 35



Gap bed and gap piece



4-way toolpost in place of plain toolpost. Power feed to top slide for taper turning, 300 mm = 12" traverse motion



Rapid traverse for carriage

EXTRA EQUIPMENT

(at extra charge)

Screw-cutting indicator

Multi-start thread cutting mechanism

Top slide with power feed for taper turning for 300 mm = 12" max. traverse motion

Double carriage with separate cross slides, plain toolposts front and rear (not possible with coping attachment)

Complete second carriage on separate saddle with apron

Taper turning attachment for 600 mm = 23 3/4" taper length on carriage

or

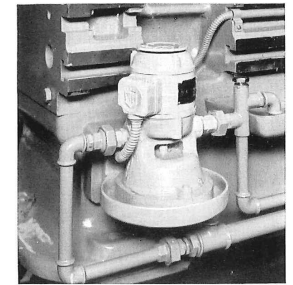
Taper turning attachment for 1000 mm = 39" taper length on bed platform

Follow steady rest

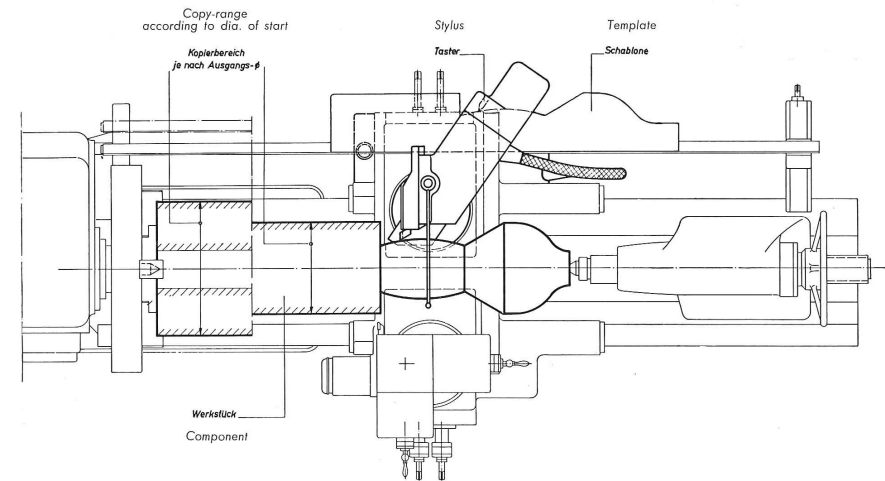
Hand-operated chucks 400 mm = 15 3/4" dia.

Spindle speed indicator

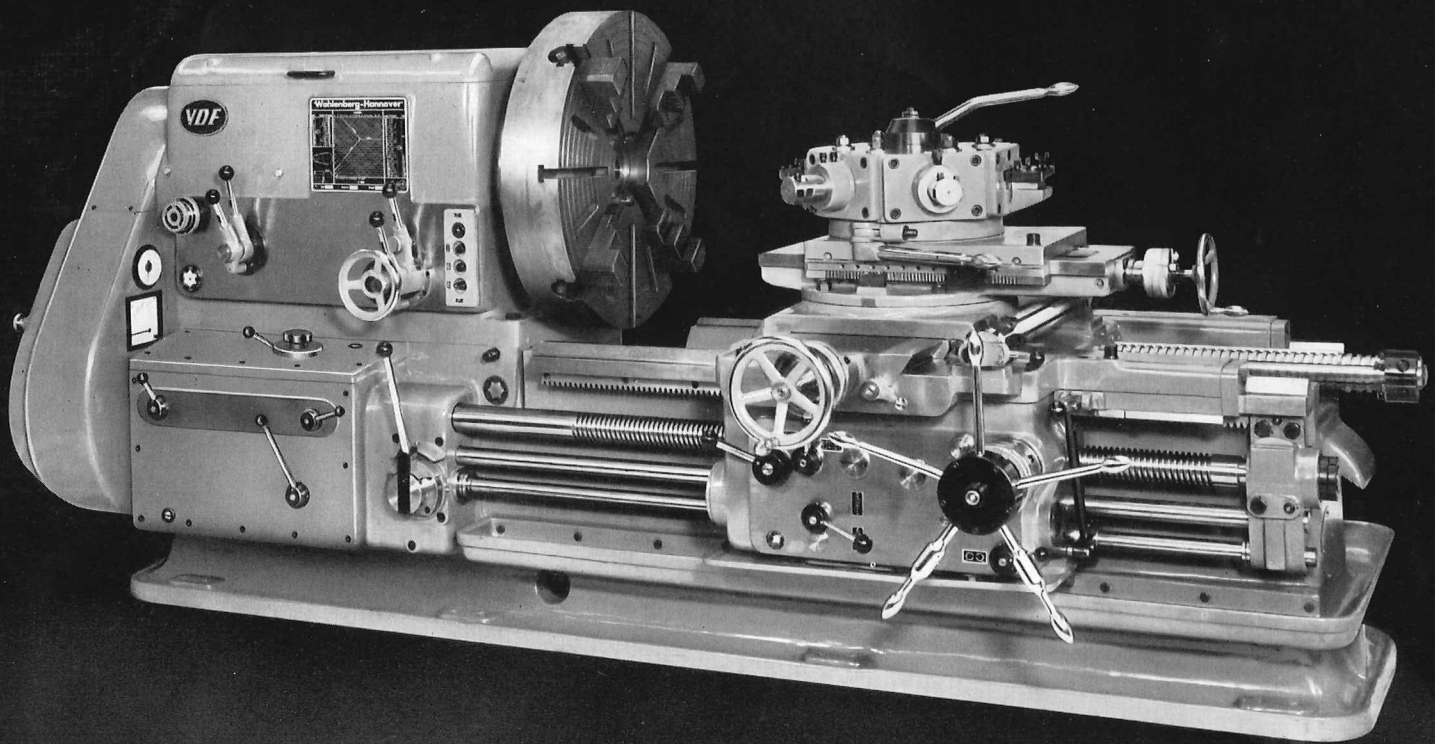
HYDROCOP hydraulic copying attachment for 3000 mm = 118" max. copying



Wet turning equipment with electric coolant pump



The hydraulic copying attachment HYDROCOP is not just a simple extra equipment and due to its integral installation it can be delivered only together with the lathe and already mounted. The maximum copying length is 118". For lathes with greater centre distances, it is possible to use the copying equipment at any place over the entire turning length. Due to this the whole hydraulic unit is installed at the carriage.



W 40 R · W 45 R

The VDF lathes and boring mills W 40 R and W 45 R have been developed from the standard lathe models W 40 and W 45. These machines represent a special type and serve for the rational machining of large and bulky workpieces.

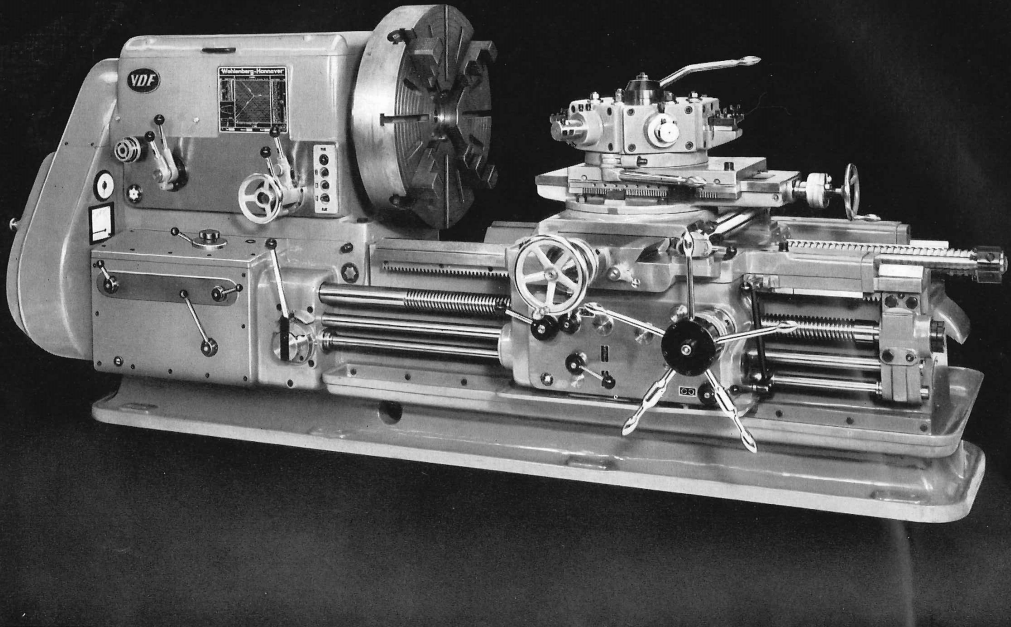
The models W 40 R and W 45 R are equipped with the W headstock. Of the available 36 speeds 24 are transmitted, for the roughing series 1.8–355 r. p. m., by gears to the work spindle mounted on sliding bearings, whereas the transmission of the 12 speeds of the finishing series, 31.5–400 r. p. m., is effected elastically via an endless belt.

The feed box makes possible the engagement of 24 feeds of the order $0.265-3.75 \text{ mm/rev.} = 0.0104"-0.147"/\text{rev.}$ for the longitudinal movement, and $0.09-1.25 \text{ mm/rev.} = 0.0035"-0.05"/\text{rev.}$ for the transverse movement. These values can be reduced to $\frac{1}{10}$ by means of the fine-feed transmission in the headstock.

The bed rests box-shaped along its entire length and, by means of sturdy side walls and diagonal ribs, is given great rigidity. The saddle, besides being mechanically movable, can also be manipulated by hand by means of a throw-out handwheel arranged on the apron. Large spacing rings serve for accurate adjustment.

The top slide is designed as a standard four-way tool holder in order to enable several working operations to be carried out in one setup. On request, provision could also be made for a six-way turret head. In this case the six-way turret head is swivelled by hand into the working position and secured to the swivel by means of an additional clamp. Two stop rolls, each with six stops for the longitudinal and transverse movements, are engaged together into the position assigned to the turret head.

The drive is actuated by a standard motor mounted on a swivable clamping plate at the rear of the bed, and drives via Vee belts the first shaft in the headstock.



W 40 R · W 45 R

The VDF lathes and boring mills W 40 R and W 45 R have been developed from the standard lathe models W 40 and W 45. These machines represent a special type and serve for the rational machining of large and bulky workpieces.

The models W 40 R and W 45 R are equipped with the W headstock. Of the available 36 speeds 24 are transmitted, for the roughing series 1.8–355 r.p.m., by gears to the work spindle mounted on sliding bearings, whereas the transmission of the 12 speeds of the finishing series, 31.5–400 r.p.m., is effected elastically via an endless belt.

The feed box makes possible the engagement of 24 feeds of the order 0.265–3.75 mm/rev. = 0.0104"–0.147"/rev. for the longitudinal movement, and 0.09–1.25 mm/rev. = 0.0035"–0.05"/rev. for the transverse movement. These values can be reduced to 1/10 by means of the fine-feed transmission in the headstock.

The bed rests box-shaped along its entire length and, by means of sturdy side walls and diagonal ribs, is given great rigidity. The saddle, besides being mechanically movable, can also be manipulated by hand by means of a throw-out handwheel arranged on the apron. Large spacing rings serve for accurate adjustment.

The top slide is designed as a standard four-way tool holder in order to enable several working operations to be carried out in one setup. On request, provision could also be made for a six-way turret head. In this case the six-way turret head is swivelled by hand into the working position and secured to the swivel by means of an additional clamp. Two stop rolls, each with six stops for the longitudinal and transverse movements, are engaged together into the position assigned to the turret head.

The drive is actuated by a standard motor mounted on a swivable clamping plate at the rear of the bed, and drives via Vee belts the first shaft in the headstock.

Capacities and Dimensions of **VDF** Turning and Boring Lathes W 40 R and W 45 R

Specifications:	Type	W 40 R	W 45 R	Weight without electrical equipment W 40 R 9000 kg = 19,800 lbs. W 45 R 9200 kg = 20,250 lbs. Weight of electrical equipment approx. 400 kg = 880 lbs.	Floor space required W 40 R and W 45 R 4900 × 1775 mm = 193 × 70 in.
Heigh of centres					
over flat ways	mm	430	480		
	in.	17	19		
over vees	mm	400	450		
	in.	15 ³ / ₄	17 ³ / ₄		
Swing					
over bed	mm	870	970		
	in.	34 ¹ / ₂	38 ¹ / ₄		
over carriage	mm	580	680		
	in.	22 ⁷ / ₈	26 ⁷ / ₈		
Diameter of faceplate					
	mm	900	900		
	in.	35 ¹ / ₂	35 ¹ / ₂		
Gap bed and bridge (at extra cost)					
Maximum dia. turned in gap	mm	1160	1260		
	in.	45 ¹¹ / ₁₆	49 ⁵ / ₈		
Gap width in front of faceplate	mm	450	450		
	in.	17 ³ / ₄	17 ³ / ₄		
Width of bed					
	mm	630			
	in.	24 ⁹ / ₁₆			
Length of bed	mm	3400			
	in.	134			
Main spindle (sliding bearings)					
Hole through spindle	mm	80			
	in.	3.15			
Diameter of spindle in front bearing	mm	175			
(sliding bearing)	in.	6 ⁷ / ₈			
Hexagon turret (at extra cost)					
Max. distance between faceplate and face of turret	mm	1050			
	in.	41 ³ / ₈			
Diameter of turret across flats	mm	400			
	in.	15 ³ / ₄			
Diameter of tool holes in turret	mm	80			
	in.	3.15			
Spindle speeds					
	Number	36			
24 in the roughing range	r.p.m.	1.8–355			
12 in the finishing range	r.p.m.	31.5–400			
Horsepower required, appr. HP/kW					
		20/14			
Maximum permissible workpiece-weight					
	kg	800			
	lbs.	1760			
	(centre of gravity 250 mm = 10 in. from faceplate)				
Feeds					
24 longitudinal feeds per revolution	mm	0.265–3.75			
	in.	0.0104–0.147			
24 cross feeds per revolution	mm	0.09–1.25			
	in.	0.0035–0.05			
Fine feeds					
One-tenth of longitudinal and cross feeds					
Thread cutting (at extra cost)					
Number of Whitworth screw and pipe threads		70			
Range	t.p.i.	1 ¹ / ₈ –28			
Number of metric threads		69			
Range	mm	1–224			
Number of module threads		56			
Range		0.25–56			
Number of DP threads		77			
Range	DP	0.5–112			
STANDARD EQUIPMENT:					
1 Set of 3 change gears					
1 Cast iron faceplate with 4 hardened reversible jaws carried in T-slots					
1 Boring bar sleeve in headstock spindle, bored 60 mm = 2 ³ / ₈ in.					
8 Levelling jacks					
1 ammeter					
1 longitudinal stop					
1 transverse stop					
1 set of wrenches					
1 index plate for speeds					
1 index plate for (thread-cutting and) feeds (): if thread cutting equipm. is ordered					
1 operator's handbook					
EXTRA EQUIPMENT: (at extra cost)					
Hexagon turret head instead of standard four-way toolpost, without cross slide, but with two six-way stop rolls, each for longitudinal and cross movements (turning diameter over carriage then only 550 mm = 21 ¹¹ / ₁₆ in. with W 40 R and 580 mm = 22 ⁷ / ₈ in. with W 45 R)					
Power feed for taper turning for a. m. hexagon turret head for 200 mm = 8 in. max. travel					
1 Standard set of tooling for a. m. hexagon turret head, comprising:					
1 Toolholder with No. 6 M. T. socket					
1 Boring bar without support, 60 mm = 2 ³ / ₈ in. dia. x 400 mm = 15 ³ / ₄ in. long					
1 Boring bar with support, 60 mm = 2 ³ / ₈ in. dia. x 800 mm = 31 ¹ / ₂ in. long					
1 Cutter bar, tang at each end					
3 Toolholders with 60 mm = 2 ³ / ₈ in. bore					
1 Toolholder for one tool					
1 Toolholder for three tools					
Gap bed and bridge					
Wet turning attachment with electric coolant pump					
Cast steel faceplate (in place of standard faceplate)					
Hand-operated 400 mm = 15 ³ / ₄ in. dia. chuck complete with back-plate					
Rapid power traverse for carriage					
Increased spindle speeds 50–630 r.p.m. (Dia. of spindle in front bearing then only 170 mm = 6 ¹¹ / ₁₆ in. Roller bearing instead of standard sliding bearing.)					
Taper turning attachment for 600 mm = 23 ⁵ / ₈ in. taper length (the turning diameter over the carriage is then reduced by 30 mm = 1 ¹ / ₂ in.)					
Power feed to top slide for standard four-way toolpost either for taper turning only or for taper turning and screw cutting up to 300 mm = 12 in. travel					
Screw-cutting through leadscrew with 12 mm or 1/2 in. pitch					
Thread-dial indicator					
Multi-start thread cutting mechanism					
Spindle speed indicator					
Machine Lamp					
Further extra equipment on request					

Capacities and Dimensions of Hollow Spindle Lathes Model R 210, R 260, R 310, R 360

Specifications: Type	R 210	R 260	R 310	R 360
Height of centres				
over flat ways mm	425	430	480	480
in.	16 ⁵ / ₁₆	17	19	19
over vees mm	400	400	450	450
in.	15 ³ / ₄	15 ³ / ₄	17 ³ / ₄	17 ³ / ₄
Swing				
Swing over bed mm	850	870	970	970
in.	33 ¹ / ₂	34 ¹ / ₂	38 ¹ / ₄	38 ¹ / ₄
Swing over carriage mm	610	580	680	680
in.	24	22 ⁷ / ₈	26 ⁷ / ₈	26 ⁷ / ₈
Swing over carriage with taper turning attachment*) mm	550	550	650	650
in.	21 ¹¹ / ₁₆	21 ¹¹ / ₁₆	25 ⁵ / ₈	25 ⁵ / ₈
Gap bed and bridge (at extra cost)				
Maximum dia. turned in gap mm	1160	1160	1260	1260
in.	45 ¹¹ / ₁₆	45 ¹¹ / ₁₆	49 ⁵ / ₈	49 ⁵ / ₈
Gap width in front of 4-jaw chuck mm	450	450	450	450
in.	17 ³ / ₄	17 ³ / ₄	17 ³ / ₄	17 ³ / ₄
Width of bed				
mm	560	630	630	630
in.	22	24 ³ / ₄	24 ³ / ₄	24 ³ / ₄
Length of bed: centre distance plus mm	2200	2400	2400	2400
in.	86 ⁵ / ₈	94 ¹ / ₂	94 ¹ / ₂	94 ¹ / ₂
Main spindle				
Hole through spindle mm	210	260	310	360
in.	8 ¹ / ₂	10 ¹ / ₂	12 ¹ / ₂	14 ¹ / ₂
Dia. of spindle in front bearing mm	300	340	420	460
in.	11 ¹³ / ₁₆	13 ³ / ₈	15 ³ / ₄	16 ¹¹ / ₁₆
Spindle speeds				
24 speeds r.p.m.		1,8-355		
Horsepower required appr. HP/kW				
	19/14		30/22	
Tailstock				
Diameter of tailstock quill mm	105		120	
in.	4 ¹ / ₈		4 ³ / ₈	
Morse taper No.	6		6	
Max. perm. workpiece-weight				
between centres without steady appr. kg	3500		4000	
lbs.	7700		8000	
between centres with 1 steady appr. kg	4500		5000	
lbs.	9900		11000	
between centres with 2 steadies appr. kg	5600		6300	
lbs.	12300		13000	
Feeds				
24 longitudinal feeds per revolution mm		0,265 - 3,75		
in.		0,0104 - 0,147		
24 cross feeds per revolution mm		0,09 - 1,25		
in.		0,0035 - 0,05		
Fine feeds				
One fourth of longitudinal and cross feeds mm				
Max. torque mkg				
ft. lbs.	1000	1250		
	7225	9025		
Floor space required				
Width mm	1775	1775		
in.	70	70		
Length: centre distance plus mm	3550		3725	
in.	140		146 ³ / ₄	
Thread cutting				
Number of Whitworth screw and pipe threads		70		
Range t.p.i.		1/8 - 28		
Number of metric threads		69		
Range mm		1 - 224		
Number of module threads		56		
Range		0,25 - 56		
Number of DP threads		77		
Range DP		0,5 - 112		

Centre distances same as with W 35 - W 45 V on page 3

According to the selection of the Extra Equipment in the margin, our Hollow Spindle Lathes can also be equipped as

Tube turning lathes

such as are needed with preference in the petroleum industry field works.

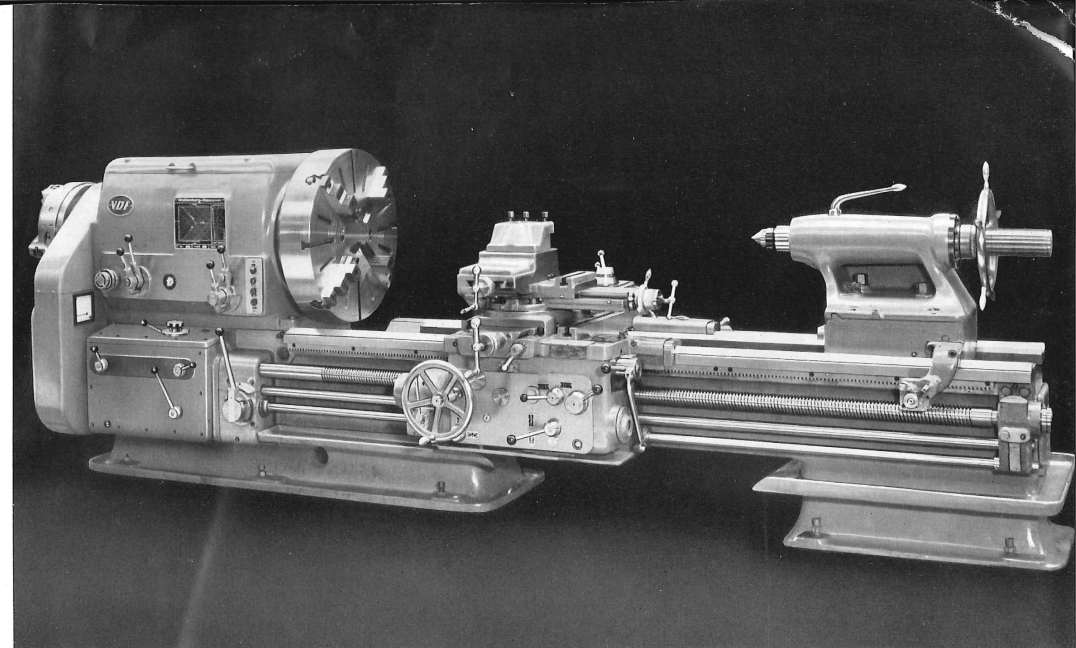
*) If ordered with Tube Turning Lathes, the swing over carriage is reduced by further 50 mm = 2 in.

Standard equipment:

- a) with the models R 210, R 260, R 310 and R 360:
- 1 set of five change gears
 - 1 stationary steady, 50-315 mm = 2-12³/₃₂ in. capacity with model R 210 and 70-450 mm = 2³/₄ - 17³/₄ in. capacity with the models R 260, R 310 and R 360 (two steadies supplied with machines of 6000 mm = 236 in. centre distance and over.
 - 2 dead centres, 60° nose angle, morse taper No. 6
 - Leadscrew and feed rod support bearings (quantity according to centre distance)
 - Various levelling jacks (quantity according to centre distance)
 - 1 ammeter
 - 1 longitudinal stop
 - 1 transverse stop
 - 1 set of wrenches
 - 1 index plate for speeds
 - 1 index plate for thread-cutting and feed
 - 1 operator's handbook
- b) Further with the models R 260, R 310 and R 360 except R 210:
- Rapid power traverse of carriage on lathes with centre distances exceeding 4000 mm = 157¹/₂ in.
 - 1 interchangeable live centre, 60° nose angle, morse taper No. 6, with quill support

Extra equipment: (at extra cost)

- Gap bed and bridge
- Wet turning equipment with electric coolant pump
- Thread dial indicator
- Multi-start thread cutting mechanism
- Four-way tool post instead of plain tool post
- Power feed to top slide with 300 mm = 12 in. traverse for taper turning only or for taper turning and screw cutting
- Rapid traverse of carriage up to 3500 mm = 138 in. centre distances with models R 260, R 310 and R 360 and all centre distances with model R 210
- Taper turning attachment for tapers up to 600 mm = 23³/₈ in. long with extended cross slide (mounted on carriage)
- Taper turning attachment for tapers up to 1000 mm = 39³/₈ in. and over (mounted on pedestal on rear of bed)
- HYDROCOP hydraulic copying attachment (details on request)
- Drilling tailstock instead of standard tailstock for a drilling depth up to 630 mm = 24³/₈ in.
- Interchangeable live centre with model R 210
- Four-jaw chuck with self-centering and independent jaws on hollow spindle nose
- 630 mm = 25 in. dia. with model R 210
- 800 mm = 31¹/₂ in. dia. with model R 260
- 900 mm = 35³/₈ in. dia. with models R 310 and R 360
- Three-jaw chuck with self centering jaws only on rear end of hollow spindle
- 500 mm = 20 in. dia. with model R 210
- 630 mm = 25 in. dia. with model R 260
- 800 mm = 31¹/₂ in. dia. with models R 310 and R 360
- Cast iron faceplate with hardened reversible jaws carried in T-slots
- 800 mm = 31¹/₂ in. dia. with model R 210
- 900 mm = 35³/₈ in. dia. with models R 260, R 310 and R 360
- Driving plate with interchangeable dead centre
- Spindle speed indicator
- Travelling steady
- 50-250 mm = 2-9¹³/₁₆ in. capacity with R 210 and R 260
- 50-315 mm = 2-12³/₈ in. capacity with R 310 and R 360
- Roller jaws for stationary steady
- Machine lamp
- Tube centres for tailstock
- Stationary steadies outside the machine on special pedestal
- Ground change gears instead of normal change gears
- Additional ground change gears for direct screw cutting, using the leadscrew exclusive of the feed gear box for threads with 4, 5, 6, 8, 10, 11, 11¹/₂ and 13 t.p.i.



Hollow Spindle and Tube Turning Lathes Model R 210 · R 260 · R 310 · R 360

The design and construction of the hollow spindle lathe have been adapted to the requirements of production plants for particularly long workpieces which do not need machining over their entire length in one chucking.

The headstock has 24 work-spindle speeds from n = 1,8 to 355 r.p.m., which can be engaged mechanically. All speeds are transmitted via a spiral toothed work-spindle gear to the work spindle. The latter is designed as a hollow spindle and is journaled in a high-load and highly-accurate twin cylindrical roller bearing. The spindle nose carries a face plate with clamps disposed in T-slots. On request, the work spindle can also be equipped with a four-jaw hand-operated chuck at the front of the spindle end, and a three-jaw hand-operated chuck at the rear end.

The bed, the gear box, saddle and tailstock, as well as the drive correspond in design to the VDF standard lathes, models W 35 - W 45, with the exception of the feed values which can be reduced by means of the fine-feed transmission in the headstock to 1/4 only.

The tube turning lathe has been developed from the hollow spindle lathe. These machines satisfy the requirement of the mineral-oil industry and are chiefly used in production plants for borehole tubes, drill stems, bore rods and similar workpieces, as well as being in use in workshops on oil fields for all kinds of repair jobs.

Similar in design to the hollow spindle lathe, the tube lathe meets the particularly exacting requirements with regard to accuracy, such as, e. g., in the case of pipe threads.

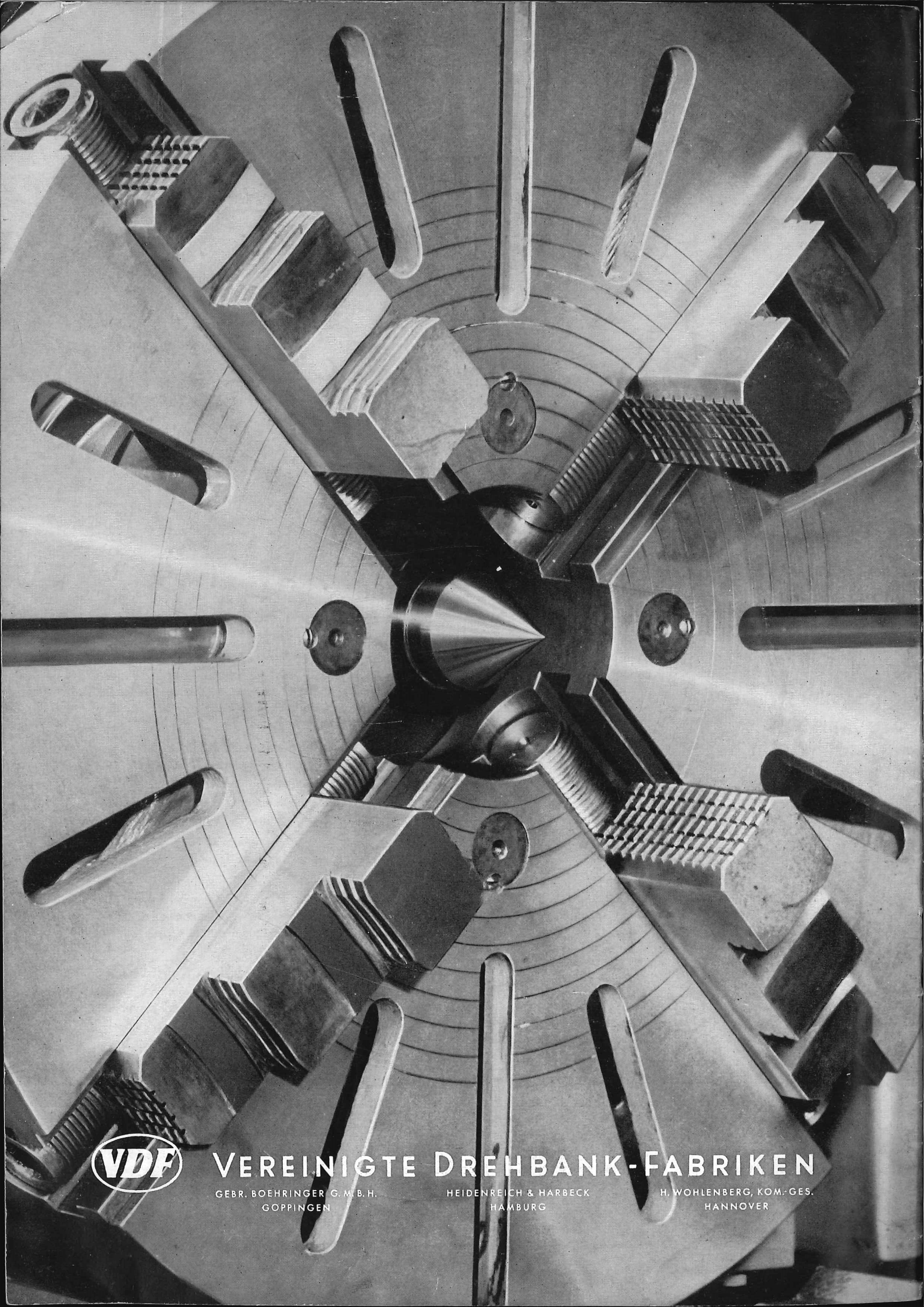
For the use of the machine as a tube turning lathe, we suggest to provide the work spindle of the standard type at the spindle nose with a four-jaw hand-operated chuck and the opposite end with a three-jaw hand-operated chuck. In this way a satisfactory chucking of long workpieces is ensured. Particularly long workpieces are then supported in the axis of the work spindle, on the left of the headstock, by special fixed stays.

On special demand, all feed gears in the headstock and gear box can be ground and produced with the highest factor of accuracy.

The top slide is provided with a plain tool post and can, on request at extra charge, be delivered with power traverse for taper turning and screw cutting up to a length of 300 mm = 12". The spindle of the top slide can be hardened and ground with the greatest possible accuracy, if so required.

Moreover, it is possible to equip the saddle with a particularly sturdy taper-turning attachment for a taper-turning length of 600 mm = 23³/₈" maximum, so as to machine even tapers with a greatest point angle of 10°.

The screw-cutting attachment makes possible the cutting of 40 different Whitworth threads and 24 metric threads without the need for changing the change gears. For cutting very accurate threads a direct drive of the leadscrew is possible with the help of special ground change gears for 4, 5, 6, 8, 10, 11¹/₂ threads per inch. Taper threads, with a pitch parallel with the axis of the workpiece must be cut with the use of the taper-turning attachment, whereas taper threads with a pitch parallel with the periphery of the taper must be cut, with the saddle in a stationary position, with the help of the power traverse in the top slide.



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