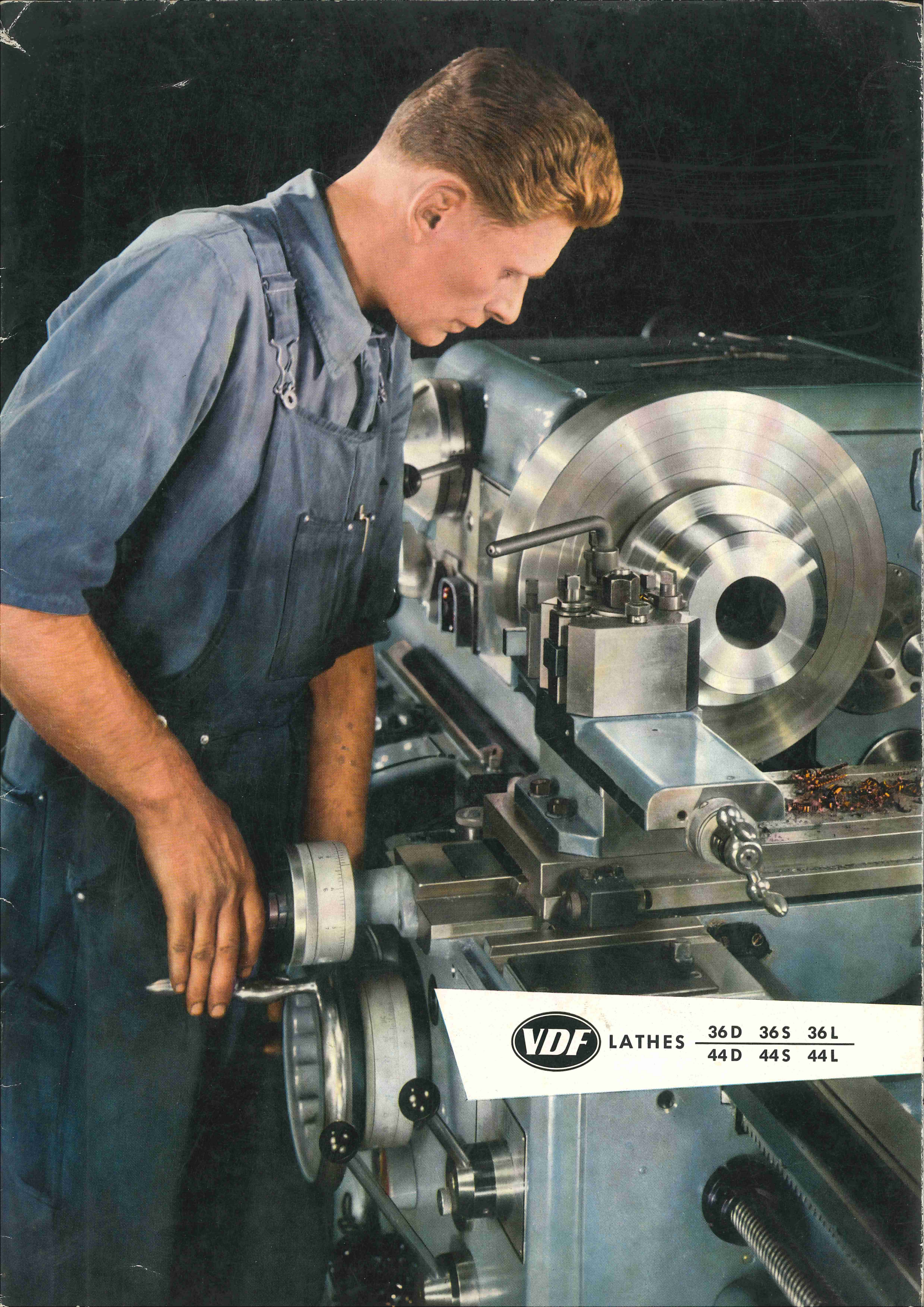


VDF LATHES 36D 36S 36L
44D 44S 44L

Continued development of the VDF lathes has led to the further addition of the two new models 36 and 44 to the existing range. It has been our principal aim to render the operator's task still easier, and to extend the range of application, at the same time retaining the renowned features of VDF lathes.

The wide capacity of the new machines is largely a result of providing different types of spindle drive, i.e., manufacturing each model in three different types.

Type 36-44 D

In case of type D the motor drives the spindle through 18-speed gearing within a ratio of 1 : 50. The spindle speed selected is clearly shown on the dial on the three-lever control. The type D can be delivered with five alternative spindle speed ranges to suit all operating conditions.

Type 36-44 S

The type S offers a considerably wider range of application.

The spindle drive is extended by an externally arranged belt drive for the direct transmission of the high spindle speeds to the spindle. The 18 gear-driven spindle speeds are thus augmented by 12 belt-driven speeds, providing a total range of 30 spindle speeds within a ratio of 1 : 200. This type of lathe is equally suitable at the lowest spindle speeds for screw-cutting as well as at high cutting speeds for fine finishing. The final direct belt drive to the spindle furthermore assures a high turning finish.

Type 36-44 L

The VDF lathe type L equipped with Boehringer-Sturm oil drive unit is available wherever infinitely variable spindle speeds are required. The spindle speed range to suit the worpiece and material can be rapidly selected by the levers on the headstock. The spindle within the nine ranges covering an overall ratio of 1 : 200 can be infinitely varied from forward through stop to reverse. It is thus possible to perform facing operations at the most suitable cutting speed and efficiency, as well as screw-cutting with greatly accelerated reverse.

The three types of the VDF lathes 36 and 44 are basically identical and protected by several German and foreign patents. Full details are given on the following pages. Our engineers and agents are at all times at your disposal to assist you in the selection of the VDF lathes best suited to your requirements.

VEREINIGTE DREHBANK-FABRIKEN
GEBR. BOEHRINGER G.M.B.H. GÖPPINGEN
HEIDENREICH & HARBECK HAMBURG
H. WOHLENBERG KOM.-GES. HANNOVER

SPECIFICATION OF VDF LATHES

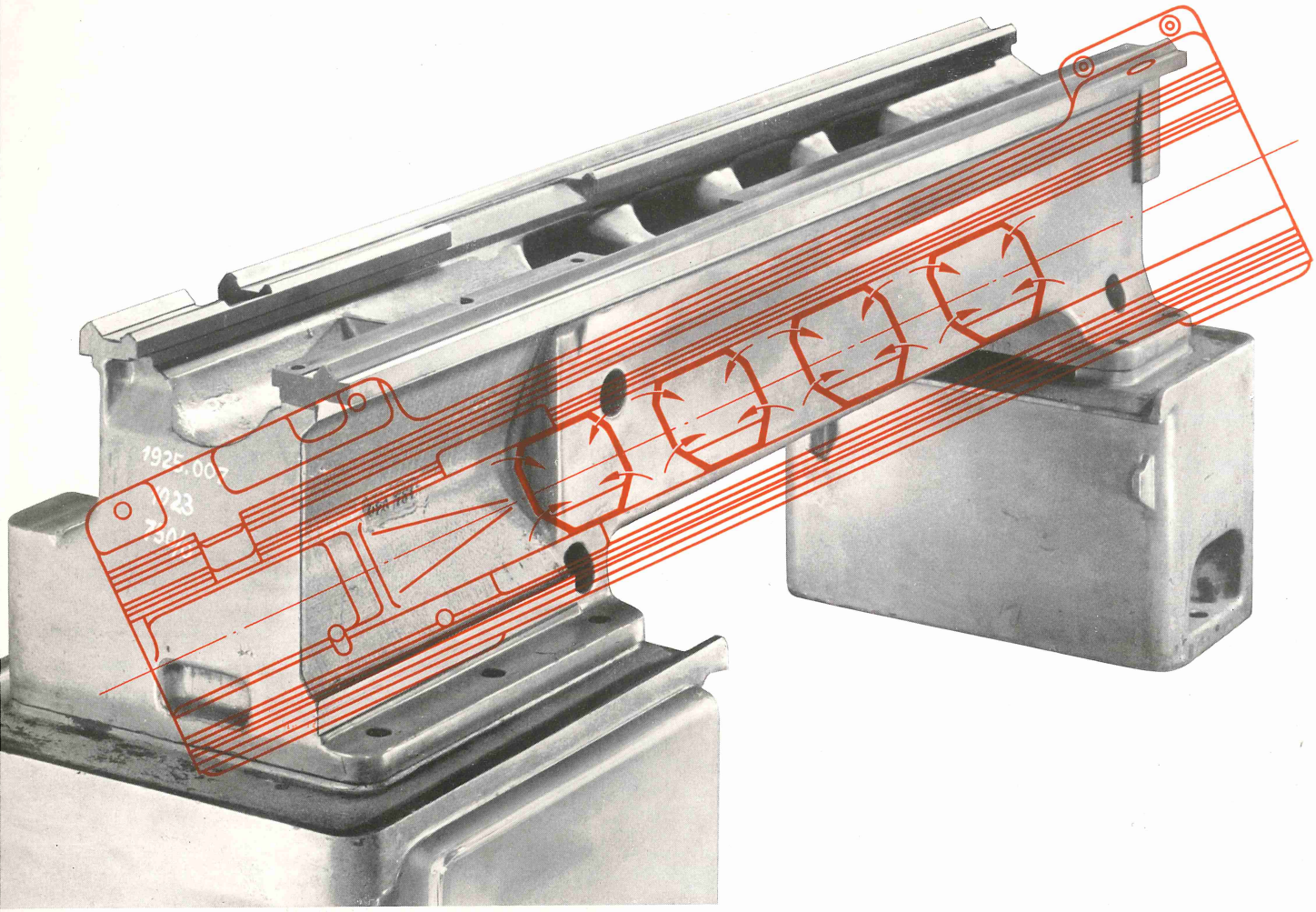
		36 D	44 D	36 S	44 S	36 L	44 L
Height of centres over flat bedway	mm	185	230	185	230	185	230
	inch	7 1/4	9	7 1/4	9	7 1/4	9
Turning diameter over bed	mm	390	460	390	460	390	460
	inch	15 3/8	18	15 3/8	18	15 3/8	18
over carriage	mm	190	280	190	280	190	280
	inch	7 1/2	11	7 1/2	11	7 1/2	11
Faceplate (extra equipment) Diameter, normal	mm	355	400	355	400	355	400
	inch	14	15 3/4	14	15 3/4	14	15 3/4
maximum for gap bed machines	mm	450	560	450	560	450	560
	inch	17 3/4	22	17 3/4	22	17 3/4	22
Gap (extra feature) Turning diameter in gap	mm	560	650	560	650	560	650
	inch	22	25 1/2	22	25 1/2	22	25 1/2
Width of gap in front of faceplate with DIN 55022 spindle nose	mm	190	180	190	180	190	180
	inch	7 1/2	7	7 1/2	7	7 1/2	7
Width of bed	mm	355		355		355	
	inch	14		14		14	
Spindle Spindle nose with locating taper and bayonet mounting to DIN 55022	size	6		6		6	
Spindle bore	mm	52		52		52	
	inch	2		2		2	
Morse taper	No.	6		6		6	
Spindle speeds Type D: 18 speeds through gears normal	r.p.m.	18 ··· 900					
optional alternative	r.p.m.	14 ··· 710					
	r.p.m.	22.4 ··· 1120					
	r.p.m.	28 ··· 1400					
	r.p.m.	35.5 ··· 1800					
Type S: 30 speeds, i.e.	r.p.m.			11.2 ··· 2240			
18 through gears	r.p.m.			11.2 ··· 560			
and 12 through belt	r.p.m.			180 ··· 2240			
Type L with "Sturm" infinitely variable oil drive unit with nine selective starting speeds. Complete speed range	r.p.m.						9 ··· 1800
Power required	kW	5.5 ··· 10		5.5 ··· 10		7.5	
	H.P.	7 1/2 ··· 13 1/2		7 1/2 ··· 13 1/2		10	
Feed range 32 longitudinal feeds, normal per revolution	mm	0.045 ··· 1.6		0.045 ··· 1.6		0.045 ··· 1.6	
	inch	0.00177 ··· 0.063		0.00177 ··· 0.063		0.00177 ··· 0.063	
32 cross feeds, normal per revolution	mm	0.02 ··· 0.71		0.02 ·· 0.71		0.02 ··· 0.71	
	inch	0.0008 ··· 0.028		0.0008 ··· 0.028		0.0008 ··· 0.028	
also within the six upper belt-driven spindle speeds (Type S) 24 longitudinal feeds, fine per revolution	mm			0.0112 ··· 0.4			
	inch			0.00044 ··· 0.016			
24 cross feeds, fine per revolution	mm			0.005 ·· 0.18			
	inch			0.0002 ··· 0.007			
Screw-cutting capacity (without extra change gears) 80 metric leads	mm	0.2 ··· 112		0.2 ··· 112		0.2 ·· 112	
114 Whitworth leads	t.p.i.	140 ··· 1/4		140 ··· 1/4		140 ··· 1/4	
53 module leads	mm	0.05 ··· 28		0.05 ··· 28		0.05 ··· 28	
114 Diametral pitch leads	D.P.	560 ··· 1		560 ·· 1		560 ··· 1	
Pitch of leadscrew	mm	6		6		6	

Floor space and weights

Turning length mm	Turning length inch	Length of bed mm	Length of bed inch	Floor space with flangemounted motor mm	Floor space with flangemounted motor inch	Weight of straight-bed machines**) without electrical equipment 36 D kg	36 D lbs	44 D kg	44 D lbs	36 S kg	36 S lbs	44 S kg	44 S lbs	36 L kg	36 L lbs	44 L kg	44 L lbs
500	19 5/8	1810	71	2300 x 1200*)	91 x 47 1/4*)	1780	3920	1800	3960	1830	4030	1850	4070	2080	4580	2100	4620
750	29 1/2	2060	81	2550 x 1200	100 x 47 1/4	1830	4030	1850	4070	1880	4140	1900	4180	2130	4690	2150	4730
1000	39 3/8	2310	91	2800 x 1200	110 x 47 1/4	1880	4140	1900	4180	1930	4250	1950	4290	2180	4800	2200	4840
1250	49 1/4	2560	101	3050 x 1200	120 x 47 1/4	1980	4360	2000	4400	2030	4470	2050	4510	2280	5020	2300	5060
1500	59	2810	111	3300 x 1200	130 x 47 1/4	2030	4470	2050	4510	2080	4580	2100	4620	2330	5140	2350	5170
2000	78 3/4	3310	130	3800 x 1200	150 x 47 1/4	2130	4690	2150	4730	2180	4800	2200	4840	2430	5350	2450	5390
2500	98 1/2	3810	150	4300 x 1200	170 x 47 1/4	2230	4910	2250	4950	2280	5020	2300	5060	2530	5570	2550	5610
3000	118	4310	170	4800 x 1200	189 x 47 1/4	2380	5240	2400	5280	2430	5350	2450	5390	2680	5900	2700	5940

*) In the case of the type L the floor space is increased to a width of 1450 mm or 57".
**) gap-bed machines with gap piece weigh an extra 40 kg or 88 lbs.

We reserve the right to modify design, dimensions and weights.



The bed for VDF lathes 36 and 44

LATHE BED

The smooth running of a machine tool depends on a variety of factors, the principal one being a lathe bed of adequate rigidity and strength.

Our designers have exercised special care to ensure that the new VDF lathes 36 and 44 embody the most favourable relationship between the width of the bed, the rigid cross ribbing, the high bed shears and the spacious swarf openings. Box-section legs with large base surface assure sturdy support.

The carriage and tailstock slide on separate bed-ways. All guideways are ground. They can also be induction hardened on request.

For turning short workpieces with large diameter the bed can be delivered with a gap which can be closed by a gap piece.

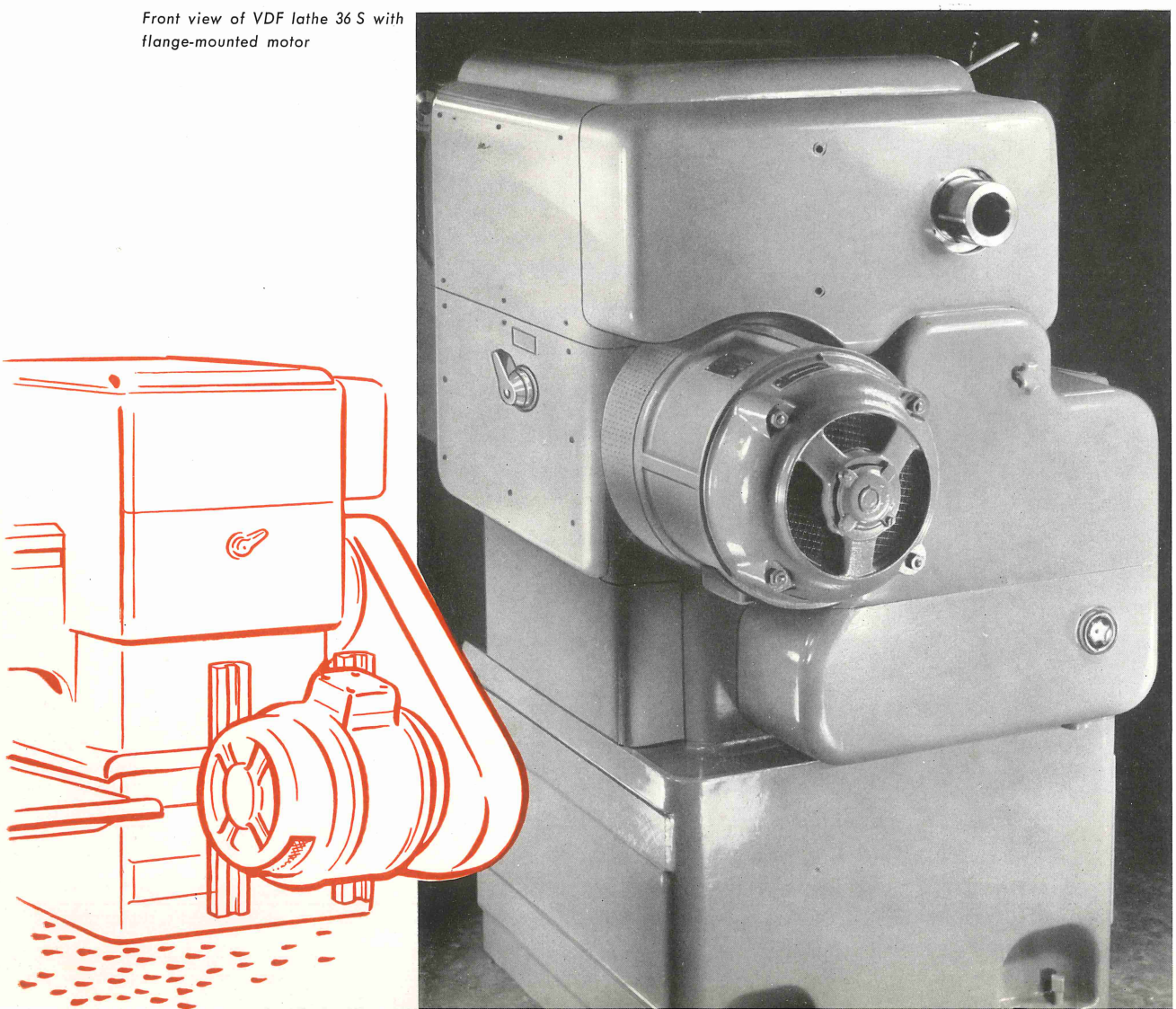
DRIVE

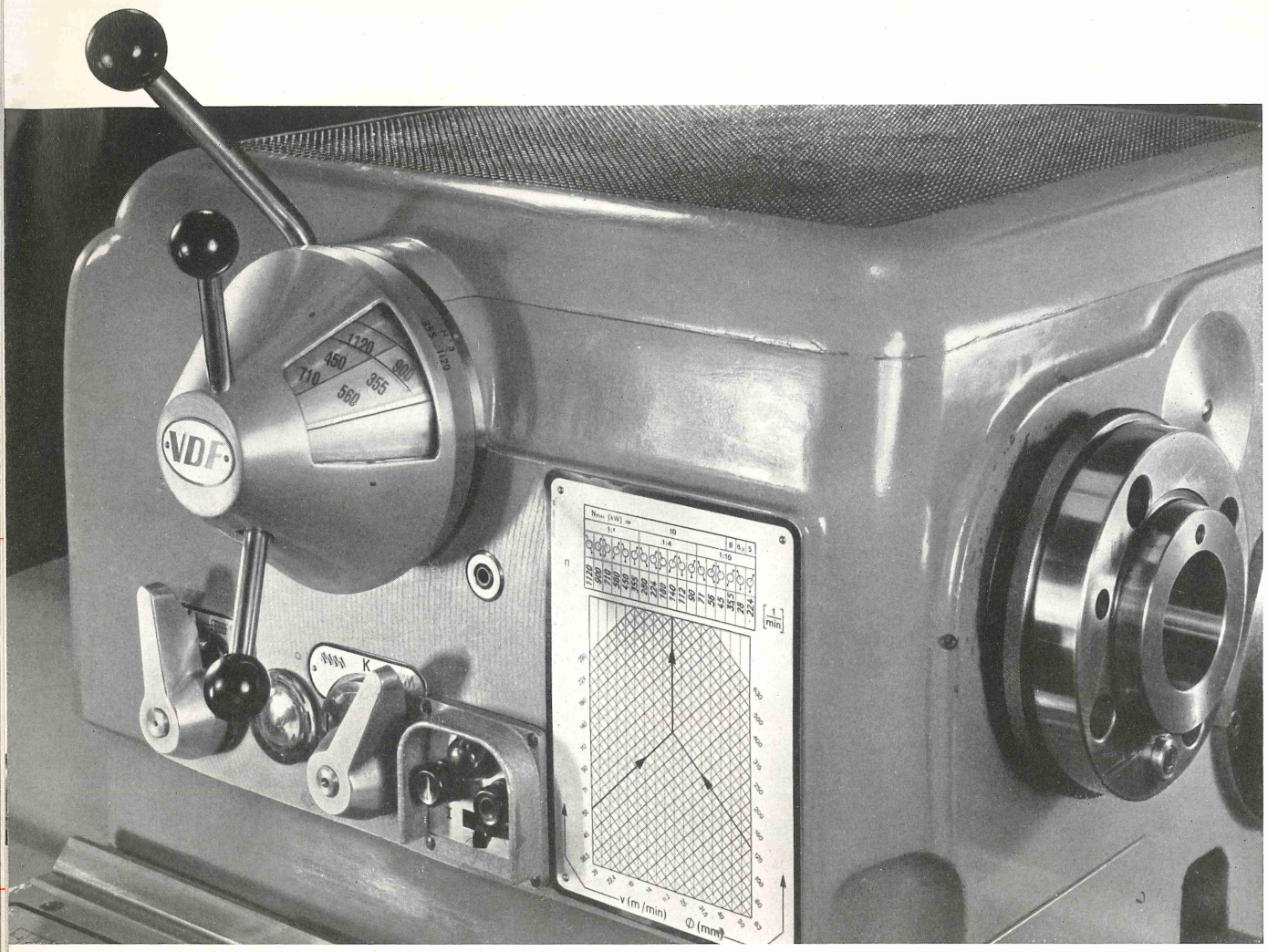
The drive is from a dynamically balanced electric motor running at a constant speed and direction of rotation. A double multiple disc clutch on the drive shaft in the headstock controls start, stop and reverse of the spindle on type D and S. On type L machines these functions are performed by an oil drive unit.

In order to meet the requirements of different operating conditions, the type D and S can be delivered either with a flange-mounted or a foot-mounted motor. The flange-mounted motor is generally preferred.

The rear of the headstock base has two cast-on surfaces for mounting the slide rails for the foot-mounted motor, or for the oil drive unit with flange-mounted motor. A belt drive transmits the input speed to the drive shaft in the headstock at a ratio of 1 : 1.

Front view of VDF lathe 36 S with flange-mounted motor





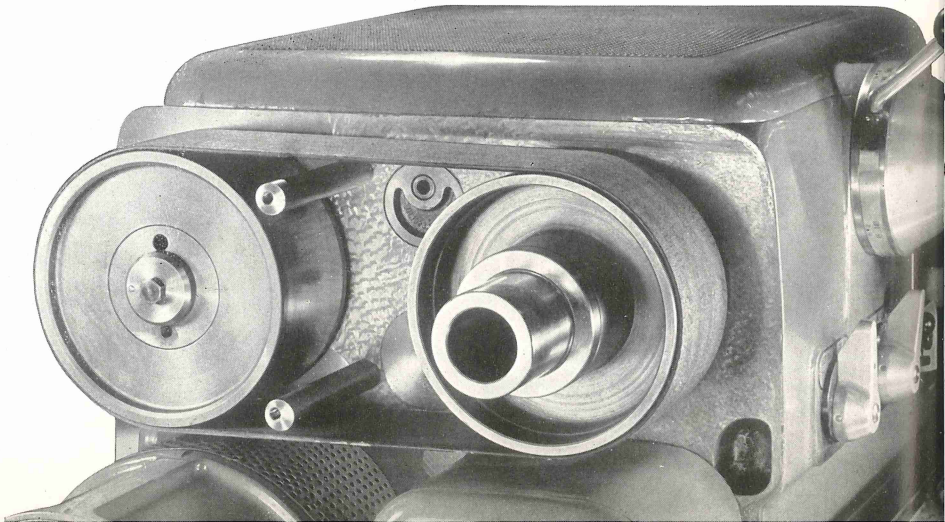
Headstock with three-lever control on VDF lathe 44 D

HEADSTOCK

The headstock is a self-contained unit bolted to the bed. This design has the advantage that headstock, carriage and tailstock can be accurately aligned relative to one another on the bedways.

As the motor always runs in one and the same direction, types D and S feature a double clutch on the drive shaft in the headstock for the reversal of the spindle. The clutch half controlling the reverse motion can be disengaged separately as long as not required. On being disengaged, the spindle is braked electro-magnetically, on type L through the oil drive unit.

The spindle is carried in two anti-friction bearings which can be adjusted to the desired bearing play. The spindle nose has a locating taper and bayonet mounting in conformity with DIN 55022. The spindle can on request also be supplied with Camlock nose.



Belt drive for the upper spindle speed range on a VDF lathe 36 S

All gears are hardened and ground. All moving parts are supplied with oil from a central system. The spindle speeds are directly selected by the three-lever control. The two small levers on the headstock only control the leadscrew and feed shaft drive.

The only difference between the three types D, S and L is in the arrangement of the input and output drive of the spindle. The following are, briefly, the principal characteristics:

36 D and 44 D

18 spindle speeds within a ratio of 1 : 50 are available, exclusively transmitted through gearing. A choice of five alternative speed ranges is available, and should be specified when ordering.

36 S and 44 S

30 spindle speeds within a ratio of 1 : 200 are available, 18 through gearing and 12 through a belt, partly overlapping.

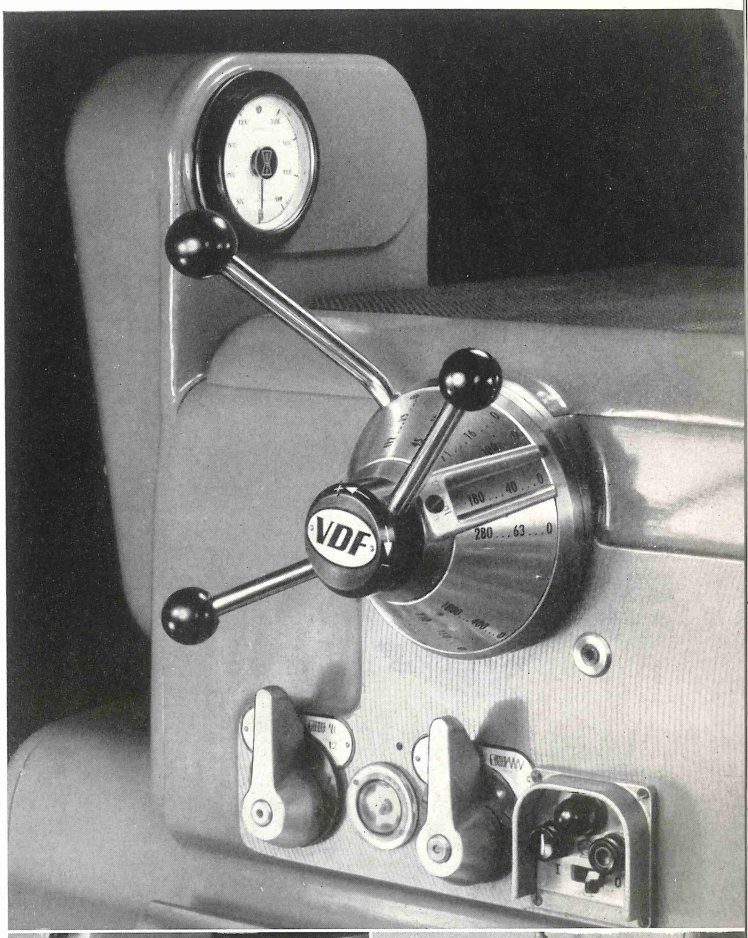
In the upper speed range the spindle is therefore direct driven by an endless belt, ensuring even and smooth transmission.

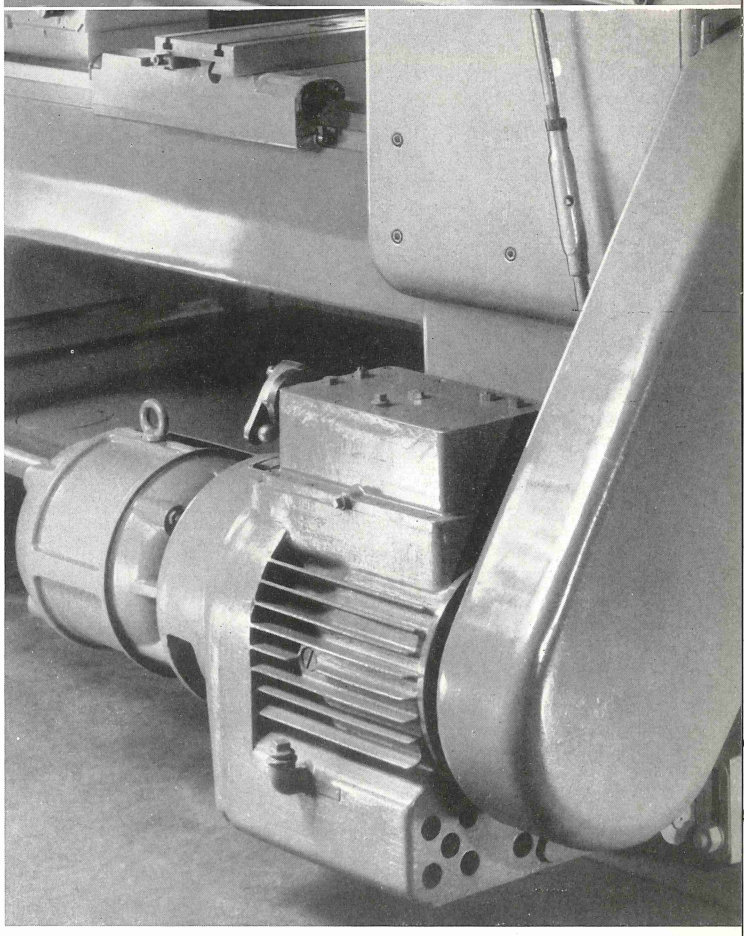
The belt-driven speeds are particularly well suited for fine finishing, as the belt effecting the final drive always retains its flexible and vibration-resisting properties.

36 L and 44 L

A Boehringer-Sturm oil drive unit is provided between the motor and the headstock to permit stepless variation of the spindle speeds. Nine initial spindle speeds can be selected through the simplified headstock gearing. The spindle speeds can then be infinitely varied by means of the hand lever on the headstock and operating lever on the apron, also whilst turning is in progress, i.e., with full output at a ratio of 1 : 5, and beyond this at a constant torque.

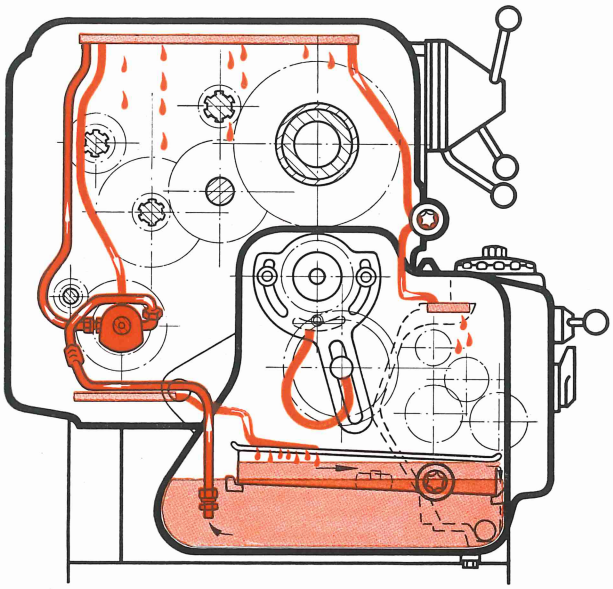
The overall spindle speed ratio is 1 : 200. The spindle speed can be checked at any time on a spindle speed indicator.





Top:
Headstock with three-lever control and spindle speed indicator on a VDF lathe 36 L

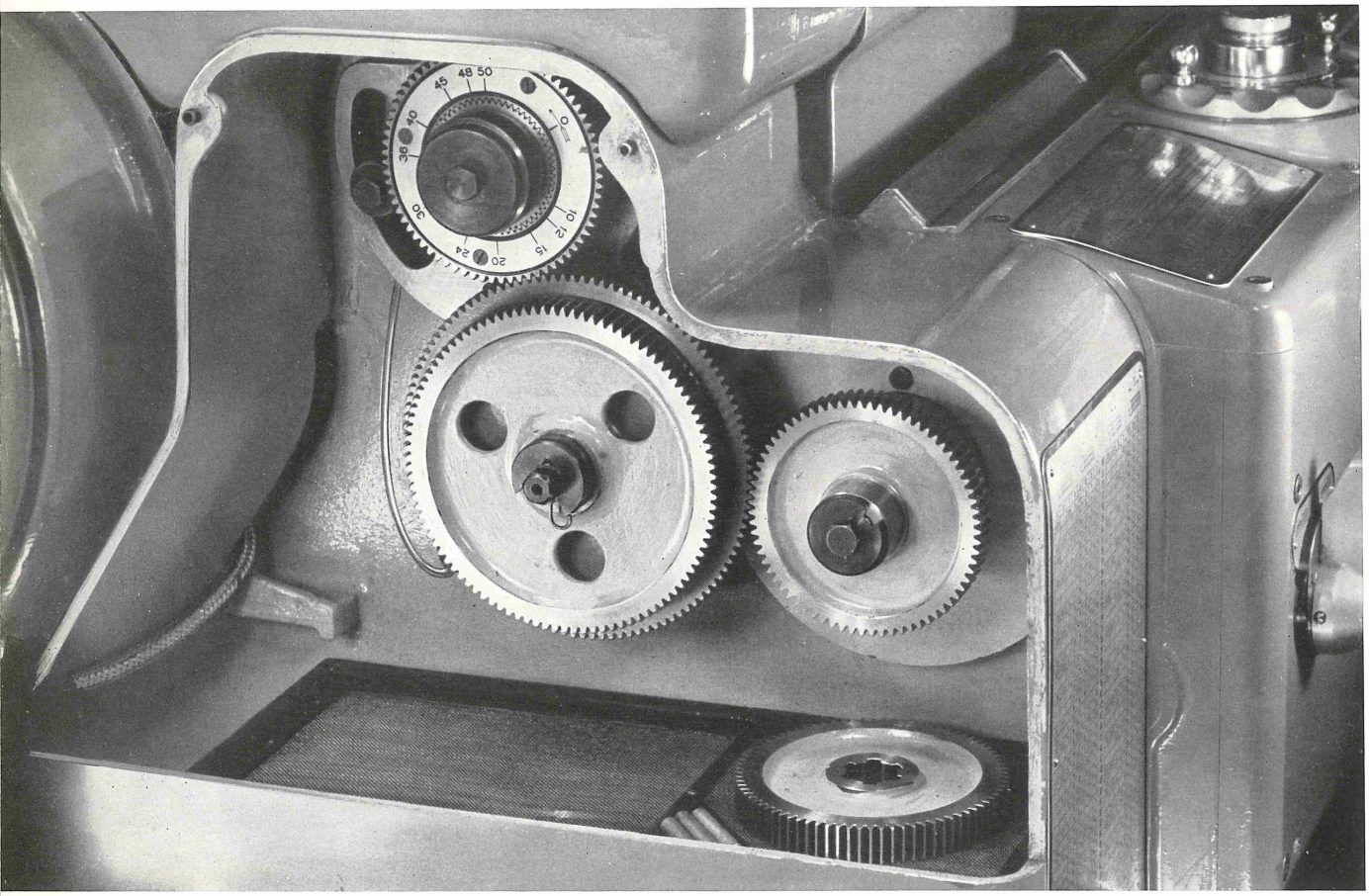
Bottom:
Boehringer-Sturm oil drive unit on a VDF lathe 36 L

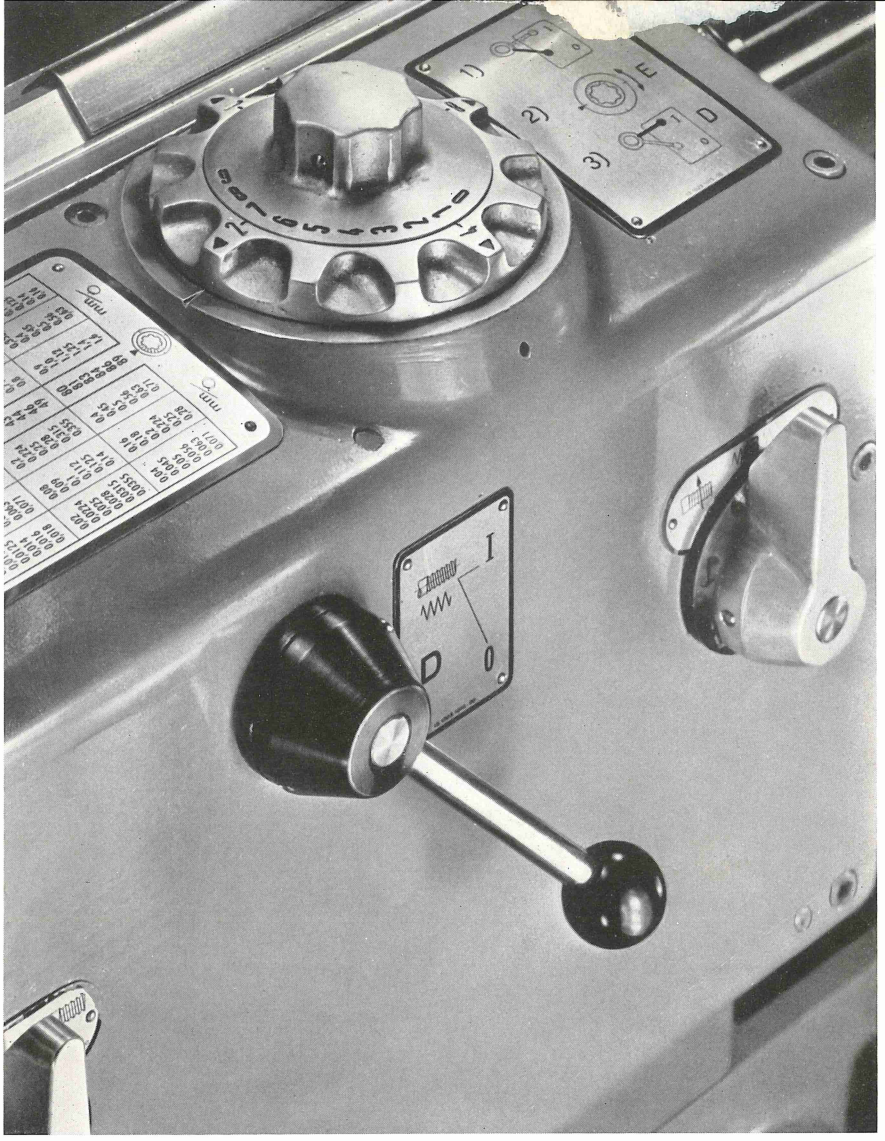


CENTRAL LUBRICATION SYSTEM

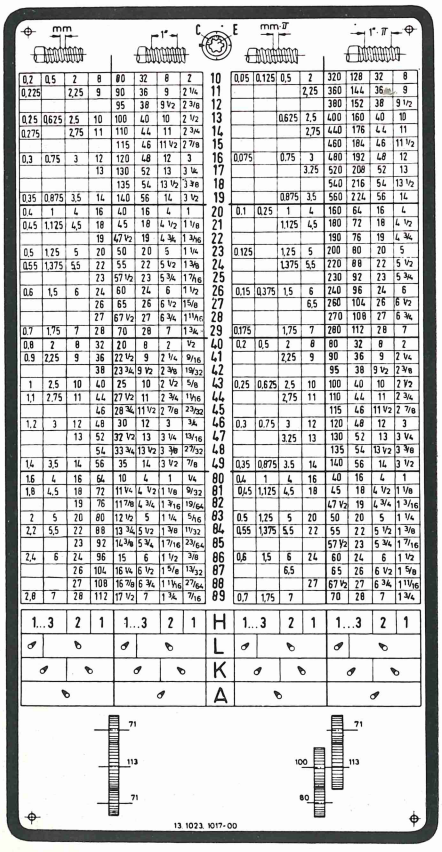
The headstock gearing, change gears and screw-cutting gearbox are force-feed lubricated. The oil reservoir in the bottom of the change gear box has a capacity of 4 gallons. A pump in the headstock, operating as long as the motor is running, delivers the oil to all moving parts in the various gearboxes. After each circulation the oil passes through a fine-mesh strainer and a settling chamber with five magnetic filters. The strainer and settling chamber can be removed and cleaned without draining the oil.

Change gears on the VDF lathe 44 S and indexing mechanism for cutting multi-start threads.





Screw-cutting gearbox on the VDF lathe 44 D



mm				r				C	E	mm				r			
0,2	0,5	2	8	#0	32	8	2	10		0,05	0,125	0,5	2	320	128	32	8
0,225		2,25	9	90	36	9	2 1/4	11					2,25	360	144	36	9
				95	38	9 1/2	2 3/8	12						380	152	38	9 1/2
0,25	0,625	2,5	10	100	40	10	2 1/2	13				0,625	2,5	400	160	40	10
0,275		2,75	11	110	44	11	2 3/4	14					2,75	440	176	44	11
				115	46	11 1/2	2 7/8	15						460	184	46	11 1/2
0,3	0,75	3	12	120	48	12	3	16		0,075		0,75	3	480	192	48	12
			13	130	52	13	3 1/4	17					3,25	520	208	52	13
				135	54	13 1/2	3 3/8	18						540	216	54	13 1/2
0,35	0,875	3,5	14	140	56	14	3 1/2	19				0,875	3,5	560	224	56	14
0,4	1	4	16	40	16	4	1	20		0,1	0,25	1	4	160	64	16	4
0,45	1,125	4,5	18	45	18	4 1/2	1 1/8	21				1,125	4,5	180	72	18	4 1/2
			19	47 1/2	19	4 3/4	1 3/16	22						190	76	19	4 3/4
0,5	1,25	5	20	50	20	5	1 1/4	23		0,125		1,25	5	200	80	20	5
0,55	1,375	5,5	22	55	22	5 1/2	1 3/8	24				1,375	5,5	220	88	22	5 1/2
			23	57 1/2	23	5 3/4	1 7/16	25						230	92	23	5 3/4
0,6	1,5	6	24	60	24	6	1 1/2	26		0,15	0,375	1,5	6	240	96	24	6
			26	65	26	6 1/2	1 5/8	27					6,5	260	104	26	6 1/2
			27	67 1/2	27	6 3/4	1 11/16	28						270	108	27	6 3/4
0,7	1,75	7	28	70	28	7	1 3/4	29		0,175		1,75	7	280	112	28	7
0,8	2	8	32	20	8	2	1/2	40		0,2	0,5	2	8	80	32	8	2
0,9	2,25	9	36	22 1/2	9	2 1/4	9/16	41				2,25	9	90	36	9	2 1/4
			38	23 3/4	9 1/2	2 3/8	19/32	42						95	38	9 1/2	2 3/8
1	2,5	10	40	25	10	2 1/2	5/8	43		0,25	0,625	2,5	10	100	40	10	2 1/2
1,1	2,75	11	44	27 1/2	11	2 3/4	11/16	44				2,75	11	110	44	11	2 3/4
			46	28 3/4	11 1/2	2 7/8	23/32	45						115	46	11 1/2	2 7/8
1,2	3	12	48	30	12	3	3/4	46		0,3	0,75	3	12	120	48	12	3
		13	52	32 1/2	13	3 1/4	13/16	47				3,25	13	130	52	13	3 1/4
			54	33 3/4	13 1/2	3 3/8	27/32	48						135	54	13 1/2	3 3/8
1,4	3,5	14	56	35	14	3 1/2	7/8	49		0,35	0,875	3,5	14	140	56	14	3 1/2
1,6	4	16	64	10	4	1	1/4	80		0,4	1	4	16	40	16	4	1
1,8	4,5	18	72	11 1/4	4 1/2	1 1/8	9/32	81		0,45	1,125	4,5	18	45	18	4 1/2	1 1/8
		19	76	11 7/8	4 3/4	1 3/16	19/64	82						47 1/2	19	4 3/4	1 3/16
2	5	20	80	12 1/2	5	1 1/4	5/16	83		0,5	1,25	5	20	50	20	5	1 1/4
2,2	5,5	22	88	13 3/4	5 1/2	1 3/8	11/32	84		0,55	1,375	5,5	22	55	22	5 1/2	1 3/8
		23	92	14 3/8	5 3/4	1 7/16	23/64	85						57 1/2	23	5 3/4	1 7/16
2,4	6	24	96	15	6	1 1/2	3/8	86		0,6	1,5	6	24	60	24	6	1 1/2
		26	104	16 1/4	6 1/2	1 5/8	13/32	87				6,5		65	26	6 1/2	1 5/8
		27	108	16 7/8	6 3/4	1 11/16	27/64	88					27	67 1/2	27	6 3/4	1 11/16
2,8	7	28	112	17 1/2	7	1 3/4	7/16	89		0,7	1,75	7		70	28	7	1 3/4
1...3	2	1		1...3	2	1		H		1...3	2	1		1...3	2	1	
♂	♁			♂	♁			L		♂	♁			♂	♁		
♂	♁			♂	♁			K		♂	♁			♂	♁		
♁				♂				A		♁				♂			

71 113 71 — 71 100 113 80

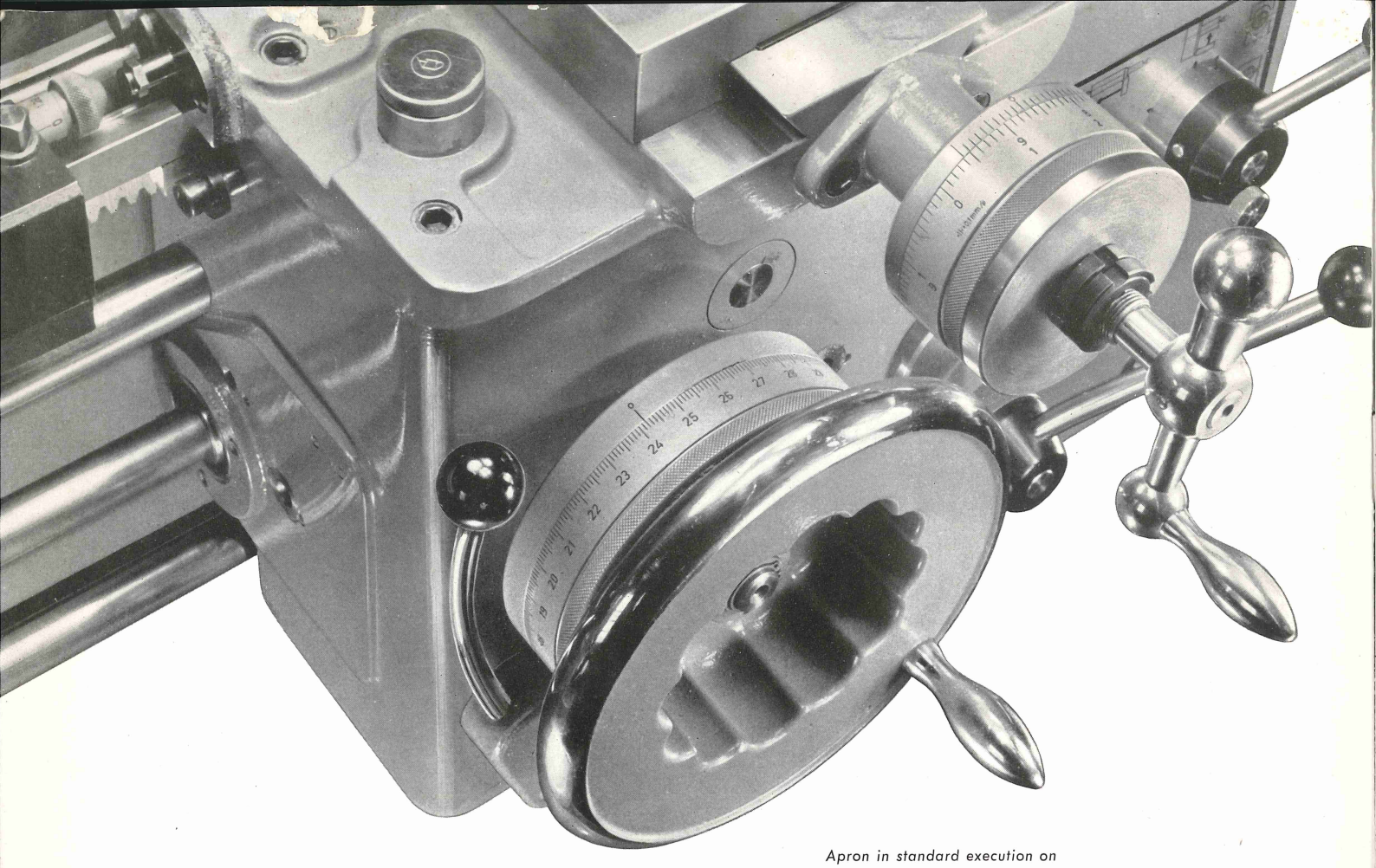
13 1023 1017-00

FEED AND SCREW-CUTTING GEARBOXES

The operator selects the required rates of feed on the screw-cutting gearbox by means of a quick-acting control. He can also double or halve the feed at any time by turning a dial, without altering the basic setting.

The screw-cutting gearbox is suitable for the cutting of all standard DIN and U.S. threads within the ranges indicated, i.e., also 11½, 13, 26 and 27 t.p.i. Special threads can be cut by using additional change gears. An indexing mechanism on the main shaft is a useful feature for the cutting of multi-start threads.

Fool-proof levers on the screw-cutting gearbox and apron control start, stop and reverse of the spindle.



Apron in standard execution on VDF lathes 36 and 44

CARRIAGE WITH APRON

The substantial construction of the carriage and its long guideways – adjustable by taper gibs – assure smooth and a accurate movement.

The guideways on cross slide and top slide are likewise adjustable. All traverse screws are built-in for protection and equipped with large dials. An easily legible graduated drum is provided on the handwheel shaft on the apron to facilitate longitudinal turning. The power feeds, longitudinal and cross, can be reversed through spur gearing in the apron. A drop worm is built-in for the automatic trip of the longitudinal and cross feed when turning with trip stop control, and for protecting the machine against overload. The leadscrew is normally delivered with a metric thread. The motion for the selected lead is transmitted to the carriage through a half-nut. All shafts in the apron are carried in two bearings. The longitudinal and cross feed as well as the half-nut are engaged by one lever. The lubrication system for the apron also serves the bedways, leadscrew and feed shaft.

TAILSTOCK

The sturdy tailstock barrel with metric and inch graduations is lubricated from an oil reservoir located underneath the tool rest on the tailstock. For normal turning work between centres it is adequate to lock the tailstock by the cam lever.

The clamp need only be tightened as an additional precaution when performing heavy boring operations. The top of the tailstock can be set over for the turning of slender tapers. A transverse vee guide assures accurate alignment.

STANDARD EQUIPMENT

1 carriage with extended cross slide

1 length dial on the handwheel shaft on the apron

1 swarf tray

2 fixed centres No. 4 M.T.

1 rotating centre (type S only)

1 taper sleeve for spindle

1 length stop

1 cross stop

1 set of wrenches

1 rubber pad each on headstock and tailstock

1 spindle speed indicator (type L only)

1 spindle speed table

1 each screw-cutting and feed plate

2 operator's handbooks

EXTRA EQUIPMENT

Gap bed and gap piece

induction-hardened bedways

spindle nose with locating taper and Camlock mounting 6" D 1 ASA B 5.9 (spindle bore 1.77")

coolant equipment with electric suds pump

4-way toolpost with spur gearing

quick-change toolpost

block toolpost with two cutter holders

complete second carriage with apron

taper turning attachment for 13¾" length of taper, ± 10° adjustment

combined taper and profile turning attachment for 13¾" turning length

stationary roller steady, 5" capacity

travelling steady with friction pads, 4" capacity

driving plate with protective edge, approx. 8¼" dia.

cast iron or cast steel faceplates

self-centring three or four-jaw chucks, cast iron

self-centring three-jaw chuck, steel, precision type

air chuck with foot pedal control

lever-operated collet chuck, ¼"—1 9/16" capacity

collets for collet chuck

rotating precision centre No. 4 M.T. (standard equipment on type S)

leadscrew with ½" pitch

chasing dial for metric or inch leadscrew

Increased accuracy to DIN 8605, available only on straight-bed machines up to 39⅜" turning length

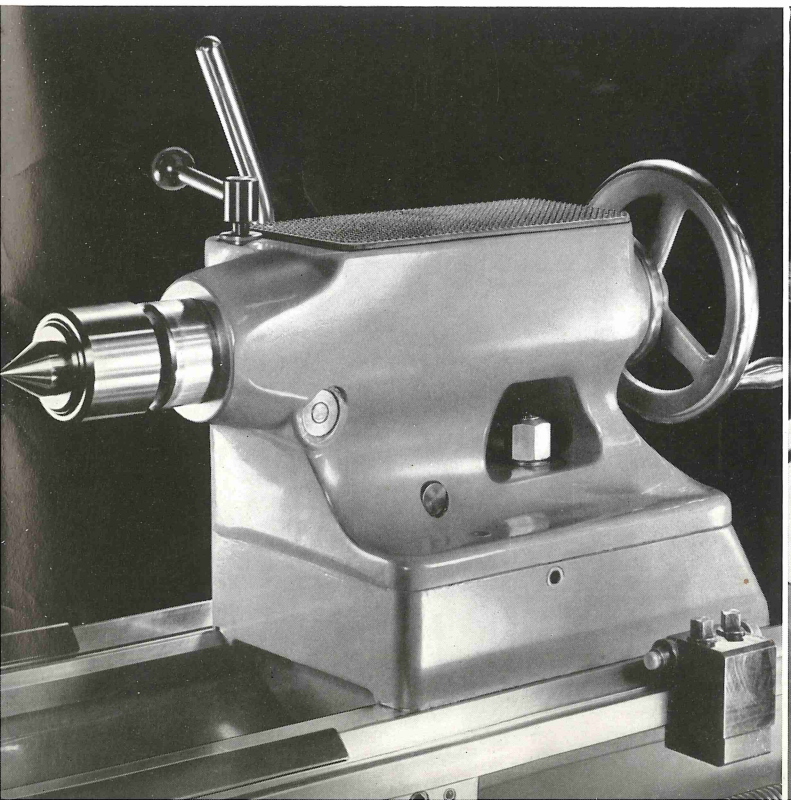
Increased pitch accuracy of leadscrew, 0.0008" per foot, available only on machines with increased accuracy to DIN 8605 and 39⅜" turning length

ammeter

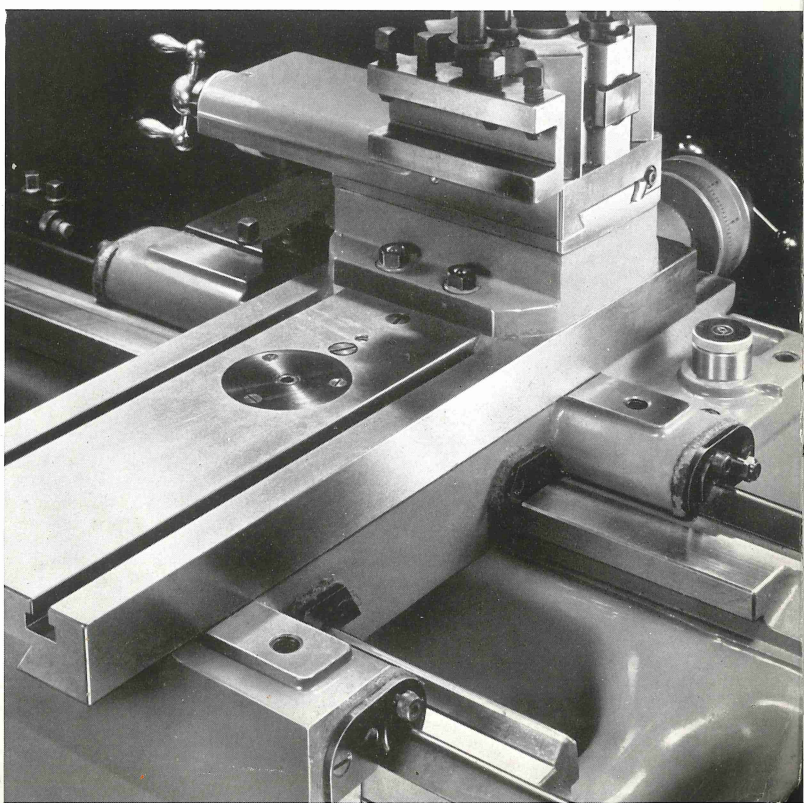
lighting attachment

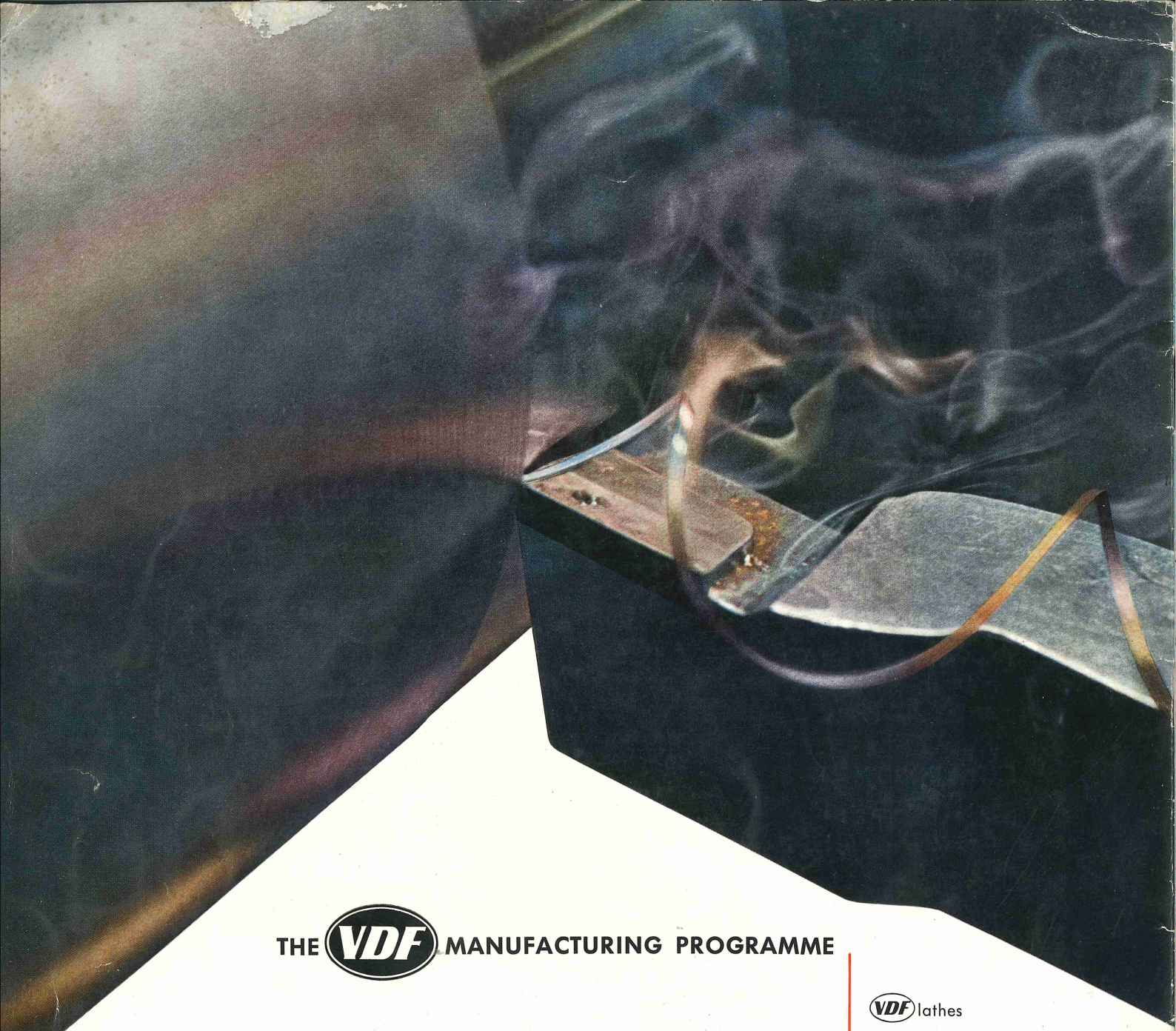
multi-colour paint finish

Tailstock with rotating centre, normal execution of VDF lathe 44 S



Normal execution of carriage with extended cross slide on VDF lathes 36 and 44





THE VDF MANUFACTURING PROGRAMME

GEBR. BOEHRINGER GMBH GÖPPINGEN/WÜRTT.

- VDF lathes
- VDF copying lathes
- VDF turret lathes
- VDF deep hole boring machines
- Openside and double standard planing machines
- Crankshaft turning machines
- Special-purpose machines
- Infinitely variable oil drive units

HEIDENREICH & HARBECK HAMBURG

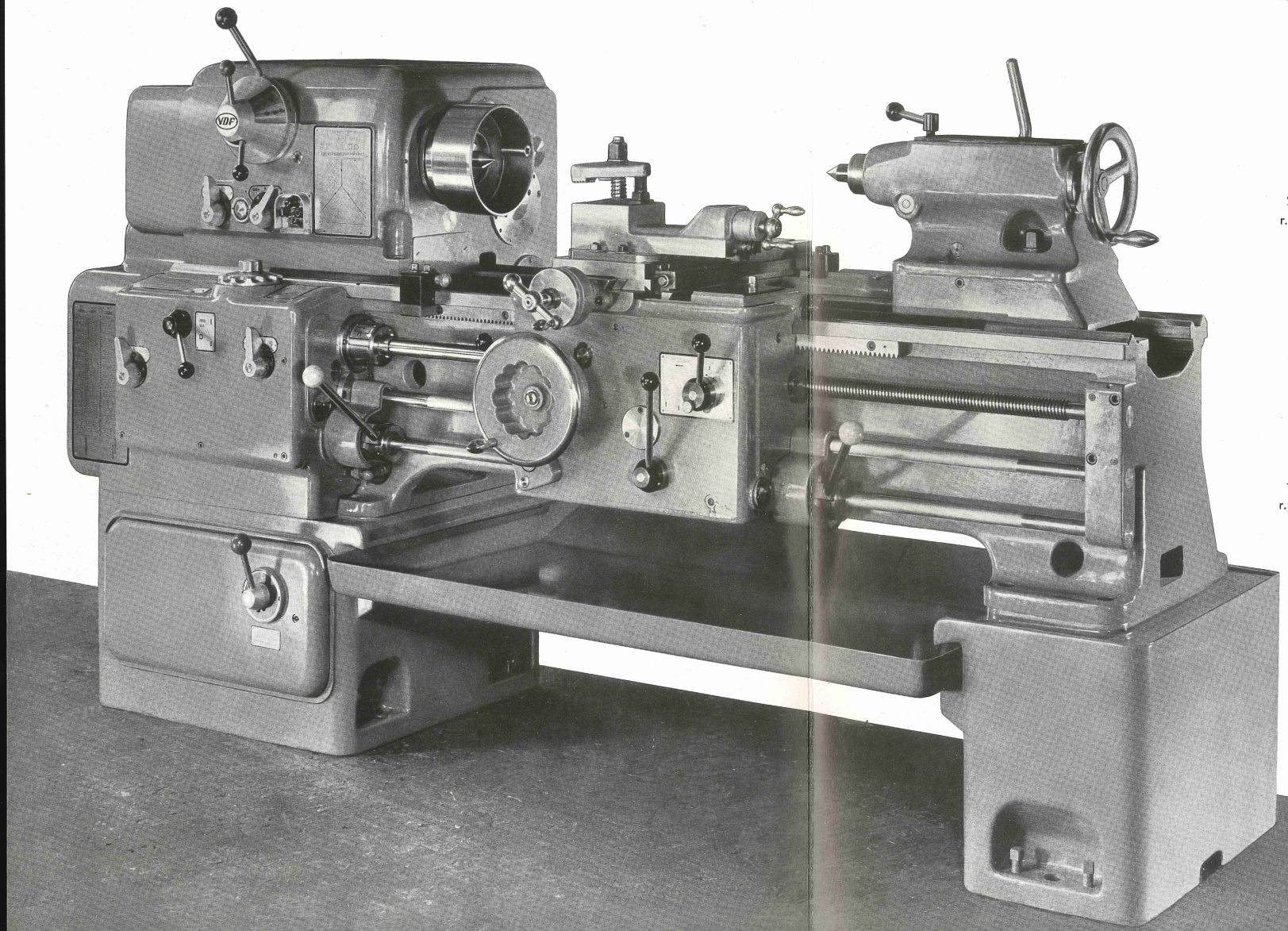
- VDF lathes
- VDF copying lathes
- VDF turret lathes
- VDF deep hole boring machines
- Automatic bevel gear generators
- Gears to normal and special tolerances

H. WOHLENBERG KG. HANNOVER

- VDF lathes
- VDF copying lathes
- Lathes up to 79" turning diameter
- Hollow spindle lathes
- Special-purpose lathes

Druckerei Jungmann GmbH., Göppingen 2500857

VDF lathe 44 S with a turning length of 29½" standard machine



SPINDLE SPEED TABLES

FOR THE TYPES D, AND L
VDF LATHES 36 AND 44