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Originalfassung

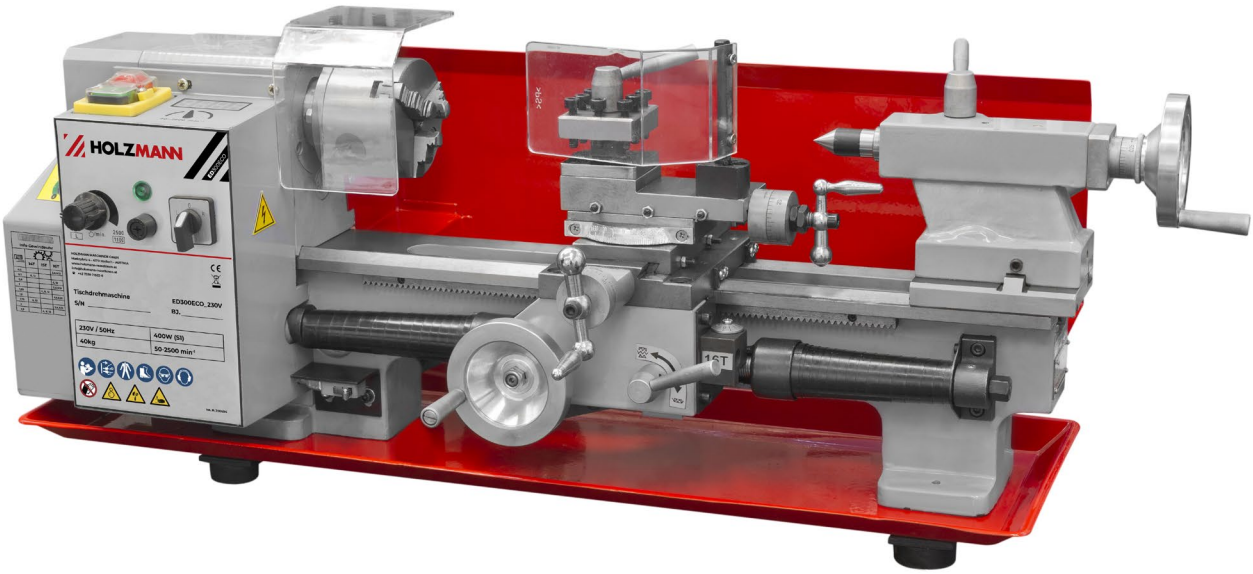
DE BETRIEBSANLEITUNG **TISCHDREHMASCHINE**

Übersetzung / Translation

EN USER MANUAL **BENCH LATHE**

ES INSTRUCCIONES DE SERVICIO **TORNO DE MESA**

FR MODE D'EMPLOI **TOUR À TABLE**



CE

ED300ECO

YOUR JOB. OUR TOOLS.

Edition: 30.11.2021 – Revision - 00 – EcC - DE/EN/ES/FR

2 SICHERHEITSZEICHEN / SAFETY SIGNS / SEÑALES DE SEGURIDAD / SYMBOLES DE SÉCURITÉ

DE SICHERHEITSZEICHEN
BEDEUTUNG DER SYMBOLE

EN SAFETY SIGNS
DEFINITION OF SYMBOLS

ES SEÑALES DE SEGURIDAD
SIGNIFICADO DE LOS SÍMBOLOS

FR SYMBOLES DE SÉCURITÉ
SIGNIFICATION DES SYMBOLES

DE **CE-KONFORM!** - Dieses Produkt entspricht den EU-Richtlinien.

EN **CE-Conformal!** - This product complies with the EC-directives.

ES **¡CONFORMIDAD CE! -** Este producto cumple con las directivas CE.

FR **CONFORMITÉ CE** : Ce produit répond aux directives CE.

DE BETRIEBSANLEITUNG LESEN! Lesen Sie die Betriebs- und Wartungsanleitung Ihrer Maschine aufmerksam durch und machen Sie sich mit den Bedienelementen der Maschine gut vertraut, um die Maschine ordnungsgemäß zu bedienen und so Schäden an Mensch und Maschine vorzubeugen.

EN READ THE MANUAL! Read the user and maintenance carefully and get familiar with the controls in order to use the machine correctly and to avoid injuries and machine defects.

ES ¡LEA EL MANUAL! Lea el manual de uso y mantenimiento cuidadosamente y familiarícese con los controles con el fin de utilizar la máquina correctamente, para evitar lesiones y defectos de la máquina.

FR LIRE LE MANUEL! Lire le manuel d´utilisateur et de maintenance avec soin et vous familiariser avec les contrôles en vue d'utiliser la machine correctement et pour éviter les blessures et les défauts de l'appareil.

DE Handschuh-Trageverbot bei Arbeiten an rotierenden Teilen!

EN Never wear gloves when working on rotating parts!

ES ¡No use guantes cuando trabaje en componentes rotatorios!

FR Défense de porter des gants lors des interventions sur les pièces rotatives !

DE Maschine vor Reparatur, Wartung oder Pausen ausschalten und Netzstecker ziehen

EN Switch off the machine before repairing, servicing or stopping work and pull out the mains plug

ES Pare la máquina y desconéctela de la red eléctrica antes de llevar a cabo trabajos de reparación o de mantenimiento o antes de las pausas

FR Avant toute réparation, maintenance, ou pause, éteindre la machine et débrancher la prise

DE Persönliche Schutzausrüstung tragen!

EN Wear personal protective equipment!

ES ¡Use el equipo de protección individual!

FR Porter un équipement de protection individuelle !

DE Gefährliche elektrische Spannung

EN Dangerous electrical voltage

ES Tensiones eléctricas peligrosas

FR Tension électrique dangereuse !

DE Warnung vor rotierenden Teilen

EN Warning of rotating parts

ES Advertencia de componentes rotatorios

FR Avertissement de pièces rotatives !

DE Warnung vor Handverletzungen

EN Warning of hand injuries

ES Advertencia de sufrir lesiones en las manos

FR Avertissement contre les blessures aux mains

DE Warnung vor spitzem (scharfem) Werkzeug

EN Warning of pointed (sharp) tool

ES Advertencia de herramientas puntiagudas (afiladas)

FR Avertissement contre les outils pointus (tranchants)

DE **Warnschilder und/oder Aufkleber an der Maschine, die unleserlich sind oder die entfernt wurden, sind umgehend zu erneuern!**

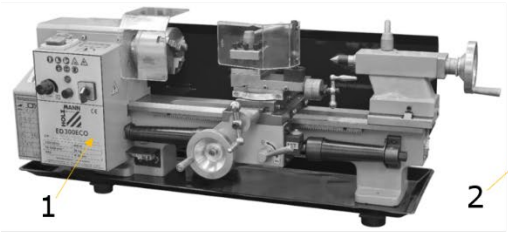
EN **Missing or non-readable safety stickers have to be replaced immediately!**

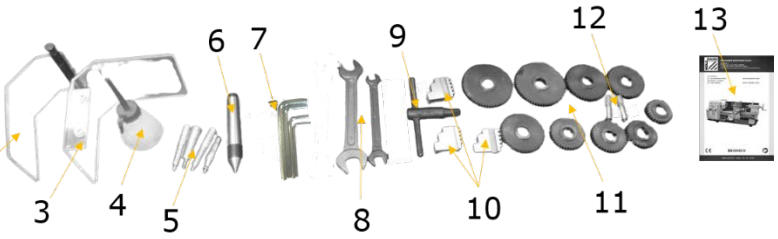
ES **¡Deben sustituirse inmediatamente los letreros de advertencia y/o las pegatinas que haya en la máquina, que se hayan vuelto ilegibles o se hayan retirado!**

FR **Les panneaux d'avertissement et/ou autocollants d'avertissement illisibles ou retirés sur la machine doivent être remplacés immédiatement !**

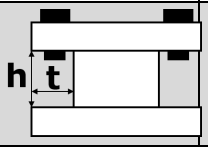
3 TECHNIK / TECHNIC / TÉCNICA / TECHNIQUE

3.1 Lieferumfang / Delivery content / Volumen de suministro / Contenu de la livraison

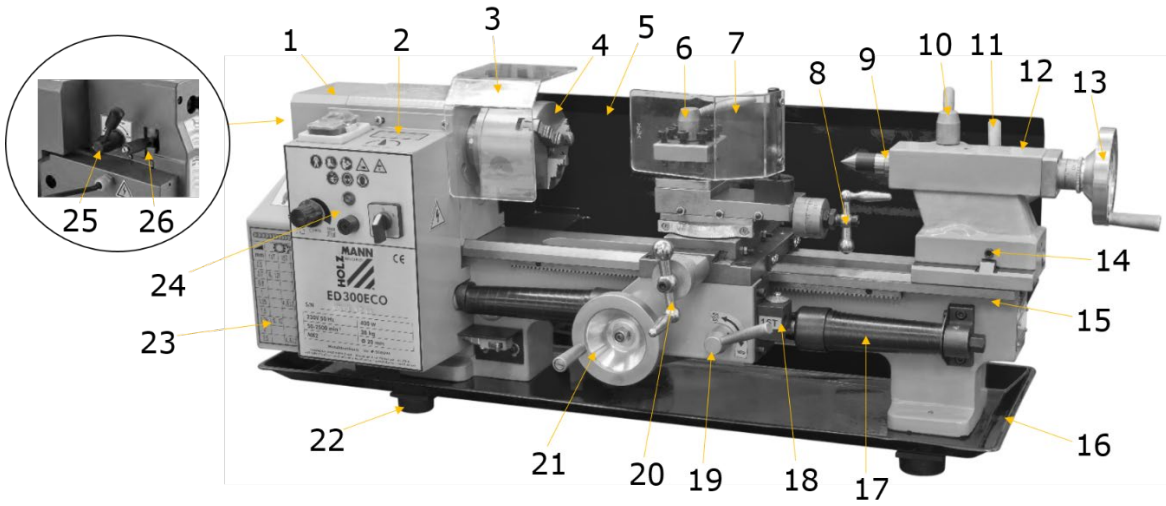




EED300ECO			
1	Metalldrehmaschine / metal turning lathe / Torno para metal / Tour à métal	**8**	Gabelschlüssel-Set / set of open end wrenches / Juego de llaves fijas / Jeu de clés à fourche
2	Werkzeughalterschutz / tool post guard / Protección del portaherramientas / Protection du porte-outils	**9**	3-Backenfutter-Spannschlüssel / key for 3-jaw chuck / Llave de apriete de 3 mandriles / Clé de mandrin de mors triple
3	Drehfutterschutz / chuck guard / Protección del mandril del torno / Protection du mandrin du tour	**10**	Spannbacken-Set für 3-Backenfutter / set of reverse jaws for 3-jaw chuck / Juego de mordazas de sujeción para mandril de 3-mordazas / Jeu de mors de serrage pour mandrin à 3 mors
4	Ölkanne / oil gun / Aceitera / Burette d'huile	**11**	Wechselzahnrad Satz (Z:2x60, 2x50, 45, 2x40, 35, 30) / change gears (T:2x60, 2x50, 45, 2x40, 35, 30) / Juego de ruedas dentadas intercambiables (D: 2x60, 2x50, 45, 2x40, 35, 30) / Jeu de roue dentée échangeable (Z:2x60, 2x50, 45, 2x40, 35, 30)
5	Handgriffe / handles / Mangos / Poignées	**12**	Glassicherung / glass fuse / Fusible vidrio/ Fusibles en verre
6	Körnerspitze / centering / Punta de centrado / Contrepointes	**13**	Betriebsanleitung / user manual / Instrucciones de servicio / Mode d'emploi
7	Inbusschlüssel-Satz / hex key set / Juego de llaves Allen / Jeu de clefs Allen		

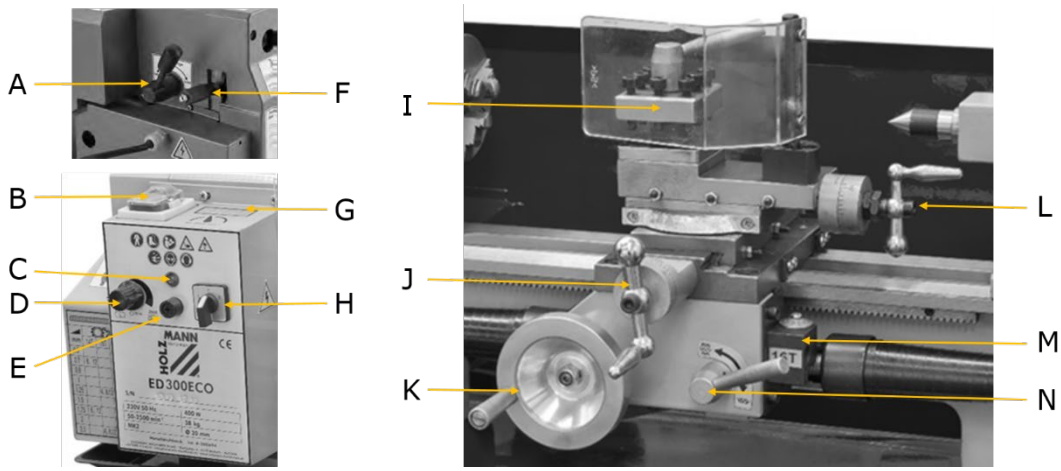
vormontiert | pre-assembled | premontado | pré-assemblé			
3-Backenfutter Ø 80 mm/ 3-jaw lathe chuck, Ø 80 mm / Mandril de 3 mordazas Ø 80 mm / 3 mandrins de mors Ø 80 mm		Wechselräder / change gerars / Ruedas intercambiables / Roues de rechange	Z (T): 2x20, 2x80
Werkzeughalter / tool post / Portaherramientas / Porte-outil			

3.2 Komponenten / Components / Componentes / Composants



ED300ECO			
1	Spindelstock / headstock / Cabezal / Poupée fixe	**14**	Verstellschraube Reitstock / tailstock adjusting screw / Tornillo de ajuste del contrapunto / Vis de réglage de la contrepointe
2	Drehzahldisplay / speed display / Pantalla de velocidad / Affichage de la vitesse de rotation	**15**	Maschinenbett / lathe bed / Bancada de la máquina / Banc de machine
3	Drehfutterschutz / chuck guard / Protección del mandril del torno / Protection du mandrin du tour	**16**	Späne-Auffangblech / chip collecting tray / Bandeja recoge virutas / Tôle de collecte des copeaux
4	Spindel mit 3-Backenfutter / spindle with 3-jaw chuck / Husillo con mandril de 3 mordazas / Broche à mandrins à 3 mors	**17**	Leitspindel mit Spindelabdeckung / lead screw with cover / Husillo guía con cubierta / Vis-mère avec cache de broche
5	Spritzwand / bulkhead / Mamparo / Cloison anti-projections	**18**	Gewindeuhr / thread dial indicator / Dial de rosca / Cadran de réglage du filetage
6	Werkzeughalter / tool post / Portaherramientas / Porte-outil	**19**	Einrückhebel Gewindeschneiden (Schlossmutter) / shift lever tapping (lock nut) / Palanca de engranaje corte de roscas (tuerca tensora) / Levier d'engrènement de taraudage/filetage (écrou embrayable de la vis-mère)
7	Werkzeughalterschutz / tool post guard / Protección del portaherramientas / Protection du porte-outils	**20**	Handrad Querschlitten / handwheel cross slide / Volante manual del carro transversal / Volant du coulisseau transversal
8	Handrad Oberschlitten / handwheel top slide / Volante manual del carro superior / Volant du chariot à mouvements croisés	**21**	Handrad Längsschlitten / handwheel longitudinal slide / Volante manual del carro longitudinal / Volant de chariot pour course longitudinale
9	Reitstockpinole / tailstock spindle sleeve / Pinola del contrapunto / Fourreau de contrepointe	**22**	Maschinenfüße / machine feet / Pies de la máquina / Pieds de la machine
10	Klemmhebel Pinole / clamping lever sleeve / Palanca de sujeción pinola / Levier de blocage du fourreau de la contrepoupée	**23**	Wechselgetriebe / gear box / Caja de cambios / Engrenage à changement de vitesse
11	Klemmhebel Reitstock / clamping lever tailstock / Palanca de sujeción del contrapunto / Levier de blocage de contrepoupée	**24**	Bedienfeld / control panel / Panel de mando / Panneau de commande
12	Reitstock / tailstock / Contrapunto / Contrepoupée	**25**	Wahlhebel Geschwindigkeitsbereich / selector lever speed range / Palanca selectora de velocidad / Levier de sélection de la plage de vitesse
13	Handrad Reitstock / handwheel tailstock / Volante manual contrapunto / Volant de la contrepoupée	**26**	Wahlhebel Vorschubrichtung / selector lever feed direction / Palanca selectora dirección de avance / Levier de sélection de sens d'avance

3.2.1 Bedienelemente/Control elements/Elementos de mando/Éléments de contrôle



A	Wahlhebel Geschwindigkeitsbereich / selector lever speed range / Palanca selectora de velocidad / Levier de sélection de la plage de vitesse	**H**	Wahlschalter Drehrichtung / selector switch rotating direction / Selector dirección de giro / Sélecteur du sens de rotation
B	Ein-Aus-Schalter / On-Off-switch / Interruptor On/Off / Interrupteur MARCHE-ARRÊT	**I**	Werkzeughalter / tool post / Portaherramientas / Porte-outil
C	Betriebskontrollleuchte / power indicator light / Piloto de funcionamiento / Lampe témoin de service	**J**	Handrad Querschlitten / handwheel cross slide / Volante manual del carro transversal / Volant du coulisseau transversal
D	Einstellknopf Spindeldrehzahl / adjusting knob spindle speed / Botón de ajuste velocidad del husillo / Bouton de réglage de rotation de broche	**K**	Handrad Längsschlitten / handwheel longitudinal slide / Volante manual del carro longitudinal / Volant de chariot pour course longitudinale
E	Sicherungshalter / fuse socket / Portafusibles / Interrupteur de sécurité	**L**	Handrad Oberschlitten / handwheel top slide / Volante manual del carro superior / Volant du chariot à mouvements croisés
F	Wahlhebel Vorschubrichtung / selector lever feed direction / Palanca selectora dirección de avance / Levier de sélection de sens d'avance	**M**	Gewindeuhr / thread dial indicator / Dial de rosca / Cadran de réglage du filetage
G	Drehzahldisplay / speed display / Pantalla de velocidad / Affichage de la vitesse de rotation	**N**	Einrückhebel Gewindeschneiden (Schlossmutter) / shift lever tapping (lock nut) / Palanca de engranaje corte de roscas (tuerca tensora) / Levier d'engrènement de taraudage/filetage (écrou embrayable de la vis-mère)

3.3 Technische Daten/Technical data/Datos técnicos/Données techniques

Parameter / parameters / Parámetros	Wert / value / Valor
Spannung (Frequenz) / voltage (frequency) / Tensión (frecuencia) / Tensions (fréquence)	230 V (50 Hz)
Motorleistung S1 (100 %) / motor power S1 (100 %) / Potencia del motor S1 (100 %) / Puissance moteur S1 (100 %)	400 W
Spitzenweite / max. distance between centers / Distancia entre puntas / Entrepointes	300 mm
Spitzenhöhe / center height / Altura de centrado / Hauteur de pointes	90 mm
max. Drehdurchmesser über Maschinenbett / max. swing over bed / Diámetro máx. de torneado sobre la bancada de la máquina / Diamètre max. de rotation au-dessus du banc de machine	180 mm
max. Drehdurchmesser über Querschlitten / max. swing over cross slide / Diámetro máx. de torneado sobre el carro transversal / Diamètre max. de rotation au-dessus du coulisseau transversal	105 mm

Ø Spindelbohrung / Ø spindle bore / Ø Orificio del husillo / Ø d'alésage de broche	20 mm
Spindeldrehzahlbereich / spindle speed / Rango de velocidades del husillo / Plage de vitesse de rotation de la broche	50 – 2500 min^{-1}
Verfahrweg Längsschlitten (Z-Achse) / total travel longitudoinal slide (Z-axis) / Desplazamiento carro longitudinal (eje Z) / Course de déplacement de chariot pour course longitudinale (axe Z)	200 mm
Verfahrweg Querschlitten (X-Achse) / total travel cross slide (X-axis) / Desplazamiento carro transversal (eje X) / Course de déplacement du coulisseau transversal (axe X)	70 mm
Verfahrweg Oberschlitten (Z_1-Achse) / total travel top slide (Z_1-axis) / Desplazamiento carro superior (eje Z_1) / Course de déplacement de chariot à mouvements croisés (axe Z_1)	70 mm
Reitstock-Pinolenhub / tailstock sleeve travel / Carrera de la pinola del contrapunto / Course du fourreau de contrepoupée	50 mm
Längsvorschub (Stufen) / longitudinal feed (steps) / Avance longitudinal (pasos) / Avance longitudinale (étages)	0,009 – 0,04 mm/U (10)
Gewindesteigung metrisch (Stufen) / range of metric threads (steps) / Paso de rosca métrico (pasos) / Pas de filetage métrique (étages)	0,5–2,5 mm (9)
Spindel Konus / spindle taper / Cono del husillo / Cône de broche	MK3 / MT3
Reitstock Konus / tailstock taper / Cono del contrapunto / Cône de contrepoupée	MK2 / MT2
Max. Werkzeugaufnahme (h x t)/ tool post max. opening (h x t) / Alojamiento máx. del portaherramientas (h × p) / Logement d'outil max. (h x p)	16 x 16 mm
Ø Leitspindel / Ø lead screw / Ø Husillo guía / Ø Vis-mère	16 mm
Bettbreite / bed width / Anchura de la bancada / Largeur du banc	85 mm
Netto-Gewicht / net weight / Peso neto / Poids net	39 kg
Brutto-Gewicht / gross weight / Peso bruto / Poids brut	44 kg
Verpackungsmaße (L x B x H) / packaging dimensions (L x W x H) / Dimensiones del embalaje (L x A x H) / Dimensions de l'emballage (L x l x H)	770 x 310 x 310 mm
Maschinenmaße (L x B x H) / machine dimensions (L x W x H) / Dimensiones de la máquina (L x A x H) / Dimensions de la machine (L x l x H)	840 x 290 x 380 mm
Schalldruckpegel L_{PA} / sound pressure level L_{PA} / Nivel de presión sonora L_{PA} / Niveau de pression acoustique L_{PA}	76 dB(A) k = 3dB(A)

(DE) Hinweis Geräuschangaben: Bei den genannten Zahlenwerten handelt es sich um Emissionspegel und nicht notwendigerweise um sichere Arbeitspegel. Obwohl es einen Zusammenhang zwischen dem Grad der Lärmemission und dem Grad der Lärmbelastung gibt, kann diese nicht zuverlässig zur Feststellung darüber verwendet werden, ob weitere Schutzmaßnahmen erforderlich sind oder nicht. Zu den Faktoren, die den tatsächlichen Grad der Belastung der Beschäftigten beeinflussen, gehören die Eigenschaften des Arbeitsraumes, die anderen Geräuschquellen usw., d.h. die Anzahl der Maschinen sowie andere in der Nähe ablaufende Prozesse und die Dauer, während der ein Bediener dem Lärm ausgesetzt ist. Außerdem kann der zulässige Belastungspegel von Land zu Land unterschiedlich sein. Diese Informationen sollten es aber dem Anwender der Maschine erlauben, eine bessere Bewertung der Gefährdungen und Risiken vorzunehmen.

(EN) Notice Noise indications: The figures given are emission levels and not necessarily safe working levels. Although there is a relationship between the level of noise emission and the level of noise exposure, it cannot be used reliably to determine whether further protective measures are necessary or not. Factors influencing the actual level of exposure of workers include the characteristics of the workspace, other sources of noise, etc., i.e. the number of machines and other nearby processes and the length of time an operator is exposed to noise. In addition, the permissible exposure level may vary from country to country. However, this information should allow the user of the machine to better assess the hazards and risks.

(ES) Aviso sobre los valores de ruido: Los valores numéricos mencionados son niveles de emisión y no necesariamente niveles de trabajo seguros. Aunque existe una relación entre el grado de emisiones de ruido y el grado de contaminación acústica no se puede emplear para determinar con fiabilidad si son necesarias más medidas de protección o no. Entre los factores que influyen realmente en el grado de molestias de los trabajadores están las propiedades de la zona de trabajo, las otras fuentes de ruido, etc. –el número de máquinas– así como otros procesos ejecutados en el entorno y la duración del periodo al que está sometido al ruido el trabajador. Además, el nivel sonoro permitido puede variar de un país a otro. No obstante, esta información debería permitirles a los usuarios de la máquina valorar mejor los riesgos y peligros.

(FR) Avis Données sur le bruit : Les valeurs indiquées sont des niveaux d'émission et pas nécessairement des niveaux de travail sûrs. Bien qu'il existe une corrélation entre le niveau d'émission sonore et le niveau d'exposition au bruit, celle-ci ne peut être utilisée de manière fiable pour déterminer si des mesures de protection supplémentaires sont nécessaires ou non. Les facteurs qui influencent le niveau réel d'exposition des travailleurs comprennent les caractéristiques de la zone de travail, les autres sources de bruit, etc., c'est-à-dire le nombre de machines et autres processus se déroulant à proximité et la durée pendant laquelle un opérateur est exposé au bruit. En outre, le niveau d'exposition autorisé peut varier d'un pays à l'autre. Toutefois, ces informations devraient permettre à l'utilisateur de la machine de mieux évaluer les dangers et les risques.

14 PREFACE (EN)

Dear customer!

This operating manual contains information and important notes for safe commissioning and handling of BENCH LATHE ED300ECO, hereinafter referred to as "machine".

The manual is an integral part of the machine and must not be removed. Keep it for later use in a suitable place, easily accessible to users (operators), protected from dust and moisture, and enclose it with the machine if it is passed on to third parties!

Please pay special attention to the chapter Safety!

Due to the constant further development of our products, illustrations and contents may differ slightly. If you notice any errors, please inform us.

Technical changes reserved!

Check the goods immediately after receipt and make a note of any complaints on the consignment note when the delivery person takes them over!

Transport damage must be reported separately to us within 24 hours.

Holzmann Maschinen GmbH cannot accept any liability for transport damage not noted.

Copyright

Customer service contact

HOLZMANN MASCHINEN GmbH
AT-4170 Haslach, Marktplatz 4
AUSTRIA
Tel +43 7289 71562 - 0

info@holzmann-maschinen.at

15 SAFETY

This section contains information and important notes on safe start-up and handling of the machine.

For your own safety, read these operating instructions carefully before putting the machine into operation. This will enable you to handle the machine safely and prevent misunderstandings as well as personal injury and damage to property. In addition, observe the symbols and pictograms used on the machine as well as the safety and hazard information!

15.1 Intended use of the machine

The machinery is intended exclusively for the following operations: longitudinal and face turning of round or regularly shaped 3-, 6- or 12-sided workpieces of plastic, metal or similar materials which are not hazardous to health, flammable or explosive, each within the prescribed technical limits.

NOTE	
	HOLZMANN MASCHINEN GmbH assumes no responsibility or warranty for any other use or use beyond this and for any resulting damage to property or injury.

15.1.1 Technical restrictions

The machine is intended for use under the following ambient conditions:

Rel. Humidity:	max. 70 %
Temperature (Operation)	+5° C bis +40° C
Temperature (Storage, Transport)	-20° C bis +50° C

15.1.2 Prohibited applications / Hazardous misapplications

- Operating the machine without adequate physical and mental aptitude
- Operating the machine without knowledge of the operating instructions
- Changes in the design of the machine
- Use of emery cloth by hand
- Operating the machine outdoors
- Processing of dust generating materials such as wood, magnesium, carbon, etc. (fire and explosion hazard!)
- Operating the machine in a potentially explosive environment (machine can generate ignition sparks during operation)
- Operating the machine outside the technical limits specified in this manual
- Remove the safety markings attached to the machine.
- Modify, circumvent or disable the safety devices of the machine.

The improper use or disregard of the versions and instructions described in this manual will result in the voiding of all warranty and compensation claims against Holzmann Maschinen GmbH.

15.2 User requirements

The machine is designed for operation by one person. The physical and mental aptitude as well as knowledge and understanding of the operating instructions are prerequisites for operating the machine. Persons who, because of their physical, sensory or mental abilities or their inexperience or ignorance, are unable to operate the machinery safely must not use it without supervision or instruction from a responsible person.

Basic knowledge of metalworking especially the correlation of material, tool, feed and speeds.

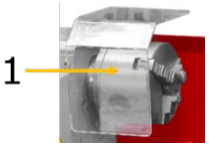
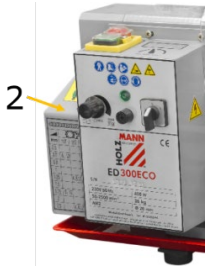
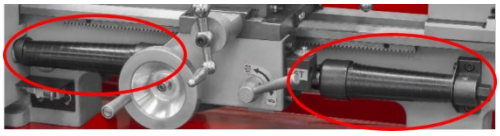
Please note that local laws and regulations may determine the minimum age of the operator and restrict the use of this machine!

Put on your personal protective equipment before working on the machine.

Work on electrical components or equipment may only be carried out by a qualified electrician or under the instruction and supervision of a qualified electrician.

15.3 Safety devices

The machine is equipped with the following safety devices:

	• A jaw chuck guard (1) with position switch. The machine only switches on when the jaw chuck guard is closed.
	• A protective cover on the headstock.
	• A spiral spring as a protective cover on the leadscrew (prevents clothing from being drawn in).

15.4 General safety instructions

To avoid malfunctions, damage and health hazards when working with the machine, the following points must be observed in addition to the general rules for safe working:

- Before start-up, check the machine for completeness and function. Only use the machine if the guards and other non-parting guards required for machining have been fitted, are in good operating condition and have been properly maintained.
- Choose a level, vibration-free, non-slip surface for the installation location.
- Ensure sufficient space around the machine!
- Ensure sufficient lighting conditions at the workplace to avoid stroboscopic effects.
- Ensure a clean working environment.
- Only use perfect tools that are free of cracks and other defects (e.g. deformations).
- Remove tool keys and other adjustment tools before switching on the machine.
- Keep the area around the machine free of obstacles (e.g. dust, chips, cut parts, etc.).
- Check the strength of the machine connections before each use.
- Never leave the running machine unattended. Switch off the machine before leaving the working area and secure it against unintentional or unauthorised recommissioning.
- The machine may only be operated, serviced or repaired by persons who are familiar with it and who have been informed of the hazards arising from this work.
- Ensure that unauthorised persons maintain a safe distance from the machine and keep children away from the machine.
- When working on the machine, never wear loose jewellery, loose clothing, ties or long, open hair.
- Hide long hair under hair protection.
- Wear close-fitting protective clothing and suitable protective equipment (eye protection, dust mask, ear protection; gloves only when handling tools).
- Metal dust can contain chemical substances that can have a negative effect on health. Work on the machine should only be carried out in well-ventilated rooms. If necessary, use a suitable extraction system.
- If there are connections for dust extraction, make sure that they are properly connected and in working order.
- Always work with care and the necessary caution and never use excessive force.

- Do not overload the machine!
- Shut down the machine and disconnect it from the power supply before carrying out any adjustment, conversion, cleaning, maintenance or repair work. Before starting any work on the machine, wait until all tools or machine parts have come to a complete standstill and secure the machine against unintentional restarting.
- Do not work on the machine if it is tired, not concentrated or under the influence of medication, alcohol or drugs!
- Do not use the machine in areas where vapours from paints, solvents or flammable liquids represent a potential danger (danger of fire or explosion!).

15.5 Electrical safety

- Make sure that the machine is earthed.
- Only use suitable extension cords.
- Proper plugs and sockets reduce the risk of electric shock.
- The machine may only be used if the power source is protected by a residual current circuit breaker.

15.6 Special safety instructions for lathes

- Clamp the workpiece firmly before turning on the lathe.
- Clamp the lathe tool to the correct height and as short as possible.
- Do not wear gloves when turning!
- Keep sufficient distance from all rotating parts.
- Switch off the lathe before measuring the workpiece.
- Remove the clamping key from the chuck after each tool change.
- Never remove any chips by hand! Use a chip hook, rubber wiper, hand brush or brush.
- When using cooling lubricants, observe the manufacturer's instructions and use a skin protection agent if necessary.

15.7 Hazard warnings

Despite intended use, certain residual risks remain when operating the machine.

- Formation of a flow chip
  - This wraps around the forearm and causes severe cuts.
- Throwing away workpieces or tools at high speed.
  - Always check workpieces for suitability and clamp them securely and firmly
  - Clamp and center longer workpieces via an additional counter bearing (e.g. tailstock)
  - For very long workpieces, use a steady rest
- Risk of electric shock if incorrect electrical connections are used.
- Risk of tripping due to supply lines on the floor.
  - Properly route supply lines and cables
  - Mark unavoidable tripping hazards yellow-black

Residual risks can be minimized if the "Safety instructions" and the "Intended use" as well as the operating instructions are observed. Due to the design and construction of the machine, hazardous situations may occur which are identified as follows in these operating instructions:

DANGER	
	A safety instruction designed in this way indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING	
	Such a safety instruction indicates a potentially hazardous situation which, if not avoided, may result in serious injury or even death.

CAUTION

A safety instruction designed in this way indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTE

A safety notice designed in this way indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Irrespective of all safety regulations, your common sense and appropriate technical suitability/training are and will remain the most important safety factor for error-free operation of the machine. Safe working primarily depends on you!

16 TRANSPORT

WARNING

Damaged or insufficiently strong hoists and load slings can result in serious injury or even death. Before use, therefore, check hoists and load slings for adequate load-bearing capacity and perfect condition. Secure the loads carefully. Never stand under suspended loads!

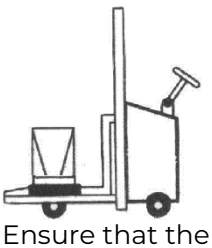
CAUTION

The lathe is heavy! At least two persons are required to carry the lathe!

NOTE

Avoid using sling chains as there is a risk of damaging the feed screw or the lead screw. Make sure that the lead screw, feed screw and selector shaft of the machine are not touched by the lifting slings when lifting. Never lift the machine by the spindle!

To ensure proper transport, observe the instructions and information on the transport packaging regarding centre of gravity, attachment points, weight, means of transport to be used and the prescribed transport position, etc.



Transport the machine in its packaging to the place of installation. To manoeuvre the machine in the packaging, a pallet truck or forklift truck with the appropriate lifting force can be used, for example.

Ensure that the selected lifting equipment (crane, forklift, pallet truck, load sling, etc.) is in perfect condition. Lifting and transporting the machine may only be carried out by qualified personnel with appropriate training for the lifting equipment used.

Before lifting, check that the tailstock is clamped. Ensure that the load stop is balanced. If necessary, change the position of the bed carriage and/or tailstock to obtain a balanced load stop. If you are transporting the lathe with a vehicle, ensure that the load is secured accordingly!

17 ASSEMBLY

17.1 Preparatory activities

17.1.1 Checking delivery content

Always note visible transport damage on the delivery note and check the machine immediately after unpacking for transport damage or missing or damaged parts. Report any damage to the machine or missing parts immediately to your retailer or freight forwarder.

17.1.2 Cleaning and lubrication

Before you install and commission the machine at the intended location, carefully remove the anti-corrosion protection and grease residues.

Under no circumstances should you use nitro thinner or other cleaning agents that could attack the machine's paint.

Oil bare machine parts (e.g. machine bed, tailstock sleeve, feed spindle) with an acid-free lubricating oil.

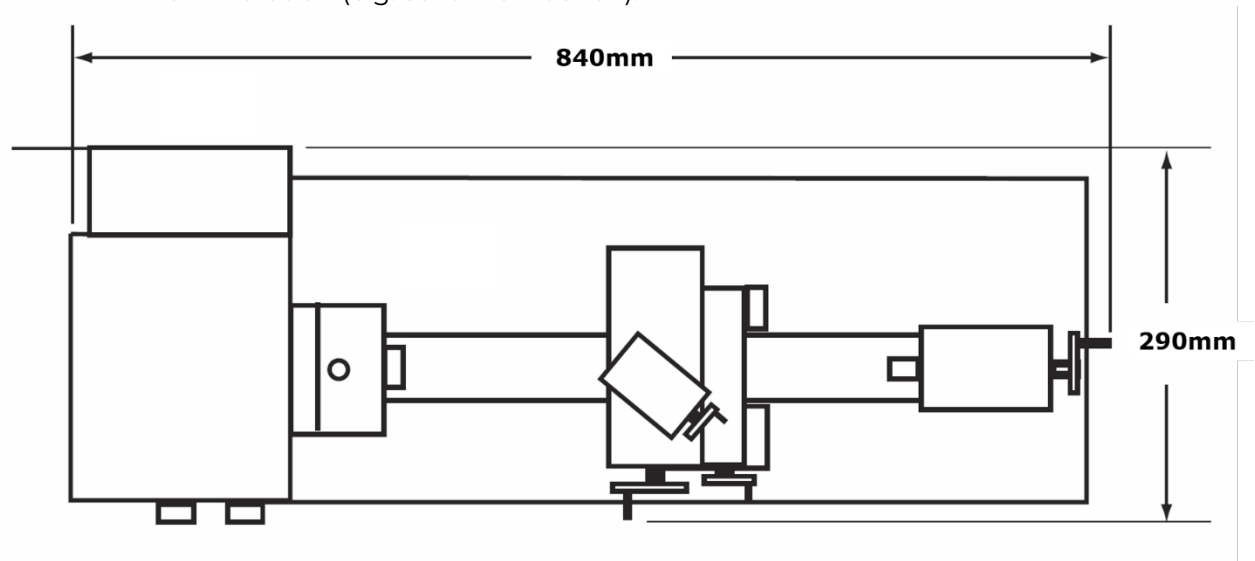
17.1.3 Site requirements

NOTE	
	Insufficient rigidity of the ground leads to the superposition of vibrations between the lathe and the ground (natural frequency of components). If the stiffness of the overall system is insufficient, critical speeds are quickly reached, which leads to poor turning results.

Select a suitable installation location for the machine.

The place of installation should have:

- adequate lighting.
- a plain, level floor with minimum vibration values (e.g. concrete).
- The machine itself should be mounted on a solid work surface that is also straight and low-vibration (e.g. solid workbench).

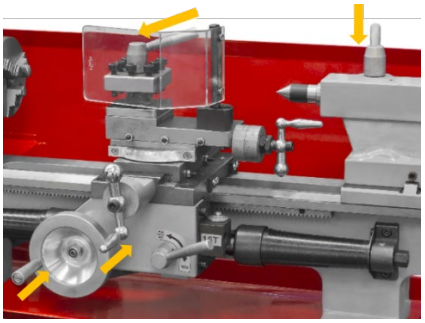
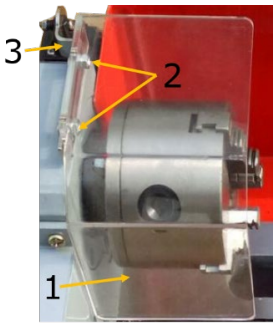
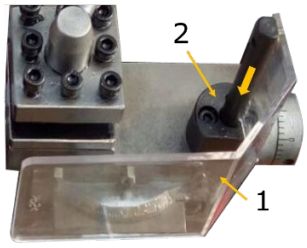


The exact space required and the required load-bearing capacity of the ground result from the technical data (dimensions, weight) of your machine. When designing the working area around the lathe, observe the local safety regulations. When dimensioning the required space, take into account that the operation, maintenance and repair of the machine must be possible without restrictions at all times.

The selected installation location must have a suitable connection to the electrical mains (230 V / 50 Hz) with appropriate fuse (16 A).
After the machine has been installed at the intended location, it must be aligned.

17.1.4 Assembling

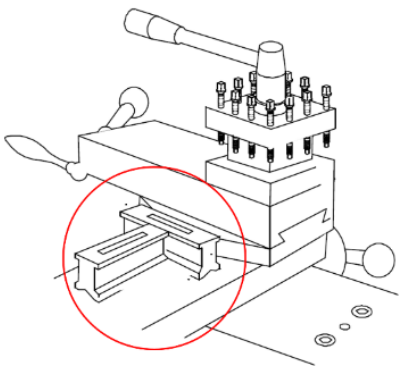
The machine is pre-assembled, the parts removed for transport must be assembled according to the following instructions and the connection to mains have to be made.

	**Assembly handles:** • Screw the handles of clamping lever tool post and tailstock sleeve into the threads. • Screw the handles for handwheels of longitudinal slide and cross slide into the threads.
	**Assembly jaw chuck guard:** • Fix the jaw chuck guard (1) with screws, nuts and washers (2) on the bracket (3).
	**Assembly tool post guard:** • Insert the tool post guard (1) into the bracket (2) and fix it in place by turning it.

17.2 Machine settings

17.2.1 Aligning / leveling the lathe

After installation and commissioning, it is recommended to check the alignment and levelling of the machine before using it for the first time. In order to ensure working accuracy, the alignment and levelling should be repeated at regular intervals.



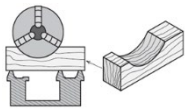
To level the machine, use a precision spirit level (according to DIN 877) with an accuracy of 0.02 mm to 1000 mm. This allows the horizontal position of the machine axis to be checked with sufficient accuracy in both the longitudinal and transverse directions.

For anchored installation: Do not tighten the anchor bolt nuts carefully and evenly until three to four days after the cement has cured.

Repeat the horizontal check a few days after initial start-up and every six months thereafter.

17.2.2 Checking the fit of the jaw chuck

NOTE



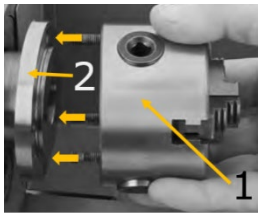
Do not use cast iron chucks. Use ductile iron chucks only. Before disassembling the jaw chuck, place a stable board or chuck cradle under the spindle to protect the precision-ground surfaces.

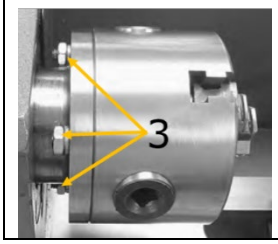
17.2.3 Mounting workpiece holders

WARNING

The max. spindlespeed of the machine must be lower than the max. permissible speed of the used workpiece holder.

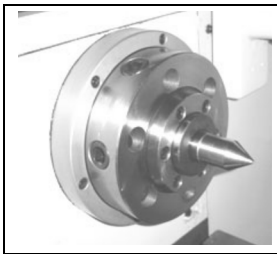
Jaw chuck / face plate





1. Check the fitting surfaces on the turning spindle mounting (2) and on the flange to be mounted for the jaw chuck (1) or face plate for cleanliness and undamaged mounting surfaces.
2. Insert the threaded bolts into the mounting holes.
3. Fix the jaw chuck or face plate with nuts and washers (3).

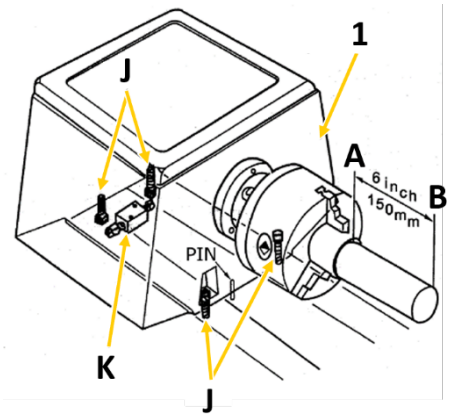
Centring tip



1. Clean the inner taper of the spindle holder.
2. Clean the morse taper and the taper of the centering tip.
3. Press the centring tip with the morse taper into the inner taper of the turning spindle holder.

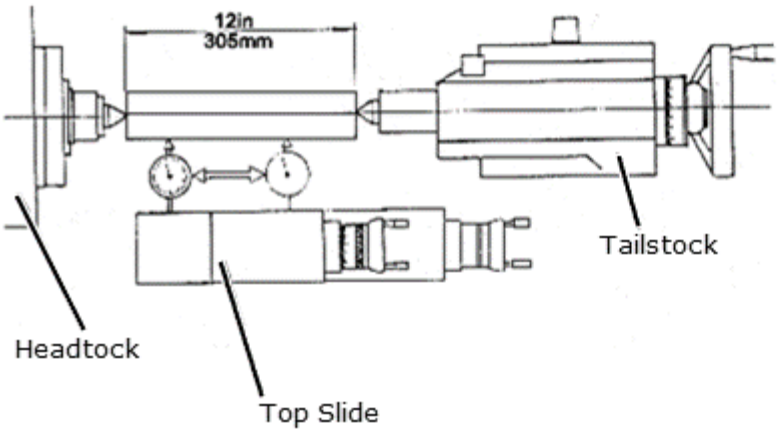
17.2.4 Adjusting the headstock

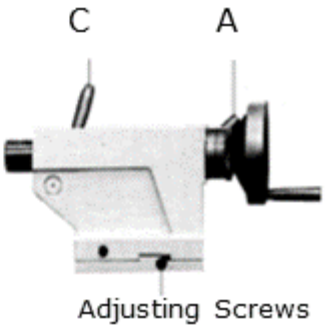
The headstock (1) was aligned at the factory. If, contrary to expectations, an adjustment is required, proceed as follows:



Clamp one end of a steel tube 150 mm long and 50 mm in diameter into the headstock chuck. The other end runs free. Now remove a thin layer with a sharp turning chisel. The values measured with the dial gauge or calliper at points A and B must match. If this is not the case, loosen the four headstock fixing screws (J) to correct the difference (two are below the headstock) and readjust using the adjusting screw (K). Then tighten the fixing screws again and repeat the rotation, measurement and adjustment until the measured values match and the machine runs smoothly.

17.2.5 Adjusting the tailstock



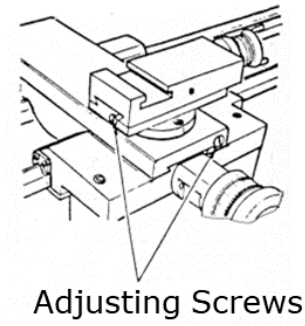


A ... clamping lever tailstock; **C** ... clamping lever spindle sleeve;

To adjust the tailstock, clamp a ground steel tube 305 mm long between the headstock and tailstock tips (see illustration above). Now place a dial gauge on the top slide and pull it along the workpiece axis below the workpiece.

If the dial gauge shows different values, loosen the tailstock clamping lever (A) and readjust using the two set screws. Repeat this procedure until both points are exactly aligned.

17.2.6 Adjusting the sliding guides



The sliding guides of the cross slide and top slide are equipped with bevelled guide rail adjusting screws (see illustration on the left), which can be used to eliminate any play that may occur there over time.

Ensure that the slideways are thoroughly cleaned before adjustment. Then adjust the guide pads by loosening the rear guide pad adjusting screw a little while tightening the front one a little. Ensure that smooth running is guaranteed over the entire sliding guide section. Too tight an adjustment will result in increased wear and heavy, jerky running.

17.2.7 Visual inspection

NOTE

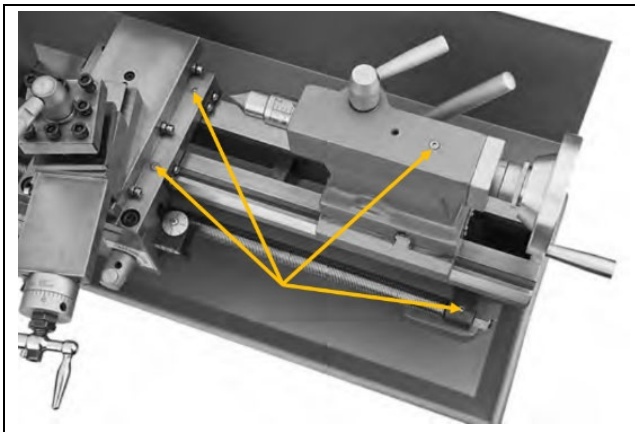
The machine is delivered without lubricant! These must be filled or applied before the lathe is put into operation. Non-observance can lead to serious damage to the machine. For running operation, use a viscous oil with viscosity ISO 220 (e.g. GOE5L) or a comparable SAE140 oil or a multi-purpose grease of class 2NLGI for lubrication.

NOTE

Lubricants are toxic and must not be released into the environment! Always follow the manufacturer's instructions and, if necessary, contact your local authority for information on proper disposal.

The lubrication points bed slideway, dovetail guide cross slide, dovetail guide longitudinal slide and tailstock spindle sleeve are lubricated with the aid of an oil can and a commercially available oil can while moving the slide or the quill back and forth.

Lubrication pints



Other lubrication points

Lubrication points can be found on the drive shaft, on the lead screw, on the slides, on the handwheels and on the tailstock. Lubricate these points regularly with a grease gun. See Maintenance.

17.3 Electrical connection

WARNING

Dangerous electrical voltage! Connection of the machine as well as electrical inspections, maintenance and repair may only be carried out by qualified personnel or under the supervision and supervision of a qualified electrician!

1. Check that the neutral connection and protective earthing are functioning properly
2. Check that the supply voltage and current frequency correspond to the specifications of the machine

NOTE

Deviation of the supply voltage and current frequency

A deviation from the value of the supply voltage of ± 5% is permissible.

A short-circuit fuse must be provided in the power supply system of the machine!

3. Find the required cross-section of the supply cable (it is recommended to use a cable type H07RN (WDE0282), taking measures to protect against mechanical damage) in a current capacity data sheet.
4. Make sure that the power source is protected by a residual current circuit breaker.
5. Connect the unit only to a properly grounded outlet.
6. When using an extension cable, make sure that it is dimensioned appropriately for the connected load of the machine (the connected load can be found in the technical data). You can find the correlation between cable cross-section and cable length in specialist literature or consult an electrician.

18 OPERATION

18.1 Before start-up

- Oil all bare machine parts with an acid-free lubricating oil.
- Check the function of the moving and fixed parts.
- Lubricate the lathe according to the lubrication schedule.
- Check all spindles for smooth running.
- Check that the fixing screws of the lathe chuck are tight.
- Clamp a workpiece in the lathe chuck or turn the chuck jaws completely together before switching on the lathe.

18.2 Retracting the machine

NOTE

Never shift the gears of the machine while the machine is in operation and make sure that the shift lever tapping (lock nut) is disengaged before putting the machine into operation! Otherwise the carriage may be pushed forward into the chuck or tailstock and cause serious damage.

WARNING

Before starting the machine, make sure that you have followed all assembly and adjustment instructions, that you have read the instructions and that you are familiar with the various functions and safety features of this machine. Disregarding this warning may result in serious injury or even death!

After assembly is complete, test the machine to ensure that it is functioning properly and ready for regular operation. Perform the test as described below.

18.2.1 Performing a test run

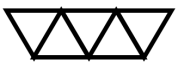
1. Make sure that you have understood the safety instructions in this manual and that all other assembly steps have been completed.
2. Make sure that the chuck is correctly fastened.
3. Make sure that all tools and objects used during setup are removed from the machine.
4. Release the shift lever tapping (lock nut) (N).
5. Set the the selector switch feed direction (F) to the disengaged centre position.
6. Set the selector switch rotating direction (H) to position "0".
7. Set the selector lever speed range (A) to position "L"
8. Set with the adjusting knob spindle speed (D) the machine to the lowest speed.
9. Connect the machine to the power source and set the selector switch rotating direction (H) to position "L"
10. Push the On-Off-switch (B) to start the machine and set with the adjusting knob spindle speed (D) a spindle speed of appr. 100 min^{-1}. When properly operated, the machine runs smoothly with little or no vibration or friction.

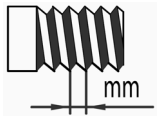
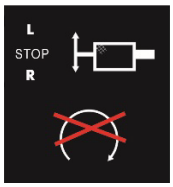
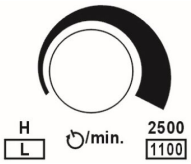
The retraction must be carried out at the lowest spindle speed. Let the machine run at this speed for about 20 min. Pay attention to any abnormalities and/or irregularities, such as unusual noises, unbalance, etc. If everything is OK, gradually increase the speed. The highest speeds may only be reached after 10 hours of operation.

If unusual noises or vibrations occur during the test run, stop the machine immediately and read the Troubleshooting section. If you cannot find a remedy, contact your specialty retailer or customer service.

18.3 Operating the machine

18.3.1 Control icons

	On-Off-switch I: On (green) 0: Off (red)		Selector switch rotating direction L: Counterclockwise 0: Off R: Clockwise
	Half nut opened		Half nut closed

	Electric voltage		Metric thread
	Do not change speed or direction of rotation during operation!		Spindle speed in min^{-1}

18.3.2 Operating instructions

NOTE

Note that the machine can only be started if the jaw chuck guard is closed.

NOTE

Set the adjusting knob spindle speed to the lowest setting at each start. Failure to observe this warning will result in damage to the engine and loss of warranty!

18.3.3 Switching on the machine


To switch on the machine set selector switch rotating direction (1) to position "L" or "R" and push the on button of the On-Off-switch (2).

18.4 Setting spindle speed and rotation direction

NOTE

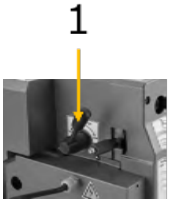
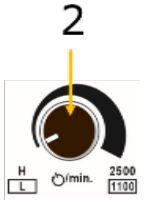
Never change the direction of rotation, as long as the motor / spindle is not at a complete standstill! Changing the direction of rotation during operation may lead to the destruction of components.

The correct spindle speed is important for safe and satisfactory results and for maximizing tool life. To set the spindle speed correctly, do the following:

- Determine the optimum spindle speed for the machining task in question and
- Set the machine control so that the required spindle speed is actually reached.

18.4.1 Spindle speed selection

The machine can be operated within two speed ranges (L, H).

Set with the selector lever speed range (1) "L" or "H".

"L": 50-1100 min^{-1} "H": 50-2500 min^{-1}

The spindle speed can be continuously selected by turning the adjusting knob spindle speed (2).

The speed is displayed on the speed display.

18.4.2 Direction of rotation

The selector switch rotating direction (1) is used to shift the direction of rotation.

Switch the selector switch rotating direction to position "L", for counterclockwise spindle direction.

Switch the selector switch rotating direction to position "R", for clockwise spindle direction.

18.4.3 Running operation

Only use chucks recommended by Holzmann Maschinen.
When threading or automatic feed is not in use, the selector switch feed direction should be in the neutral position to ensure disconnection of the lead screw.

18.5 Threads and feeds

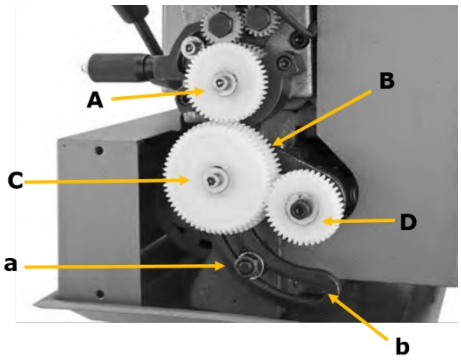
18.5.1 Change gear gearbox

For optimum adaptation to the respective requirements for threading, the change-gear gearbox must be set according to the data scale. A large number of feeds and most thread pitches can be set with the factory fitted change gears. For special feeds or thread pitches, the required change gears must be changed.

WARNING

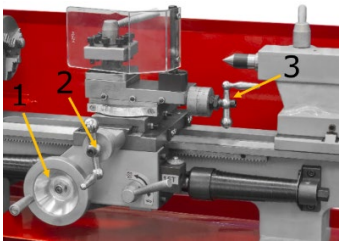
Switch off the machine before replacing or changing the position of the change wheels and secure it against unauthorised or unintentional recommissioning.

The change gears for the feed are mounted on a change gear shear or directly on the lead screw and the feed gear.
In order to obtain the desired thread according to the table, the corresponding gearwheel combinations must be mounted beforehand:



1. Disconnect the machine from the power source and secure it against unintentional start-up.
2. Loose the screws and remove the cover on the left side of the headstock.
3. Loosen the nut (a) and move the swing frame (b) out of the way.
4. Change the gear wheels (A, B, C, D) according to the feed or thread table.
5. Position the swing frame so that the large gear wheel meshes with the smaller gear wheels. Then tighten. Make sure that there is a clearance of 0.005 - 0.007 mm between the gears. (Adjusting the gears too tightly will result in excessive noise and increased wear.)
6. Remount the cover and reconnect the machine to the power source.

18.5.2 Manual feed



- The manual feed of the longitudinal slide is carried out by means of handwheel (1).
- The manual feed of the cross slide is carried out by means of handwheel (2).
- The manual feed of the top slide is carried out by means of handwheel (3).

18.5.3 Automatic feeds and threas pitches

NOTE

Disconnect the machine from the mains and wait until the machine has come to a complete standstill before making any changes to the switching positions of the selector switches. If necessary, turn the jaw chuck by hand to assist in engaging a switch.

mm Längsvorschub	mm Gewindesteigung metrisch	A	B	C	D
0,009375		20	80	20	80
0,0125	0,5	40	60	30	60
0,022857	0,7	35	60	40	50
0,02	0,8	40	60	40	50
0,011111	1,0	60	45	30	60
0,03125	1,25	40	60	50	40
0,0375	1,5	40	60	60	40
0,057143	1,75	35	60	60	30
0,0222222	2,0	60	50	50	45
0,04	2,5	50	60	60	30

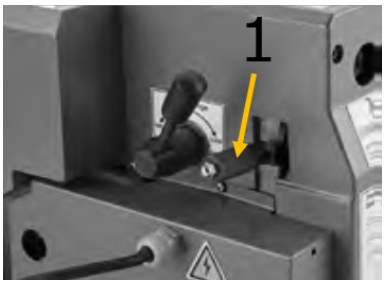
The feed spindle is switched on via the selector switch feed direction (1) on the headstock and the shift lever tapping (lock nut) (2).

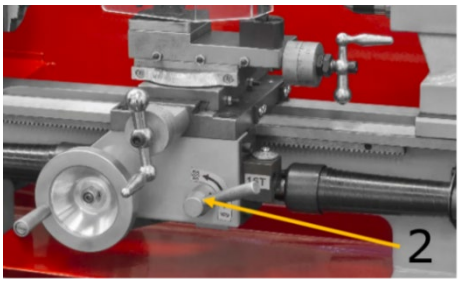
Move the selector levers up or down according to the symbols

Use the change gears to set the desired feed rate or thread pitch

The selectable feed rates for longitudinal feed range from 0.009375 to 0.04 mm/r.

Use the tables on the side of the housing of the gearbox to set the desired feed rate.





Cutting threads:

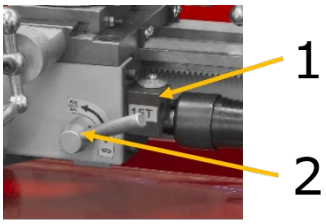
The machine can be used to cut metric threads. With the selector switch feed direction (1) on the headstock, you can set the direction of rotation for threading (left / right thread). You can set the pitch with the change gears. The shift lever tapping (lock nut) (2) must always be closed during the thread cutting process.

The metric threads range from 0.5 to 2.5 mm, 9 steps are available.

18.5.4 Thread dial indicator (for resuming the pitch)

NOTE

Do not engage the lock nut if the lead screw rotates at more than 200 revolutions per minute or if the carriage lock is locked, otherwise damage may be caused to the bearings or the shear pin of the spindle may break!

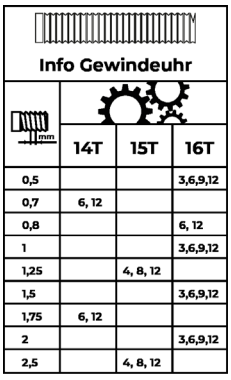


The thread dial indicator (1) can also be used for cutting metric threads. The thread dial indicator (to resume the pitch) is located on the right of the apron.

The thread dial indicator has an important function. It indicates the correct moment to engage the " shift lever tapping (lock nut)" (2), so that the tool takes up the same turn again at each step.

On the lower end of the thread dial indicator shaft there are several change gears with different numbers of teeth to be able to turn metric threads with different thread pitches. The change gear

of the thread dial indicator is changed as required so that the gear selected for the desired thread pitch engages with the lead screw.



On the dial of the thread gauge there are the numbered lines 1 - 12. When the lead screw is engaged, the dial rotates.

There is only one line mark (fixed line) on the housing of the thread dial indicator.

The table on the side of the gearbox housing (see illustration on the left) shows the pitch, the selection and the coupling sequence of the marks on the rotating dial with the fixed mark. The numbers in the line 14T, 15T, 16T refer to the numbering of the graduation marks on the thread dial indicator. For threading, engage the lock nut at the height of the corresponding number indicated in the table.

18.6 Tool post

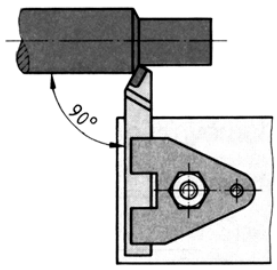
The main function of the tool post is to fix the tool. If necessary, the tool post can also hold more than one tool (maximum 4).

When inserting the tool, make sure that the cutting head of the tool points in the direction of the rotation axis of the workpiece.

Tool change

CAUTION

Before any manual tool change, stop the spindles, wait for all tools to come to a standstill and secure the machine against unintentional restarting before changing the tools!

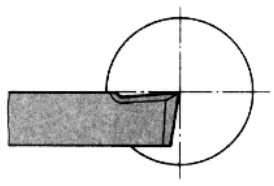


Clamp the turning tool into the tool post (L).

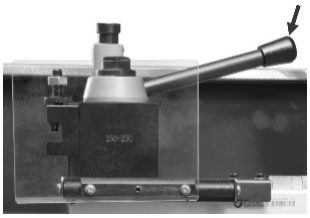
The turning tool must be clamped as short and tightly as possible in order to be able to absorb the cutting force occurring during chip formation well and reliably.

Also ensure that the turning tool is clamped at a right angle to the axis of rotation (see illustration on the left). When clamping at an angle, the turning tool can be pulled into the workpiece.

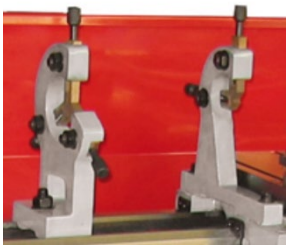
Align the turning tool in height. Use the tailstock with centering point to determine the required height. If necessary, place steel supports under the machine tool to obtain the required height.



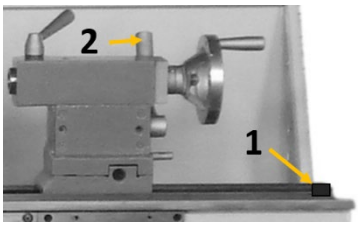
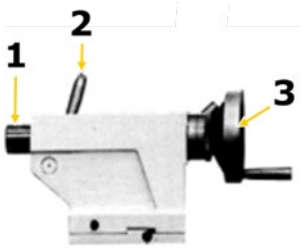
The cutting edge of the turning tool must be set exactly to centre height during facing so that the face is free of studs. Facing produces flat surfaces perpendicular to the workpiece axis of rotation. A distinction is made between transverse face turning, transverse cut-off turning and longitudinal face turning.

	If the tool post must be turned, open the clamping lever by turning it counterclockwise. Turn the tool post to the desired position and then tighten it again by turning the clamping lever clockwise.

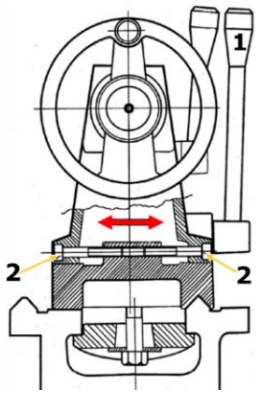
18.7 Mounting steady or follow rests

	Use steady or follow rests to support long turned parts if the cutting force of the turning tool is likely to cause the turned part to deflect. **Optional:** ED300ECOLM ED300ECOLF

18.8 Tailstock

	The tailstock serves as a counter bearing when turning between the centres as well as for holding drilling, countersinking and reaming tools. It is guided on the cheeks of the machine bed and can be clamped at any point by a clamping lever (2). The tailstock is secured in the machine bed (cast bed) with an end position stop screw (1) to prevent the tailstock from sliding out unintentionally (see picture on the left).
	The tailstock spindle sleeve (1) can be moved by a threaded spindle and a handwheel (3) and can be clamped with a clamping lever (2). An inner taper in the quill accommodates the centering point, a drill chuck or tools with a tapered shank. • Clamp your required tool into the tailstock sleeve. → Use the scale on the sleeve for adjustment and/or readjustment. • Clamp the sleeve with the clamping lever. → Use the handwheel to retract and extend the quill.

18.8.1 Tailstock laterally offset

	The transverse displacement of the tailstock is necessary, for example, when turning long, conical bodies. Loosen the tailstock clamping lever (1) and the adjusting screws (2) on the left and right of the tailstock. The desired transverse offset can be set with the help of the scale on the back of the tailstock. Finally retighten adjusting screws and clamping lever.

18.9 General working instructions

WARNING

Do not clamp workpieces that exceed the permissible clamping range of the workpiece holders, machine chucks, etc. The clamping force of a machine chuck is too low when the clamping range is exceeded. The clamping jaws can become loose.

CAUTION

Regularly check the closed condition of the clamping bolts.

The workpieces must be clamped securely and firmly on the machine before machining. The clamping force should be dimensioned in such a way that the workpiece can be securely gripped, but no damage or deformation of the workpiece occurs.

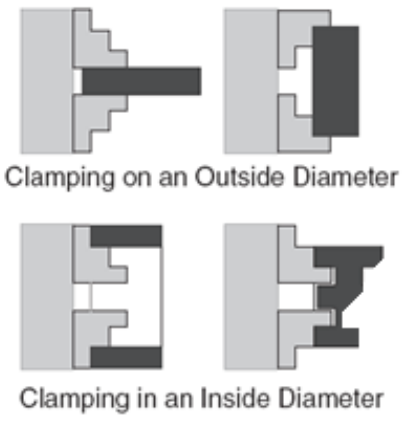
Clamping the workpiece

1. Disconnect the machine from the mains.
2. Place a stable board or chuck cradle under the spindle to protect the precision-ground surfaces.
3. Insert the chuck key into a scroll groove and turn it counterclockwise to open the jaws until the workpiece lies flat on the clamping surface or evenly on the jaw steps or fits into the chuck hole and through the spindle hole.
4. Close the jaws until they make light contact with the workpiece.
5. Turn the chuck by hand to ensure that the workpiece is held evenly by all three jaws and centred on the chuck.

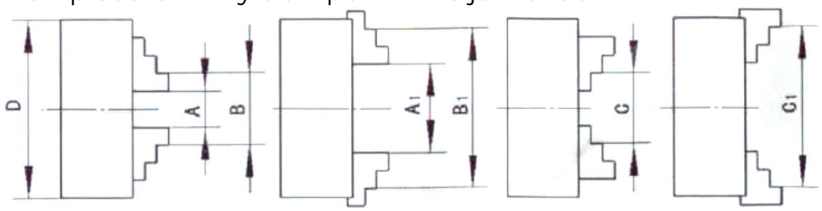
If the workpiece is not centred, release the jaws and realign the workpiece. Retighten the jaws and repeat step 5. When the workpiece is centred, fully tighten the jaws.

18.9.1 3-jaw chuck

The 3-jaw chuck supplied with your machine is a scroll chuck, i.e. all three jaws move uniformly when the chuck key is turned. This jaw configuration is used to hold concentric workpieces that are centred with the same pressure from all three jaws. A set of reversible top jaws is also included to allow additional workpiece configurations.

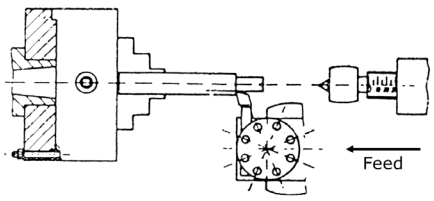


Both sets of jaws can accommodate a workpiece on both the inside and outside - see illustration on the left. Regardless of how you configure the jaws, make sure the workpiece is firmly clamped in the jaw chuck.



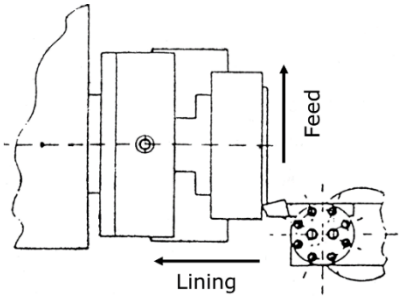
Ø D	A – A1	B – B1	C – C1
80 mm	2 – 22 mm	25 – 70 mm	22 – 63 mm

18.9.2 Longitudinal turning



During facing, the planer tool is moved parallel to the axis of rotation. The feed is carried out either manually by turning the handwheel on the lathe slide or on the upper slide or by switching on the automatic feed. The infeed for the cutting depth is effected via the cross slide.

18.9.3 Plain turning and recessing

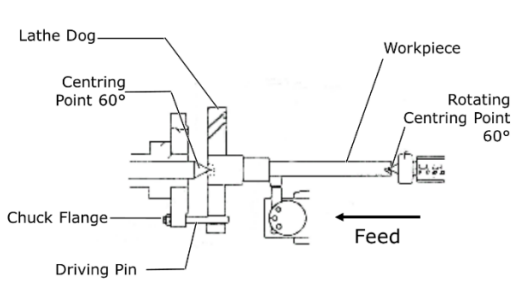


When facing, the turning tool is moved at right angles to the axis of rotation. The feed is done manually with the handwheel of the facing slide. The feed of the cutting depth is effected by the top slide or the bed slide.

18.9.4 Fixing the lathe slide

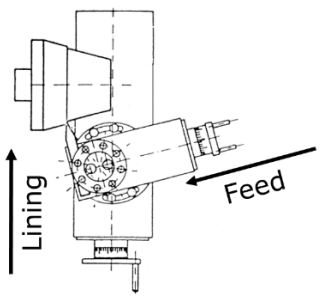
The cutting force occurring during facing, grooving or cutting-off operations can cause the lathe slide to move. Therefore fasten lathe slide with the fixing screw.

18.9.5 Turning between tips



Workpieces that require a high concentricity are machined between the tips. A centre hole is drilled in both face turned faces of the workpiece. The turning heart is clamped onto the workpiece. The driving pin, which is screwed into the chuck flange, transmits the torque to the rotary heart. The fixed centering point is located in the centre hole of the workpiece on the spindle head side. The rotating center point is located in the centering hole of the workpiece on the tailstock side.

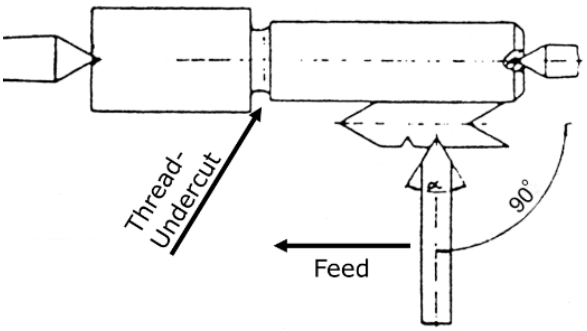
18.9.6 Turning short taper with the top slide



The short taper is turned by hand with the top slide. The upper slide is swivelled according to the desired angle. The infeed takes place with the cross slide:

	1. Loosen the two clamping screws at the front and rear of the upper slide. 2. Turn the upper slide to the desired position. 3. Clamp the upper slide again.

18.9.7 Thread cutting

	Threading or tapping requires good turning skills and sufficient experience from the operator. See the following example

Example outside thread:

- The workpiece diameter must be turned to the diameter of the desired thread.
- The workpiece requires a chamfer at the beginning of the thread and an undercut at the end of the thread.
- The speed must be as low as possible.
- The thread chisel must correspond exactly to the thread form, be absolutely right-angled and clamped exactly to the turning centre.
- The engagement lever for thread cutting must remain closed during the entire thread cutting process. Excluded are the thread pitches which can be carried out with the tapping watch.
- The thread is produced in several cutting operations, so that the turning tool must be completely turned out of the thread (with the facing slide) at the end of a cutting operation.
- The return path is made with the clasp nut closed and the thread turning tool not engaged by actuating the "Shift lever Direction of rotation".
- Switch off the machine and reposition the chisel in small cutting depths with the cross slide.
- Before each run, adjust the upper slide by approx. 0.2 to 0.3 mm alternately to the left and right in order to free the thread. The thread chisel therefore only cuts on one thread flank in each pass. Do not cut free until shortly before reaching the full thread depth.

19 CLEANING

NOTE

Wrong cleaning agents can attack the varnish of the machine. Do not use solvents, nitro thinners, or other cleaning agents that could damage the machine's paint. Observe the information and instructions of the cleaning agent manufacturer!

Prepare the surfaces and lubricate the bare machine parts with an acid-free lubricating oil. Regular cleaning is a prerequisite for the safe operation of the machine and its long service life. Therefore, clean the device after each use of chips and dirt particles.

20MAINTENANCE

WARNING

Danger due to electrical voltage! Handling the machine with the power supply up may result in serious injury or death. Always disconnect the machine from the power supply before servicing or maintenance work and secure it against unintentional restart!

The machine is low-maintenance and only a few parts have to be serviced. Nevertheless, any faults or defects which may affect the safety of the user must be rectified immediately!

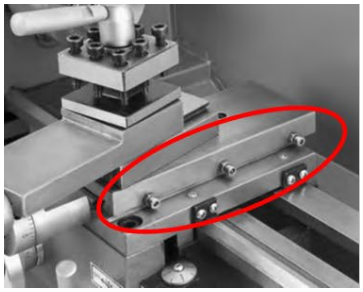
- Before each start-up, make sure that the safety devices are in perfect condition and function properly.
- Check all connections for tightness at least once a week.
- Regularly check that the warning and safety labels on the machine are in perfect and legible condition.
- Use only proper and suitable tools.
- Only use original spare parts recommended by the manufacturer.

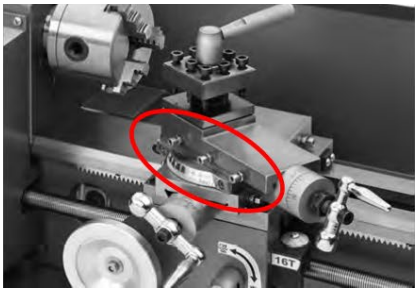
20.1 Inspection and maintenance plan

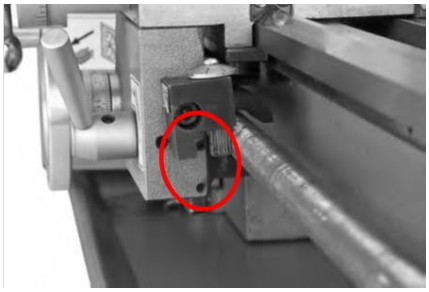
The type and degree of machine wear depends to a large extent on the operating conditions. The following intervals apply when the machine is used within the specified limits:

Interval	Component	What to do?
Before start of work or after every maintenance or servicing	Guideways	oiling
	Change gears	lubricate lightly with grease
	Turning spindle Adapter	Check fastening
Weekly	Lead screw Tailstock	Grease or fill all grease nipples and lubricators with machine oil.
	Top slide Cross slide Lathe slide	Grease or fill all grease nipples and lubricators with machine oil.
As needed	Guideways	Adjust taper gib
	Head stock	Check V-belt and tighten if necessary
After 50h (/ 10h)	Carbon brush	Check and replace if necessary

20.1.1 Adjusting the taper gibs







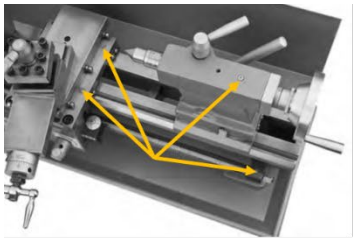
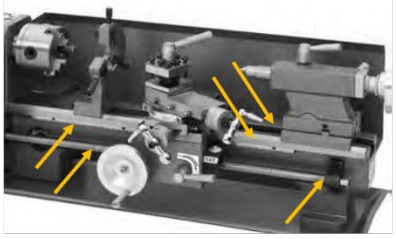
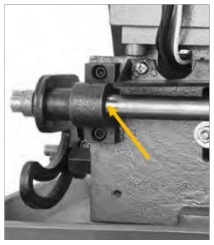
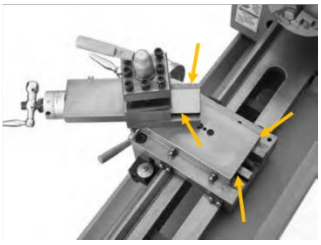
Too much play in the guideways can be reduced by adjusting the taper gibs. To adjust, turn the adjustment screw clockwise. This pushes the taper gibs backwards and reduces the clearance of the respective guideway.

20.1.2 Other lubrication points

Gear wheels

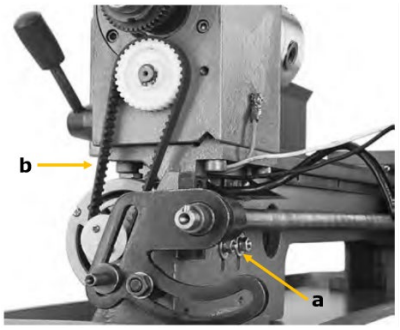
Lubricate the gears with a heavy, non-spinning grease. Make sure that no grease gets onto belt pulleys or belts!

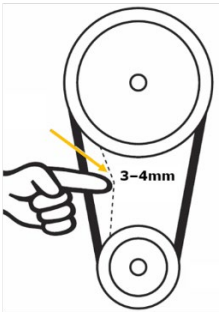
Grease nipples and lubricators

Lubricate or fill grease nipples or oilers on the leadscrew, on the tailstock as well as on the face and top slides with machine oil weekly.

20.1.3 Replacing / tightening the V-belt

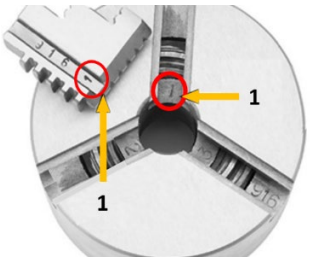


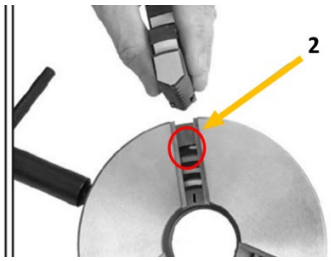


- Open the screws on the cover and remove it.
- Loosen the adjusting screws (a) on the motor frame
- Remove the V-belt (b) and replace the new V-belt on the drive pulleys and tighten the V-belt. The tension is correct when the V-belt can only be pushed through 3-4 mm.
- Tighten the adjusting screwa again.
- Remount the cover.

20.1.4 Replacing jaws

To replace the jaws, you must open the lathe chuck with the chuck key. In the fully open position, the jaws can then be removed one by one.





The following must be observed when inserting the jaws:

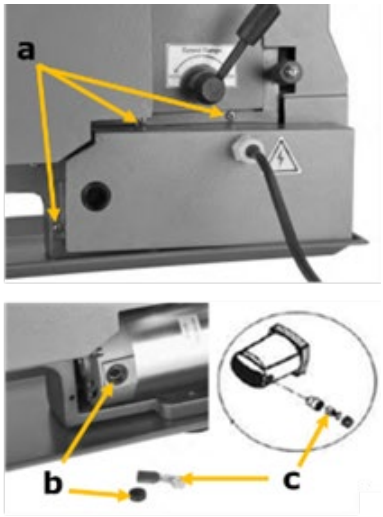
- The threaded segments (2) of the jaws are graduated as shown in the figure.
- In addition, they are numbered (1) from 1 to 3 to indicate the actual pitch in the lathe chuck.

Therefore, make sure to mount the jaws in the correct order:

1. Arrange the jaws as shown in the figure above and insert them clockwise into the slots of the lathe chuck in this order.
2. Hold the jaws and clamp them with the chuck key.
3. Close the chuck completely and check that the jaws meet in the middle.

If a jaw does not fit properly, open the lathe chuck, press firmly on the jaw and turn the chuck key until the jaw is in the correct position. Check again that the jaws meet in the middle.

20.1.5 Check / change carbon brushes



Check the carbon brushes after the first 50 hours of operation with a new machine or when new brushes are fitted. After carrying out the first check, repeat the check every 10 hours of operation.
If the carbon is worn down to a length of 6 mm, or if the spring or contact wire is burnt or damaged, it is necessary to replace both brushes. If it turns out that the brushes can be used after removal, it is possible to remount them.

- Loosen the screws (a) and remove the motor cover
- Open the two locks (b) on the back and front side counterclockwise
- Remove the carbon brushes (c)
- Replace the carbon brushes in reverse order

21 STORAGE

NOTE

Improper storage can damage and destroy important components. Only store packed or unpacked parts under the intended environmental conditions!

When the machine is not in use, store it in a dry, frost-proof and lockable place to prevent the formation of rust on the one hand and to ensure that unauthorised persons and in particular children have no access to the machine on the other hand.

22 DISPOSAL

Observe the national waste disposal regulations. Never dispose of the machine, machine components or equipment in residual waste. If necessary, contact your local authorities for information on the disposal options available.
If you buy a new machine or an equivalent device from your specialist dealer, he is obliged in certain countries to dispose of your old machine properly.

23 TROUBLESHOOTING

WARNING

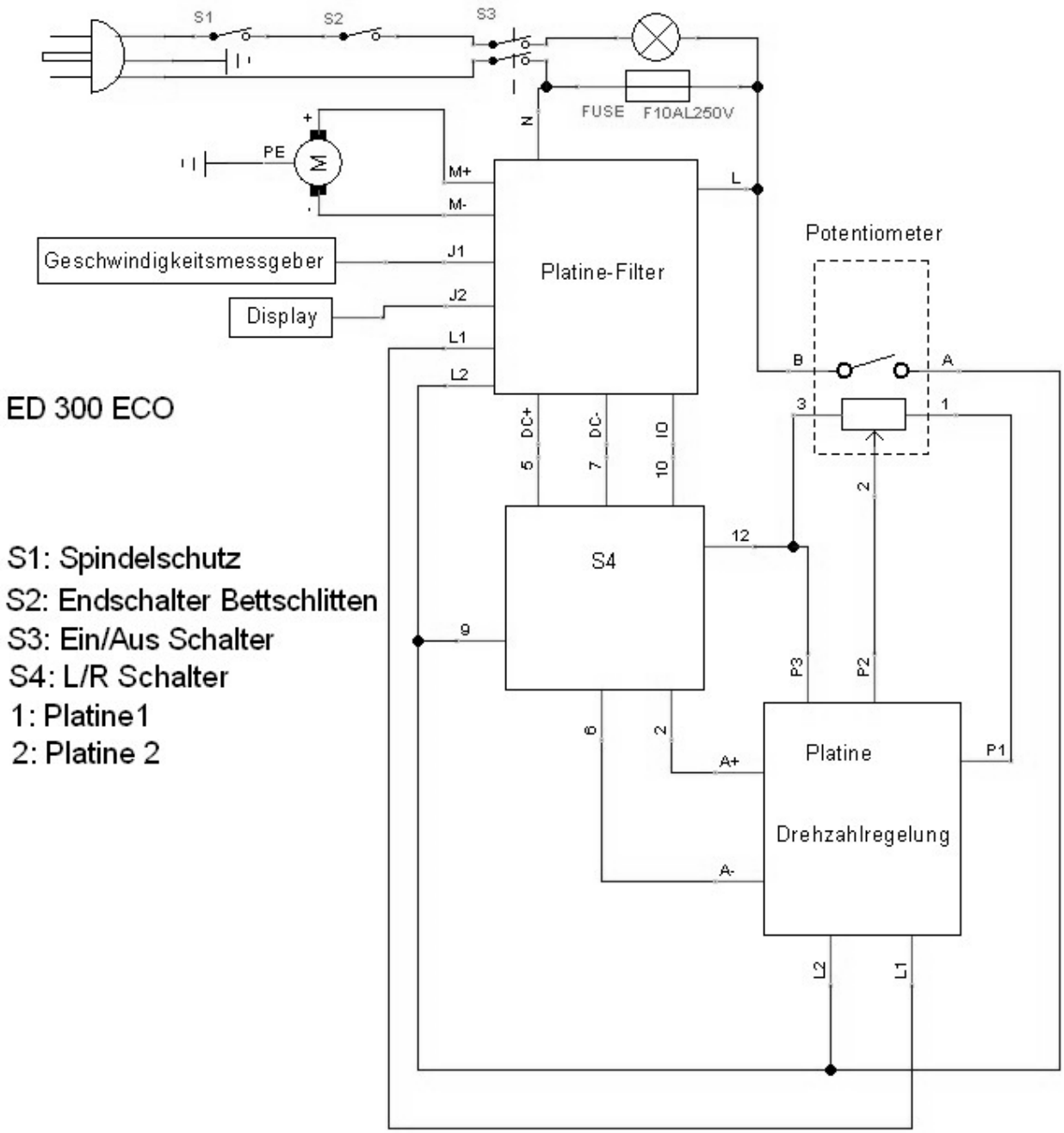
Danger due to electrical voltage! Manipulating the machine with the power supply up may result in serious injury or death. Before carrying out any troubleshooting work, always disconnect the machine from the power supply and secure it against unintentional recommissioning.

Many possible sources of error can be excluded in advance if the machine is properly connected to the mains.

If you are unable to carry out necessary repairs properly and/or do not have the required training, always consult a specialist to solve the problem.

Fault	Possible cause	Remedy
Machine does not start	▪ Machine is not connected ▪ Fuse or contactor broken ▪ Cable damaged ▪ Safety device not locked	▪ Check all electrical connections ▪ Change fuse, activate contactor ▪ Replace cable ▪ Check spindle protection
Machine does not reach speed	▪ Extension cable too long ▪ Motor not suitable for existing voltage ▪ weak power network	▪ Exchange to suitable extension cable ▪ See switch box cover for correct wiring ▪ Contact electrician
Machine vibrates strongly	▪ Stands on uneven ground ▪ Motor mounting is loose	▪ Level new ▪ Tighten the fixing screws
Lathe tool has a short tool life	▪ Hard cast skin ▪ Too high cutting speed ▪ Too large infeed ▪ Too little cooling	▪ Break casting skin beforehand ▪ Choose lower cutting speed ▪ Lower infeed (finishing allowance) not more than 0.5 mm) ▪ More cooling
Cutting edge breaks out	▪ Wedge angle too small (heat build-up) ▪ Abrasive cracks due to incorrect cooling ▪ Too much play in the spindle bearing (vibrations occur)	▪ Select a larger wedge angle ▪ Uniform cooling ▪ Adjust play in the spindle bearing. Replace tapered roller bearing if necessary.
Turned thread is wrong	▪ Thread chisel is incorrectly clamped or incorrectly ground ▪ Incorrect thread pitch ▪ Incorrect diameter	▪ Set lathe tool to centre ▪ Grinding angles correctly ▪ Set the correct gradient ▪ Pre-turn workpiece to exact diameter

44 SCHALTPLAN / WIRING DIAGRAM / DIAGRAMA DE CABLEADO / SCHÉMA ÉLECTRIQUE



45ERSATZTEILE / SPARE PARTS / PIEZAS DE RECAMBIO / PIECES DE RECHANGE

45.1 Ersatzteilbestellung / Spare parts order / Pedido de piezas / Commande de pièces détachées

(DE) Mit HOLZMANN-Ersatzteilen verwenden Sie Ersatzteile, die ideal aufeinander abgestimmt sind. Die optimale Passgenauigkeit der Teile verkürzen die Einbauzeiten und erhöhen die Lebensdauer.

HINWEIS

Der Einbau von anderen als Originalersatzteilen führt zum Verlust der Garantie!

Daher gilt: Beim Tausch von Komponenten/Teilen nur Originalersatzteile verwenden

Beim Bestellen von Ersatzteilen verwenden Sie bitte das Serviceformular, das Sie am Ende dieser Anleitung finden. Geben Sie stets Maschinentype, Ersatzteilnummer sowie Bezeichnung an. Um Missverständnissen vorzubeugen, empfehlen wir mit der Ersatzteilbestellung eine Kopie der Ersatzteilzeichnung beizulegen, auf der die benötigten Ersatzteile eindeutig markiert sind.

Oder nutzen sie die Online-Bestellmöglichkeit über den Ersatzteilkatalog bzw. Ersatzteilanforderungsformular auf unserer Homepage.

Bestelladresse sehen Sie unter Kundendienstadressen im Vorwort dieser Dokumentation.

(EN) With original HOLZMANN spare parts you use parts that are attuned to each other shorten the installation time and elongate your products lifespan.

IMPORTANT

The installation of other than original spare parts voids the warranty!

So you always have to use original spare parts

When you place a spare parts order please use the service formular you can find in the last chapter of this manual. Always take a NOTICE of the machine type, spare parts number and partname. We recommend to copy the spare parts diagram and mark the spare part you need.

Or use the electronic ordering opportunity via the spare parts catalogue or spare parts request form on our homepage.

You find the order address in the preface of this operation manual.

(ES) Con las piezas de recambio de Holzmann, utiliza piezas de recambio que se ajustan perfectamente entre sí. El ajuste óptimo de los componentes acorta el tiempo de instalación y aumenta la vida útil.

AVISO

¡La instalación de piezas de recambio no originales lleva a la pérdida de garantía!

Por lo tanto: Al llevar a cabo la sustitución de componentes/piezas, utilice únicamente piezas de recambio originales

Para pedir piezas de recambio utilice el formulario del servicio de atención al cliente que encontrará al final del presente manual. Indique siempre el tipo de máquina, la referencia de la pieza de recambio y la denominación. Para evitar malentendidos, se recomienda adjuntar al pedido una copia del esquema de piezas de recambio en el que se marque claramente las piezas de recambio necesarias.

O utilice la opción de pedido online a través del catálogo de piezas de recambio o del formulario de solicitud de piezas de recambio que encontrará en nuestra página web.

Encontrará la dirección de pedidos en las direcciones del servicio postventa que se encuentra en el prólogo de esta documentación.

(FR) Les pièces de rechange HOLZMANN sont conçues pour correspondre idéalement. La précision d'ajustage optimale des pièces réduisent les temps de pose et augmente la durée de vie.

AVIS

Le montage de pièces autres que les pièces de rechange d'origine entraîne la perte de la garantie !

Par conséquent, la règle est la suivante : Utiliser uniquement des pièces de rechange d'origine pour le remplacement des composants/pièces

Pour commander des pièces de rechange, veuillez utiliser le formulaire de service à la fin de ces instructions. Toujours indiquer le type de machine, le numéro de pièce de rechange et la désignation. Afin d'éviter tout malentendu, nous vous recommandons de joindre une copie du plan des pièces détachées à la commande de pièces détachées, sur laquelle les pièces détachées requises sont clairement indiquées.

Vous pouvez aussi utiliser l'option de commande en ligne via le catalogue de pièces détachées ou le formulaire de demande de pièces détachées sur notre page d'accueil.

Pour l'adresse de commande, voir Adresses du service à la clientèle dans l'avant-propos de la présente documentation.

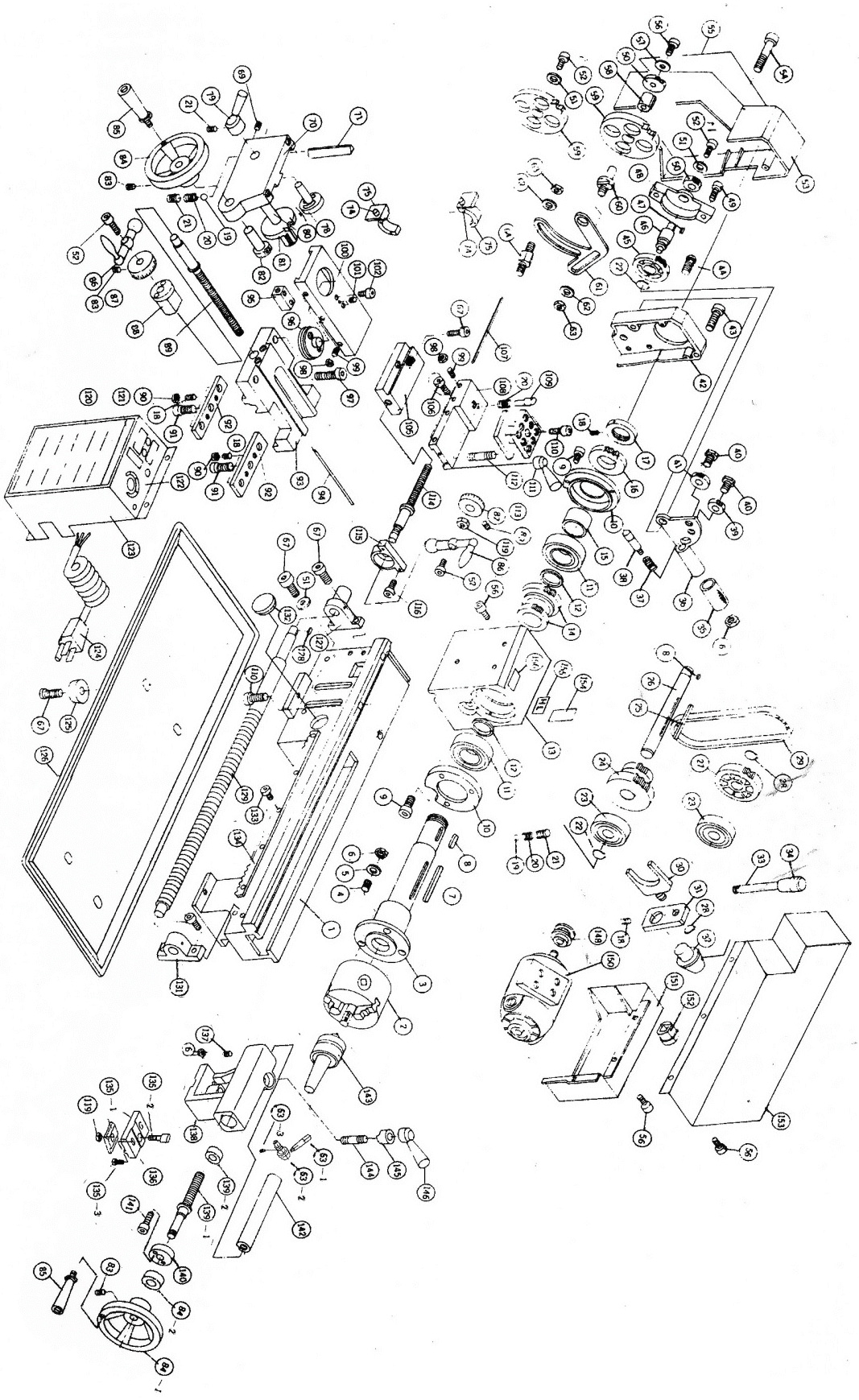
(DE) Den elektronischen Ersatzteilkatalog finden Sie auf unserer Homepage (Ersatzteile)

(EN) For electronic spare-parts catalogue please refer to our homepage (spare-parts)

(ES) Encontrará el catálogo electrónico de piezas de recambio en nuestra página web (piezas de recambio)

(FR) Vous pouvez trouver le catalogue électronique des pièces détachées sur notre page d'accueil (pièces détachées)

45.2 Explosionszeichnungen / Exploded view / Vistas de despiece / Vues éclatées



#	Description	Qty	#	Description	Qty
1	Bed Way	1	81	Feeding Gear(A) 11T 54T	1
2	Chuck	1	82	Feeding Gear(B) 24T	1
3	Spindle	1	83	Screw M6× 12	3
4	Stud M6× 16	5	84-1	Wheel	2
5	Washer M6	3	84-2	Coilar dial	2
6	Nut M5	7	85	Knob	2
7	Key 5× 40	1	86	Handle	2
8	Key 4×8	2	87	Dial	1
9	Screw M5× 10	6	88	Bracket	1
10	Cover	2	89	Feeding Screw	3
11	Ball Bearing 6206ZZ	2	90	Nut M5	6
12	Spacer	2	91	Screw M6× 12	2
13	Head Stock Casting	1	92	Slide Plate	1
14	H L Gear 21T 29T	1	93	Saddle	1
15	Spaoer	1	94	Gib Strip	1
16	Spur Gear 45T	1	95	Feeding Nut	1
17	Nut	2	96	Swivel Disk	1
18	Set Screw M5×8	1	97	Screw M3× 20	2
19	Steel Ball Φ5	2	98	Nut M4	6
20	Ccmpressicn Spring Φ4 × 9	3	99	Screw M4× 16	6
21	Set Screw M6×6	3	100	Cross Slido	1
22	Retaining Ring 12	2	101	Screw M5× 10	4
23	Ball Bearings 6201ZZ	2	102	Screw M4× 10	2
24	HAL Gear 12T 20T	1	105	Compound Rest(B)	1
25	Parellel Key 4 × 45	1	106	Screw M4×14	1
26	HAL Gear Shaft	1	107	Gib Strip	1
27	Pulley	1	108	Compound Rest(A)	1
28	Retaining Ring	1	109	Positioning Pin	1
29	Timing Belt	1	110	Screw MB×25	4
30	Shifting Fork	1	111	Clamping Lever	1
31	Shifting Arm	1	112	Tool Rest	1
32	Shifting Knob	1	113	Stud M10× 50	1
33	Shifting Lever	1	114	Cross Feeding Screw	1
34	Shifting Grip	1	115	Bracket	1
35	Handle	1	116	Screw M4 × 14	2
36	Handle Mount	1	119	Nut	2
37	Spring	1	120	Model Lable	1
38	Indicalor	1	121	Warnlng Label	1
39	Pinion 25T	1	122	Switch Label	1
40	Support Screw	2	123	Ccntrol Box	1
41	Pinion 20T	1	124	Plug w Cord	1
42	Flxcd Cover	1	125	Ruboor Pad	4
43	Screw M6×20	2	126	Chip Tray	1
44	Screw M5× 10	1	127	Bracket	1
45	Gear 45T	1	128	Key B4×8	1
46	Shaft	1	129	Lead Screw	1
47	Parellel Key 4 × 8	1	131	Bracket	1
48	Mount	1	133	Screw M3× 10	4
49	Screw M5× 15	3	134	Rack	1
50	Pinion 20T	2	135-1	Tailstock base	1
51	Washer 1	1	135-2	Clamp	1
52	Screw M5× 10	8	135-3	Screw m6x20	1
53	Cover	1	136	Clamp Plate	1
54	Screw M5 × 40	2	137	Screw M5× 15	1
			138	Tailstock Casting	1
56	Screw M6 × 6	3	139-1	Tailstock screw	1
57	Washcr 5	3	139-2	Coilar	1
58	Bush w Key	1	139-3	Spring plate	1
59	Gear 80T	2	140	Bracket	1
60	Shaft	1	141	Screw M4× 10	6
61	Support Plate	1	142	Tailstock Quill	1
			143	Center	1
62	Washer 8	2	144	Stud M8x25	1
63-1	Handle	1	145	Clamp	1
63-2	handle head	1	146	Handle	1
63-3	screw M6X8	1	148	Pulley	1
64	Shaft	1	150	Motor	1
67	Screw M6X16	10	151	Cover	1
69	Set Screw M4 × 10	3	152	Ccrd Fixer	1
70	Apron	1	153	Rear Splash Guard	1
71	Gib Strlp	1	154	Warnlng Label	1
74	Shaft	2	155	HL Label	1
75	Half Nut Base	1	156	Warning Label	1
78	Groove Cam	1			
79	Handle	1			
80	Shaft	1			