

REMS Tornado 2000 / 2010 / 2020¹

REMS Magnum 2000 / 2010 / 2020²

REMS Magnum 4000 / 4010 / 4020³

**deu Gewindeschneidmaschine
für Rohr- und Bolzengewinde**

Betriebsanleitung
Vor Inbetriebnahme lesen!

**eng Pipe and bolt
threading machine**

Operating Instructions
Please read before commissioning!

**fra Machine à fileter
pour tubes et barres**

Instructions de service
A lire avant la mise en service!

**ita Filetatrice
per tubi e bulloni**

Istruzione d'uso
Leggere prima della messa in servizio!

spa Roscadora de tubos y barras

Instrucciones de uso
¡Se ruega leer estas instrucciones,
antes de la puesta en servicio!

**nld Draadsnijmachine
voor pijp- en boutendraden**

Gebruiksaanwijzing
Voor ingebruikname lezen!

**swe Gängskärningsmaskin
för rör och bultar**

Bruksanvisning
Läs noga före igångsättningen!

**nor Gjengeskjæremaskin
for rør- og skrueregjenger**

Bruksanvisning
Må leses før idriftsettelse!

**dan Gevindskæremaskine
til rør og bolte**

Betjeningsvejledning
Skal læses igennem før opstart!

**fin Kierteityskone
putki- ja pulttikierteille**

Käyttöohje
Luettava ennen käyttöönottoa!

**por Máquina roscadora
para roscas em tubos e varões**

Manual de instruções
Leia antes da colocação em serviço!

**pol Gwinciarka do gwintów
rurowych i walcowych**

Instrukcja obsługi
Przed użyciem przeczytać!

**ces Závitořezný stroj
pro trubkové a šroubové závit**

Návod k provozu
Čtěte před uvedením do provozu!

**slk Závitořezný stroj
pre rúrkové a skrutkové závit**

Návod na použitie
Prečítajte pred uvedením do prevádzky!

**hun Menetvágó gép csőmenet
és csavarmentet vágására**

Üzemeltetési útmutató
Üzembehelyezés előtt olvassa el!

**hrv/scg Stroj za narezivanje navoja
na cijevima i svornjacima**

Pogonske upute
Pročitati prije početka rada!

**slv Stroj za rezanje navojev
na ceveh in sornjkih**

Navodila za uporabo
Preberite pred uporabo!

**ron Mașină de tăiat filete pentru
filete de țevă și bolțuri**

Instrucțiuni de folosire
Se vor citi înainte de punerea în funcțiune!

**rus Резьбонарезной станок для
трубной и болтовой резьбы**

Руководство по эксплуатации
Ознакомиться перед вводом в эксплуатацию!

**grc Μηχανή σπειροτόμησης για
σπείρωμα σωλήνων και πείρων**

Οδηγίες λειτουργίας
Διαβάστε πριν τη χρήση!

**tur Boru ve pim paftaları için
dis açma makinesi**

Kullanma talimatı
Çalıştırmadan önce mutlaka okuyunuz!

**bul Винторезна машина
за тръбни и болтови резби**

Инструкция за работа
Прочетете преди пускане в действие!

**lit Vamzdžių ir varžtų
sriegimo staklės**

Naudojimo instrukcija
Prieš darbo pradžią būtina perskaityti!

**lav Vītņu griešanas mašīna
cauruļvītņem un tapvītņem**

Lietošanas instrukcija
Pirms ekspluatācijas uzsākšanas jāizlasa!

**est Keermelõikemasin toru- ja
poldikeermete lõikamiseks**

Kasutusjuhend
Enne kasutusele võtmist läbi lugeda!



Made in Germany

REMS-WERK
Maschinen- und Werkzeugfabrik
Postfach 1631 · D-71306 Waiblingen
Tel. +49 7151 1707-0
Fax +49 7151 1707-110
www.rems.de

REMS Maschinen und Werkzeuge für die Rohrbearbeitung



Fig. 1: RohrfüÙe einstecken
 Fig. 1: Inserting the tubular legs
 Fig. 1: Engager les pieds tubulaires
 Fig. 1: Infilare le gambe di supporto
 Fig. 1: Introducir las patas tubulares
 Fig. 1: Steunpoten insteken
 Fig. 1: Isättning av benen
 Fig. 1: Montering av rørben
 Fig. 1: Indstikning af rørben
 Kuva 1: Putkijalkojen asennus
 Fig. 1: Introduzir os pés tubulares
 Rys. 1: Montaż nóżek rurkowych
 Obr. 1: Trubkové nohy nasřčit
 Obr. 1: Růrkové nohy nasřčit
 1. ábra: Feltolní a csólábakat
 Sl. 1: Utaknuti noge od cijevi
 Slika 1: Vstavite cevno podnožje
 Fig. 1: Introducereea picioarelor tubulare
 Фиг. 1: Вставить трубные ножки
 Εικ. 1: Τοποθέτηση των σωληνωτών ποδιών
 Resim 1: Boru tipi ayakların takılması
 Фиг. 1: Поставяне на тръбните стойки
 1 pav.: Vamzdinių kojų įstatymas
 Att. 1: Ievietot caurules galus
 Joonis 1: Torujalgade sissepänek



Fig. 2: Aufstellen der Maschine
 Fig. 2: Putting up the machine
 Fig. 2: Pose de la machine
 Fig. 2: Raddrizzamento della macchina
 Fig. 2: Instalación de la máquina
 Fig. 2: Plaatsen van de machine
 Fig. 2: Uppställning av maskinen
 Fig. 2: Oppstilling av maskinen
 Fig. 2: Opstilling af maskinen
 Kuva 2: Koneen pystytys
 Fig. 2: Instalação da máquina
 Rys. 2: Ustawianie maszyny
 Obr. 2: Stroj postaviti
 Obr. 2: Stroj postaviti
 2. ábra: Felállítási a gépet
 Sl. 2: Postavljanje stroja
 Slika 2: Postavitev stroja
 Fig. 2: Amplasarea maşinii
 Фиг. 2: Установка станка
 Εικ. 2: Τοποθέτηση της μηχανής
 Resim 2: Makinenin kurulumu
 Фиг. 2: Монтаж на машината
 2 pav.: Staklių pastatymas
 Att. 2: Mašinas uzstādīšana
 Joonis 2: Masina ülespanek

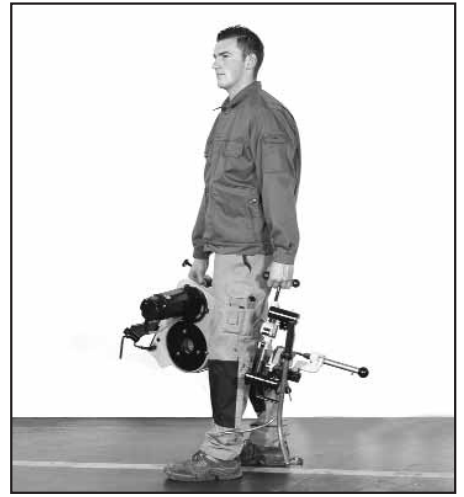


Fig. 3: Transport der Maschine
 Fig. 3: Transporting the machine
 Fig. 3: Transport de la machine
 Fig. 3: Trasporto della macchina
 Fig. 3: Transporte de la máquina
 Fig. 3: Transport van de machine
 Fig. 3: Transport av maskinen
 Fig. 3: Transport av maskinen
 Fig. 3: Transport af maskinen
 Kuva 3: Koneen kuljetus
 Fig. 3: Transporte da máquina
 Rys. 3: Transport maszyny
 Obr. 3: Doprava stroje
 Obr. 3: Doprava stroja
 3. ábra: A gép szállítása
 Sl. 3: Prijenos stroja
 Slika 3: Transport stroja
 Fig. 3: Transportul maşinii
 Фиг. 3: Транспортировка станка
 Εικ. 3: Μεταφορά της μηχανής
 Resim 3: Makinenin taşınması
 Фиг. 3: Транспортиране на машината
 3 pav.: Staklių transportavimas
 Att. 3: Mašinas uzstādīšana
 Joonis 3: Masina transportimine



Fig. 4: Vorderes Spannfutter (19)
 Fig. 4: Front chuck (19)
 Fig. 4: Mandrin avant (19)
 Fig. 4: Mandrino anteriore (19)
 Fig. 4: Mandril de sujeción anterior (19)
 Fig. 4: Voorste spanklauw (19)
 Fig. 4: Främre spännchuck (19)
 Fig. 4: Fremre spennchuck (19)
 Fig. 4: Forreste patron (19)
 Kuva 4: Etuistukka (19)
 Fig. 4: Mordentes de aperto anteriores (19)
 Rys. 4: Przedni uchwyt zaciskowy (19)
 Obr. 4: Přední sklíčadlo (19)
 Obr. 4: Predné sklíčovadlo (19)
 4. ábra: Első tokmány (19)
 Sl. 4: Prednji stezni uložak (19)
 Slika 4: Spređnja vpenjalna glava (19)
 Fig. 4: Mandrina anterioară (19)
 Фиг. 4: Передний зажимный патрон (19)
 Εικ. 4: Μπροστινός σφικτήρας (19)
 Resim 4: Ön sıkıştırma mandreni (19)
 Фиг. 4: Преден универсал (19)
 4 pav.: Priekinis kumštelinis griebtuvas (19)
 Att. 4: Priekšējā spīles ietvere (19)
 Joonis 4: Eesmine pingutuspadrun (19)

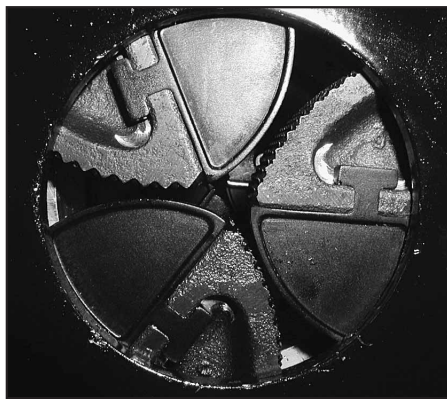


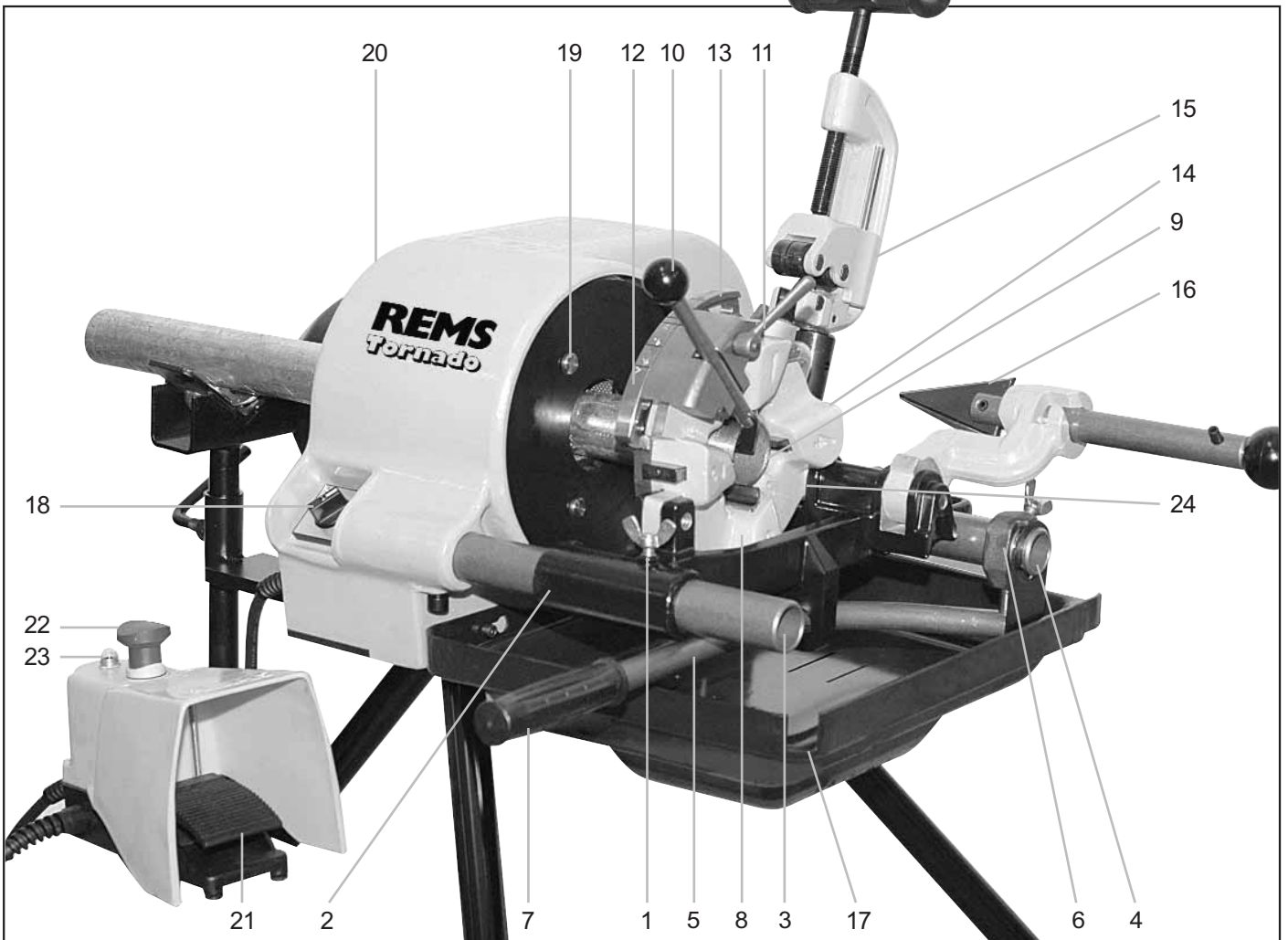
Fig. 5: Hinteres Spannfutter (20)
 Fig. 5: Rear chuck (20)
 Fig. 5: Mandrin arrière (20)
 Fig. 5: Mandrino posteriore (20)
 Fig. 5: Mandril de sujeción posterior (20)
 Fig. 5: Achterste spanklauw (20)
 Fig. 5: Bakre spännchuck (20)
 Fig. 5: Bakre spennchuck (20)
 Fig. 5: Bageste patron (20)
 Kuva 5: Takaistukka (20)
 Fig. 5: Mordentes de aperto posteriores (20)
 Rys. 5: Tylny uchwyt zaciskowy (20)
 Obr. 5: Zadní sklíčadlo (20)
 Obr. 5: Zadné sklíčovadlo (20)
 5. ábra: Hátsó tokmány (20)
 Sl. 5: Stražnji stezni uložak (20)
 Slika 5: Zadnja vpenjalna glava (20)
 Fig. 5: Mandrina posterioară (20)
 Фиг. 5: Задний зажимный патрон (20)
 Εικ. 5: Πίσω σφικτήρας (20)
 Resim 5: Arka sıkıştırma mandreni (20)
 Фиг. 5: Заден универсал (20)
 5 pav.: Galinis kumštelinis griebtuvas (20)
 Att. 5: Aizmugurējā spīles ietvere (20)
 Joonis 5: Tagumine pingutuspadrun (20)

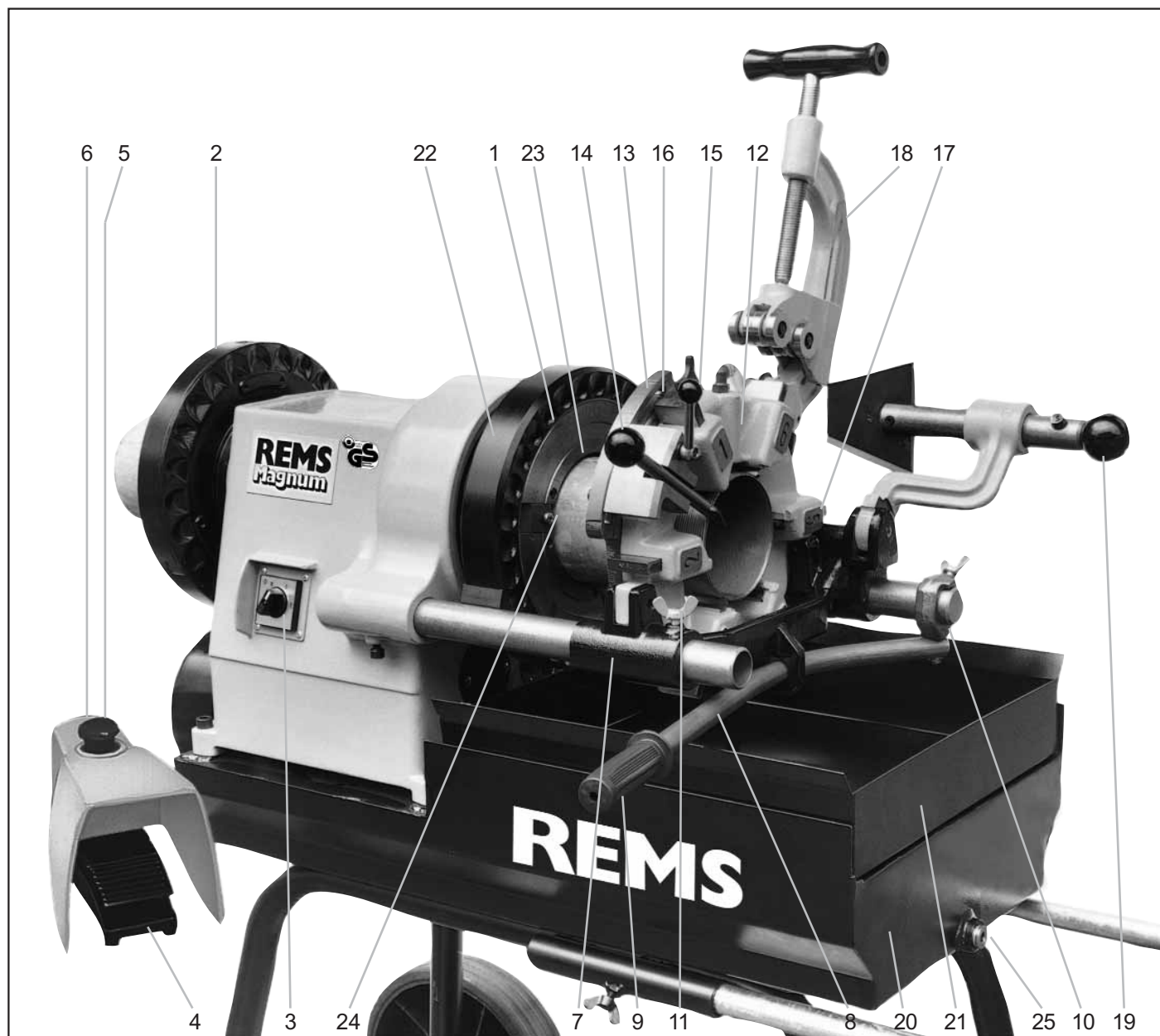


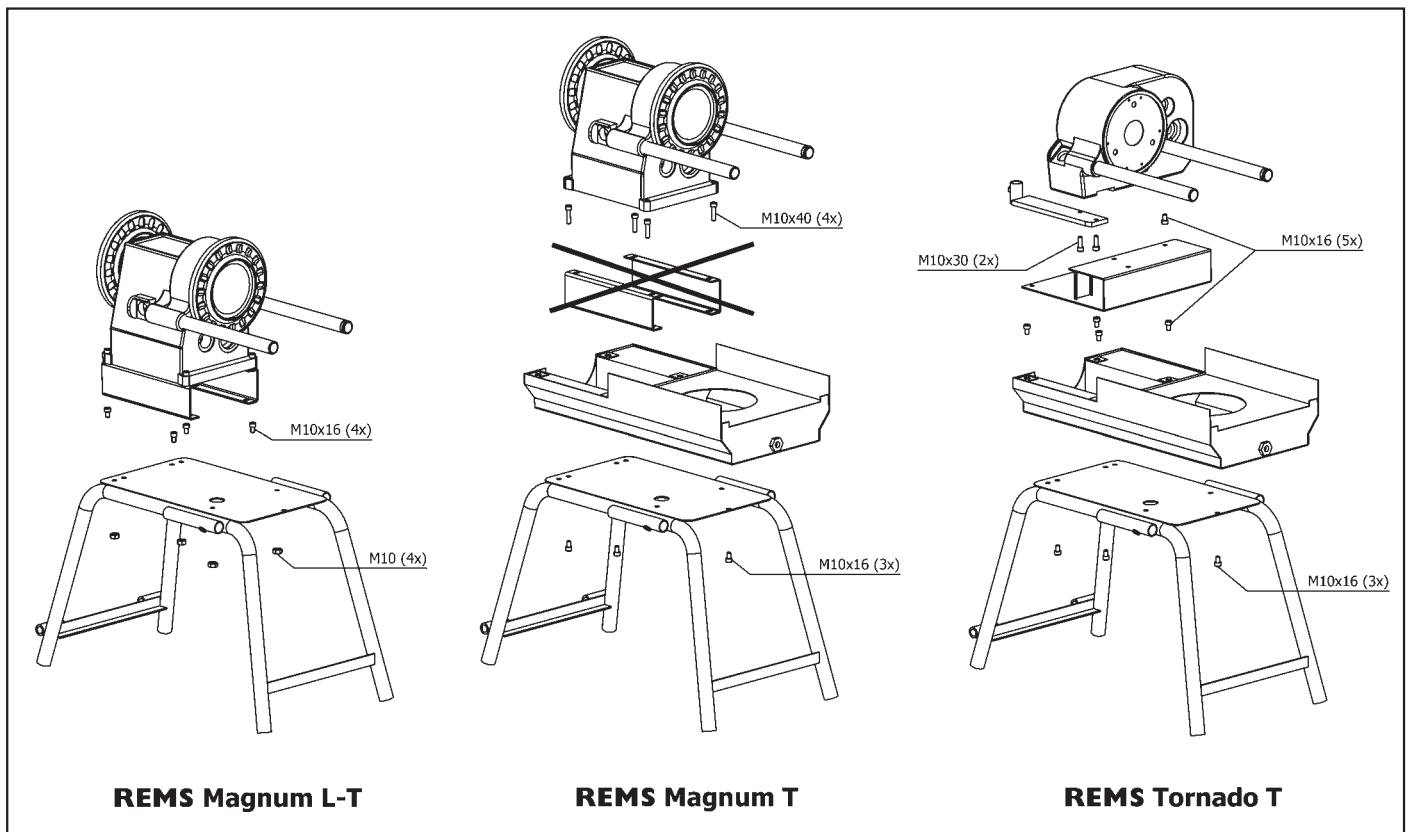
- Fig. 6: REMS 4" Automatik-Schneidkopf auf REMS Tornado
 Fig. 6: REMS 4" automatic die head on REMS Tornado
 Fig. 6: REMS Tête de filetage automatique 4" montée sur REMS Tornado
 Fig. 6: Filiera automatica REMS 4" sulla REMS Tornado
 Fig. 6: REMS 4" cabezal de rosca automático sobre REMS Tornado
 Fig. 6: REMS 4" automatische snijkop op REMS Tornado
 Fig. 6: REMS 4" automatiskt skårhuvud på REMS Tornado
 Fig. 6: REMS 4" automatisk skjærehode på REMS Tornado
 Fig. 6: REMS 4" automatisk gevindskærehoved på REMS Tornado
 Kuva 6: Automaattinen REMS 4"-kierrepää REMS Tornadossa
 Fig. 6: Cabeça automática REMS" montada sobre a REMS Tornado
 Rys. 6: Automatische gwinciarzka REMS 4" dla REMS Tornado
 Obr. 6: Automatičká závitorezná hlava REMS 4" na REMS Tornado
 Obr. 6: Automatičká závitorezná hlava REMS 4" na REMS Tornado
 6. ábra: REMS 4" automatikus menetvágó fej a REMS Tornado-ra
 Sl. 6: REMS 4" Automatik narezna glava za REMS Tornado
 Slika 6: REMS 4" avtomatska rezalna glava na REMS Tornado
 Fig. 6: REMS 4" cap de filetat automat pe REMS Tornado
 Фиг. 6: Автоматическая резьбонарезная головка REMS 4" на REMS Торнадо
 Εικ. 6: Αυτόματη κεφαλή κοπής REMS 4" στη μηχανή REMS Tornado
 Resim 6: REMS 4" otomatik pafta açma kafası, REMS Tornado üzerinde
 Фиг. 6: REMS 4" автоматична винторезна глава върху REMS Tornado
 6 pav.: Automatinė sriegimo galvutė REMS 4" naudojama su REMS Tornado
 Att. 6: REMS 4" Automatišká griezna galva uz REMS Tornado
 Joonis 6: REMS 4" automaat-lõikepea REMS Tornadol



- Fig. 7: REMSTornado mit Wanne u. Untergestell
 Fig. 7: REMS Tornado with trough and base
 Fig. 7: REMS Tornado avec bac et support
 Fig. 7: REMS Tornado con vasca e piedestallo
 Fig. 7: REMS Tornado con cubeta y pedestal
 Fig. 7: REMS Tornado met schaal en onderstel
 Fig. 7: REMS Tornado med tråg och stativ
 Fig. 7: REMS Tornado med kar og understell
 Fig. 7: REMS Tornado med oliekar og understel
 Kuva 7: REMS Tornado, allas ja konealusta
 Fig. 7: REMS Tornado com cuba e base
 Rys. 7: REMS Tornado z wanną i podstawą
 Obr. 7: REMS Tornado s vanou a podstavcem
 Obr. 7: REMS Tornado s vaňou a podstavcom
 7. ábra: REMS Tornado kádval és állványal
 Sl. 7: REMS Tornado s kadmom i postoljem
 Slika 7: REMS Tornado s koritom in podnožjem
 Fig. 7: REMS Tornado cu cadă și șasiu
 Фиг. 7: REMS Торнадо с ванной и станиной
 Εικ. 7: REMS Tornado με λεκάνη και βάση
 Resim 7: REMS Tornado karter ve alt tezgahi ile birlikte
 Фиг. 7: REMS Tornado с вана и подставка
 7 pav.: REMS Tornado su didele tepalo vonėle ir stovu
 Att. 7: REMS Tornado ar vannu un apakšējo rāmi
 Joonis 7: REMS Tornado vannii ja alusega







REMS Magnum L-T

REMS Magnum T

REMS Tornado T

Fig. 8: Aufstellenanleitung
 Fig. 8: Set-up instructions
 Fig. 8: Instructions de montage
 Fig. 8: Istruzioni d'installazione
 Fig. 8: Instrucciones de colocación
 Fig. 8: Opstellingsaanwijzing
 Fig. 8: Uppställningsanvisning
 Fig. 8: Oppstillingsveiledning
 Fig. 8: Opstillingsvejledning

Kuva 8: Asennusohje
 Fig. 8: Instruções de colocação
 Rys. 8: Instrukcja ustawiania
 Obr. 8: Návod k sestavení
 Obr. 8: Návod na zostavenie
 8. ábra: Illesztési útmutató
 Sl. 8: Upute za montažu stroja
 Slika 8: Navodilo za postavitev
 Fig. 8: Instrukcijoni de montaj

Фиг. 8: Инструкция по монтажу
 Εικ. 8: Οδηγίες τοποθέτησης
 Resim 8: Oluşturma şeması
 Фиг. 8: Указание за поставяне
 8 pav.: Išstatymo instrukcija
 Att. 8: Uzstādīšanas instrukcija
 Joonis 8: Paigaldusjuhis

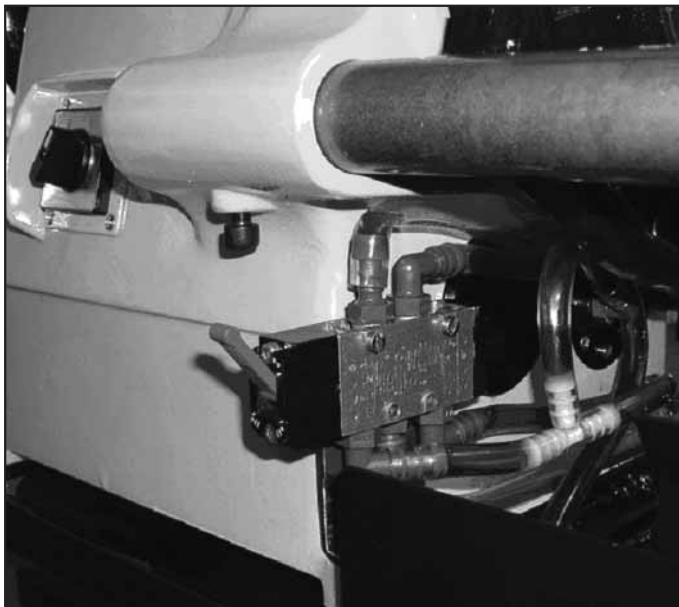


Fig. 9: Umschaltventil für Linksgewinde
 Fig. 9: Switch valve for left-handed threads
 Fig. 9: Soupape d'inversion pour filetages à gauche
 Fig. 9: Valvola d'inversione per filettatura sinistra
 Fig. 9: Válvula de inversión para rosca a la izquierda
 Fig. 9: Omschakelventiel voor linkse draden
 Fig. 9: Omkopplingsventil för vänstergångor
 Fig. 9: Omkopplingsventil for venstregjenger
 Fig. 9: Omskifterventil til venstregvind
 Kuva 9: Suunnanvaihtoventtiili vasenkätistä kierrettä varten
 Fig. 9: Válvula de comutação para roscas à esquerda
 Rys. 9: Zawór przełączający dla gwintów lewych
 Obr. 9: Prepínací ventil na levé závity
 Obr. 9: Prepínací ventil na ľavé závity
 9. ábra: Szelepkapcsoló balmenetű csavarra
 Sl. 9: Ventil za preklapanje na lijevi navoj
 Slika 9: Preklopni ventil za levi navoj
 Fig. 9: Ventil inversor pentru filete de stânga
 Фиг. 9: Клапан двойного действия для левой резьбы
 Εικ. 9: Βαλβίδα μεταγωγής για αριστερό σπείρωμα
 Resim 9: Sol diş için değiştirme valfi
 Фиг. 9: Превключващ вентил за лява резба
 9 pav.: Perjungimo vožtuvas kairiniam sriegiui
 Att. 9: Pārslēgšanas vārsts kreisajām vītņēm
 Joonis 9: Ümberülitusventiil vasakkeermetele

REMS Tornado 2000 / 2010 / 2020

1	Wing screw	13	Knob/recessed grip
2	Tool holder	14	Die holder
3	Guiding arm front	15	Pipe cutter
4	Guiding arm back	16	Deburrer
5	Pressing lever	17	Pouring spout
6	Clamping ring	18	Switch
7	Handle	19	Chuck
8	Die head	20	Key for chuck
9	Length stop	21	Foot switch
10	Closing and opening lever	22	Emergency switch
11	Clamping lever	23	Protection switch
12	Adjusting disk	24	Guiding bolt

REMS Magnum 2000 / 2010 / 2020 / 4000 / 4010 / 4020

1	Quick action hammer chuck	14	Closing and opening lever
2	Guide chuck	15	Clamping lever
3	Switch right-left	16	Adjusting disk
4	Foot switch	17	Die holder
5	Emergency stop switch	18	Pipe cutter
6	Motor overload trip	19	Deburrer
7	Tool holder	20	Oil trough
8	Pressing lever	21	Chip tray
9	Handle	22	Clamping ring
10	Clamping ring with wing nut	23	Chuck jaw carrier
11	Wing screw	24	Chuck jaws
12	Die head	25	Screw plug
13	Length stop		

General Safety Rules

WARNING! Read all instructions. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury. The term „power tool“ in all of the warnings listed below refers to your mains operated (corded) power tool or battery operated (cordless) power tool, also machines and electric units. Only use the power tool for the purpose for which it was intended, with the due attention to the general safety and accident prevention regulations.

SAVE THESE INSTRUCTIONS.

A) Work area

- a) **Keep work area clean and well lit.** Cluttered and dark areas invite accidents.
- b) **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.
- c) **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

B) Electrical safety

- a) **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock. If the power tool comes with an earthed wire, the plug may only be connected to an earthed receptacle. At work sites, in damp surroundings, in the open or in the case of comparable types of use, only operate the power tool off the mains using a 30 mA fault current protected switch (FI breaker).
- b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- c) **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- d) **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.

C) Personal safety

- a) **Stay alert, watch what you are doing and use common sense when**

operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in serious personal injury.

- b) **Use safety equipment. Always wear eye protection.** Safety equipment such as dust mask, non skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- c) **Avoid accidental starting. Ensure the switch is in the off position before plugging in.** Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.
- d) **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.
- g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of these devices can reduce dust related hazards.
- h) **Only allow trained personnel to use the power tool.** Apprentices may only operate the power tool when they are over 16, when this is necessary for their training and when they are supervised by a trained operative.

D) Power tool use and care

- a) **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- b) **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- c) **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- d) **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
- e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation. If damaged, have the power tool repaired by a qualified expert or by an authorised REMS after-sales service facility before use.** Many accidents are caused by poorly maintained power tools.
- f) **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- g) **Secure the workpiece.** Use clamps or a vice to hold the workpiece. This is safer than holding it with your hand, and also it frees both hands to operate the equipment.
- h) **Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation. All unauthorised modifications to the power tool are prohibited for safety reasons.

E) Battery tool use and care

- a) **Ensure the switch is in the off position before inserting battery pack.** Inserting the battery pack into power tools that have the switch on invites accidents.
- b) **Recharge only with the charger specified by the manufacturer.** A charger that is suitable for one type of battery may create a risk of fire when used with another battery pack.
- c) **Use battery tools only with specifically designated battery packs.** Use of any other battery packs may create a risk of injury and fire.
- d) **When battery pack is not in use, keep it away from other metal objects like paper clips, coins, keys, nails, screws, or other small metal objects that can make a connection from one terminal to another.** Shorting the battery terminals may cause burns or a fire.
- e) **Under abusive conditions, liquid may be ejected from the battery, avoid contact. If contact accidentally occurs, flush with water. If li-**

liquid contacts eyes, additionally seek medical help. Liquid ejected from the battery may cause irritation or burns.

- f) Do not use the battery/charger at battery/charger temperatures or ambient temperatures of $\leq 5^{\circ}\text{C}/40^{\circ}\text{F}$ or $\geq 40^{\circ}\text{C}/105^{\circ}\text{F}$.
- g) Do not dispose defective batteries in the normal domestic waste. Take them to an authorised REMS after-sales service facility or to a reputed waste disposal company.

F) Service

- a) Have your power tool serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the power tool is maintained.
- b) Comply with maintenance instructions and instructions on tool replacements.
- c) Check mains lead of power tool regularly and have it replaced by a qualified expert or an authorised REMS after-sales service facility in case of damage. Check extension cable regularly and replace it when damaged.

Specific Safety Instructions

- The machine is operated with a safety-type, jog control pedal switch with emergency-off function. If the danger area constituted by the rotating workpiece is not clearly visible from where the operator is located, safety precautions, e.g. barriers, must be used.
- Do not undertake any operations such as hemping, installation and re-

moval, thread cutting with manual die stocks, working with pipe cutters or holding the workpiece manually (instead of using the material supports) when the machine is operating.

- If there is a risk of the workpiece bending and whipping round (this depends on the length and cross-section of the material and on the speed) or at insufficient stability of the machine a sufficient number of height-adjustable supports (REMS Herkules) must be used.
- Never reach into the chuck.
- Clamp short pieces of pipe only with the REMS Nippelspanner or the REMS Nippelfix.
- REMS thread-cutting oils in spray cans (REMS Spezial, REMS Sanitol) are environment-friendly but contain combustible propellant (butane). Spray cans are pressurized – do not force open. Also, protect them from exposure to strong sunlight and heating above 50°C .
- Due to the degreasing effect of the cooling lubricants (thread-cutting oils), an intensive skin contact has to be avoided. An appropriate skin protector has to be applied.
- Due to hygienical reasons the trough has to be cleaned regularly from dirt and chips, at least, however, once a year.
- It is not required to check the cooling lubricant because, due to the consumption, new cooling lubricant is refilled from time to time.
- Do not allow undiluted cooling lubricant to get into drainage, water systems or the soil. Remaining cooling lubricants have to be delivered to specialized waste disposal companies. Disposal identity number for mineral-based cooling lubricants 54401, for synthetic 54109.

1. Technical data

	Tornado 2000 Tornado 2010 Tornado 2020	Magnum 2000 Magnum 2010 Magnum 2020	Tornado 2000 Tornado 2010 Tornado 2020 with REMS 4" Automatic die head	Magnum 4000 Magnum 4010 Magnum 4020
1.1. Capacity				
1.1.1. Thread diameter				
Pipe (including plastic coated)	$1/16 - 2"$	$1/16 - 2"$	$1/16 - 4"$	$1/4 - 4"$
Bolt	6 – 60 mm $1/4 - 2"$	6 – 60 mm $1/2 - 2"$	6 – 60 mm $1/4 - 2"$	14 – 60 mm $1/2 - 2"$
1.1.2. Types of threads				
Pipe threads, tapered		R (ISO 7-1, DIN 2999, BSPT), NPT		
Pipe threads, parallel		G (ISO 228-1, DIN 259, BSPP), NPSM		
Threads for conduits		Pg (DIN 40430), IEC		
Bolt threads		M (ISO 261, DIN 13), UNC, BSW		
1.1.3. Thread length				
Pipe threads tapered	standard length 165 mm (6.5"), unlimited by repeated clamping	standard length 150 mm (6"), unlimited by repeated clamping	standard length 165 mm (6.5"), unlimited by repeated clamping	standard length 150 mm (6"), unlimited by repeated clamping
Pipe threads parallel	}	}	}	}
Bolt threads				
1.1.4. Cutting				
Pipe	$1/8 - 2"$	$1/8 - 2"$	$1/8 - 2"$	$1/4 - 4"$
1.1.5. Internal deburring				
Pipe	$1/4 - 2"$	$1/4 - 2"$	$1/4 - 2"$	$1/4 - 4"$
1.1.6. Nipples and double nipples with REMS Nippelspanner (internal clamping) with REMS Nippelfix (automatic internal clamping)				
with REMS Nippelspanner (internal clamping)	$3/8 - 2"$	$3/8 - 2"$	$3/8 - 2"$	$3/8 - 2"$
with REMS Nippelfix (automatic internal clamping)	$1/2 - 4"$	$1/2 - 4"$	$1/2 - 4"$	$1/2 - 4"$
1.1.7. REMS 4" Automatic die head for all types Tornado (see Fig. 6)				
			$2 1/2 - 4"$	
1.2. Spindle speed				
Tornado 2000	$1/16 - 2"$	53 – 40 rpm		
Magnum 2000	$1/4 - 2"$	53 – 40 rpm		
Magnum 4000	$1/4 - 4"$	23 – 20 rpm		
automatic infinitely variable speed				
Tornado 2010 / 2020	$1/16 - 2"$	52 $1/2$ min		
Magnum 2010 / 2020	$1/4 - 2"$	52 – 26 rpm		
Magnum 4010 / 4020	$1/4 - 4"$	20 – 10 rpm		

also under full load. On heavy duty and weak voltage for larger threads Tornado 26 rpm resp. Magnum 10 rpm.

1.3. Electrical data

Tornado 2000, Magnum 2000 / 4000	230 V, 1~; 50-60 Hz; 1700 W input, 1200 W output; 8.3 A; Fuse (mains) 16 A (B). Intermittent service S 3 20%
	110 V, 1~; 50-60 Hz; 1700 W input, 1200 W output; 16.5 A; Fuse (mains) 30 A (B). Intermittent service S 3 20%
Tornado 2010, Magnum 2010 / 4010	230 V, 1~; 50 Hz; 2100 W input, 1400 W output; 10 A; Fuse (mains) 10 A (B). Intermittent service S 3 40%
Tornado 2020, Magnum 2020 / 4020	400 V, 3~; 50 Hz; 2000 W input, 1500 W output; 5 A; Fuse (mains) 10 A (B). Intermittent service S 3 40%

1.4. Dimensions (L x W x H)

Tornado 2000	730 x 435 x 280 mm
Tornado 2010 / 2020	730 x 435 x 280 mm
Magnum 2000	870 x 580 x 495 mm
Magnum 2010 / 2020	825 x 580 x 495 mm
Magnum 4000	915 x 580 x 495 mm
Magnum 4010 / 4020	870 x 580 x 495 mm

1.5. Weight in kg

	Machine		Tools		Standard accessories
Tornado 2000	31		12		7
Tornado 2010	43		12		7
Tornado 2020	43		12		7
	Machine 1/4 – 2"	Machine 2 1/2 – 4"	Tools 1/4 – 2"	Tools 2 1/2 – 4"	Wheel stand
Magnum 2000	75		12		16
Magnum 2010	87		12		16
Magnum 2020	87		12		16
Magnum 4000		96	12	24	16
Magnum 4010		108	12	24	16
Magnum 4020		108	12	24	16

1.6. Noise data

Workstation-related emission data	
Tornado 2000, Magnum 2000 / 4000	83 dB (A)
Tornado 2010, Magnum 2010 / 4010	75 dB (A)
Tornado 2020	72 dB (A)
Magnum 2020 / 4020	74 dB (A)

1.7. Vibrations (all types)

Weighted effective value of acceleration	2,5 m/s ²
--	----------------------

2. Preparations for use

Note: Weights above 35 kg (77 lbs) need to be carried by two people, tool set to be carried separately. Pay attention that during transportation and setting up of the machine, with the stand or without it, the center of gravity is high, i.e. top heavy.

2.1. Set up of Tornado 2000, 2010, 2020 (Fig.1–3)

Loosen wing screw (1). Remove tool holder (2). Position the drive unit vertically on both guiding arms (3 + 4) and insert the 3 legs into the gearbox casing until they snap in (fig. 1). Take the machine at the gearbox casing (not at the legs), and put it upright onto the legs (fig. 2). The machine can also be mounted on a bench and be attached with screws. 3 threaded holes are provided on the machine base. Through the attached pattern 3 holes have to be drilled (12 mm Ø drill) through the bench. Then fix the machine with 3 screws (M 10) from underneath.

Push the tool holder on the guiding arms. Push the pressing lever (5) from behind through the shackle on the tool holder and fix the lockin ring (6) on the rear guiding arm in such a way that the wing screw is positioned backwards leaving the snap ring groove free. Push the handle (7) on the pressing lever.

Suspend the tray on both screws attached below the gearbox casing and push it sideways right into the slots. Suspend the tray onto the snap ring groove in the rear guiding arm (4). Push the clamping ring of the pressing lever right to the suspension of the tray and fix it.

Put the hose with the suction filter into the tray and push the other end of the hose on the nipple on the back of the tool holder. Fill with 2 ltrs. of thread cutting oil. Set in the chip tray from the rear.

Never keep running the machine without thread cutting oil.

Put the guide bolt of the die head (8) into the boring of the tool holder and push the die head with axial pressure on the guide bolt and tur-

ning movements right to the stop. For transport, the foot switch can be hooked to the screw above the rear clamping chuck (fig. 3).

Set up of Magnum 2000 T, 2010 T, 2020 T, 4000 T, 4010 T, 4020 T (Fig. 8)

Fasten the machine on a workbench or wheel stand (accessory) with the 3 delivered screws. For transport the machine can be lifted at the guide arms in front and at rear with a pipe which is clamped into the hammer and guide chuck. For transport on the wheel stand use pieces of pipe Ø 3/4" with length of about 60 cm and fasten the wing screws. If the machine has not to be transported, remove the two wheels.

Fill with 5 ltrs. of thread cutting oil. Never run the machine without thread cutting oil.

2.2. Set up of Tornado 2000 T, 2010 T, 2020 T (Fig. 7 + 8)

Fasten the machine on a workbench or wheel stand (accessory) with the 3 delivered screws. For transport the machine can be lifted at the front grip pockets of the basin in rear at the motor or at the material support fixture. For transport on the wheel stand use pieces of pipe Ø 3/4" with length of about 60 cm and fasten the wing screws. If the machine has not to be transported, remove the two wheels. Fill with 5 ltrs. of thread cutting oil. Never run the machine without thread cutting oil.

Set up of Magnum 2000 T-L, 2010 T-L, 2020 T-L (Fig. 8)

Fasten the machine on a workbench or stand (accessory) with the 4 delivered screws. For transport the machine can be lifted at the guide arms in front and at rear with a pipe which is clamped into the hammer and guide chuck. Slide clamping ring (10) with wing screw onto the rear guide arm so that the groove remains empty. Put the pan onto the two bolts which are located at the lower end of the gear housing and into the groove at the rear guide arm. Slide clamping ring (10) against the support ring of the pan and tighten it. Hang the hose with

filter into the pan. Insert chip tray from the rear.

Fill with 2 ltrs. of thread cutting oil. Never run the machine without thread cutting oil.

2.3. Electrical supply

Before connecting the machine, check that the mains voltage corresponds with the voltage specified on the rating plate. Use extension cord with earth wiring only. The machine is switched on and off by means of the foot switch (21, Tornado / 4, Magnum). Switch (18, Tornado / 3, Magnum) is used to preselect the direction of rotation and speed. The machine can only be switched on when the emergency-off button (22, Tornado / 5, Magnum) is released and the protection switch (23, Tornado / 6, Magnum) on the pedal switch is depressed. If the machine is connected directly to the mains (without a plug), a 16 A main switch must be installed.

2.4. Cooling lubricant

Perfect threading results, long durability of dies as well as utmost protection of the machine are achieved with REMS cooling lubricant.

REMS Spezial cooling lubricant (containing mineral oil) is highly alloyed and suitable for cutting pipe and bolt threads of all types. In addition, it can be washed off with water (officially approved). Mineral oil-based cooling lubricants are not permitted to be used on drinking water pipes in certain countries, e.g. Germany, Austria. In this case, use REMS Sanitol, which contains no mineral oil.

REMS Sanitol cooling lubricant is free of mineral oil, is synthetic, completely water soluble and possesses the lubricating properties of mineral oil. Its use is compulsory in Germany and Austria for drinking water installations and complies with the officially applicable regulations (DVGW Approval No. DW-0201AS2032; OEVGW Approval No. W 1.303; SVGW Approval No. 7808-649).

Use all types of cooling lubricant undiluted!

2.5. Material support

Pipes and bars longer than 2 m must be additionally supported by the height-adjustable REMS Herkules, fitted with steel balls, posing no problems for moving rods and pipes in all directions without tipping over the material support. If the REMS Magnum is mounted on a workbench, the REMS Herkules Y must be used.

Capacity of REMS Herkules and REMS Herkules Y: $\varnothing 1/8 - 4"$.

2.6. REMS 4" automatic die head

When using the REMS 4" automatic die head, observe the operating instructions supplied with the die head.

3. Operation

3.1. Tools

The die head (8, Tornado / 12, Magnum) is a universal die head. That means for all types of threads for above mentioned sizes, divided in 2 tool sets, only one die head is required. For cutting tapered pipe threads, the length stop (9, Tornado / 13, Magnum) needs to be in the same direction with the closing and opening lever (10, Tornado / 14, Magnum). To cut cylindrical long threads and bolt threads, the length stop (9, Tornado / 13, Magnum) has to be folded away.

Changing dies

The dies can be inserted or changed with the die head mounted on the machine or detached (i.e. on a bench). Slacken clamping lever (11, Tornado / 15, Magnum) but do not remove it. Push the adjusting disc (12, Tornado / 16, Magnum) at the handle away from the clamping lever to the far end position. In this position the dies are put in or taken out. Ensure that the indicated size of thread shown on the back of the dies corresponds to the size of thread to be cut. Furthermore, ensure that the numbers shown on the back of the dies correspond with those indicated on the die holder (14, Tornado / 17, Magnum).

Insert the dies into the die head as far as the ball inside the slot of the die holder snaps in. Once all dies are set, adjust the size of thread by shifting the adjusting disc. Bolt thread must always be set to „Bolt“. Clamp the adjusting disc with the clamping lever, close the die head by pressing the closing and opening lever (10, Tornado / 14, Magnum) down slightly to the right. The die head opens either automatically (with tapered pipe threads), or at any time manually by slight pressure to the left on the closing and opening lever.

If the holding power of the clamping lever (11, Tornado / 15, Magnum) is insufficient (e.g. through blunt dies) when the $2\frac{1}{2}-4"$ die head is in

use, due to the increased cutting force applied, with the result that the die head opens under cutting pressure, the capscrew on the side opposite the clamping lever (11, Tornado / 15, Magnum) must also be tightened.

The pipe cutter (15, Tornado / 18, Magnum) cuts pipes $\frac{1}{4}-2"$, resp. $2\frac{1}{2}-4"$.

The reamer (16, Tornado / 19, Magnum) deburs pipes $\frac{1}{4}-2"$ resp. $2\frac{1}{2}-4"$. To avoid rotation, latch the reamer sleeve into the reamer arm either in the front or in the back end, depending on the position of the pipe.

3.2. Chuck Tornado (19) and (20)

The self-clamping jaws open and close automatically through left or right turning of the switch (18) and operating the foot switch (21). Pay attention when changing rear and front clamping jaws that the particular clamping jaws are fitted in corresponding to fig. 4 and 5, as otherwise damage will arise. On no account switch on the machine until all clamping jaws and both clamping jaw covers have been fitted.

A size adjusted clamping sleeve (Art.-No. 343001) is required for sizes < 8 mm when operating with Magnum up to 2" and Tornado, for Magnum up to 4" < 20 mm. When ordering the clamping sleeve the required clamping size needs to be provided.

Quick action hammer chuck Magnum

The front quick action hammer chuck with the large clamping ring and the movable chuck jaws installed in the chuck jaw carriers ensures secure, concentric clamping with the minimum of force.

Changing the chuck jaws

With the clamping ring (22), close the chuck jaws (24) to a clamping diameter of approx. 30 mm. Remove screws of chuck jaws (24). Slide chuck jaws out towards the rear by using an appropriate tool (screw driver). Slide new chuck jaws into the chuck jaw carrier from the front.

3.3. Operation Tornado

Swing out the tools and bring the tool holder to the right-hand end-position by means of contact lever (5). Feed in the material so that it projects approx. 10 cm out of the chuck (19). Swing down and close the die head (8). Set switch (18) to position 1, then operate footswitch (21); the material will now be clamped automatically. On types 2010 and 2020, the second operating speed can be selected for sectioning, deburring and small thread cutting operations. To do this, with the machine running, slowly move switch (18) from position 1 to position 2. With the contact lever (5), advance the die head onto the rotating material.

After one or two threads have been cut, the die head will continue to cut automatically. In the case of tapered pipe threads, the die head opens automatically when the standard length of thread is reached. When cutting extended threads or bolt threads, open the die head manually, with the machine running. Release foot switch (21). Set switch (18) to R. Depress foot switch (21) briefly to release the material.

Threads of unlimited length can be cut by reclamping the material, as follows. When the tool holder approaches the machine housing during the thread cutting process, release foot switch (21) but do not open the die head. Set switch (18) to R. Release the material and bring the tool holder and material to the right-hand end-position by means of the contact lever. Switch on the machine again by setting the switch to position 1. For pipe cutting operations, swing in the pipe cutter (15) and bring it to the desired cutting position by means of the contact lever. The pipe is cut by rotating the spindle clockwise. The resulting inside burr after cutting will be deburred with the reamer (16).

To drain the thread cutting oil:

Take off the hose of the tool holder (2) and hold it into a container. Keep the machine running until the tray is empty. Or: take off the tray and empty it using the pouring spout (17).

Operation Magnum

Swing out the tools and move the tool carrier to the right-hand end position with the aid of the pressing lever (8). Pass the material to be threaded through the opened guide (2) and through the opened chuck (1) so that it extends by about 10 cm from the chuck. Close the chuck until the jaw comes against the material and then, after a short opening movement, jerk it shut once or twice in order to clamp the material firmly. Closing the guide chuck (2) centers the material that extends from the rear of the machine. Swing down and close the die head. Set the switch (3) to position 1, then operate the foot switch (4).

Magnum 2000/4000 is switched on and off with the foot switch (4) only. On Magnum 2010/4010 and 2020/4020, the second operating speed can be selected for sectioning, deburring and small thread cutting operations. To do this, with the machine running, slowly move switch (3) from position 1 to position 2. With the contact lever (8), advance the die head onto the rotating material.

After one or two threads have been cut, the die head will continue to cut automatically. In the case of tapered pipe threads, the die head opens automatically when the standard length of thread is reached. When cutting extended threads or bolt threads, open the die head manually, with the machine running. Release pedal switch (4). Open quick action hammer chuck, take out material.

Threads of unlimited length can be cut by reclamping the material, as follows. When the tool holder approaches the machine housing during the thread cutting process, release pedal switch (4) but do not open the die head. Release the material and bring the tool holder and material to the right-hand end-position by means of the contact lever. Clamp material again, switch on machine again.

For pipe cutting operations, swing in the pipe cutter (18) and bring it to the desired cutting position by means of the contact lever. The pipe is cut by rotating the spindle clockwise.

Remove any burrs inside the pipe resulting from the cutting operation with the pipe reamer (19).

To drain the cooling lubricant: Take off the flexible hose of the tool holder (7) and hold it into a container. Keep the machine running until the oil tray is empty. Or: Remove screw plug (25) and drain trough.

3.4. Production of nipples and double nipples

Use REMS Nippelfix (automatic internal clamping) or REMS Nippelspinner (internal clamping) for threading nipples. Ensure that both sides of the pipe are deburred inside. Always slide the pipe up to the end of the clamping section.

To clamp the piece of pipe (with or without thread) with the REMS Nippelspinner, use a screwdriver and turn the spindle to expand the head of the Nippelspinner. Expand only with attached piece of pipe, otherwise damage will arise.

Do not cut nipples with REMS Nippelfix and REMS Nippelspinner shorter than is permitted by the appropriate standard.

3.5. Producing left-handed threads

For left-handed threads only the REMS Magnums 2010, 2020, 4010 and 4020 are suitable. The die head in the tool set holder has to be off-set e.g. by using a M12x40 screw in order to cut left-handed threads, otherwise the lifting and the start-cutting can be damaged. Set the switch to position "R". Change the hose connections at the coolant pump or for shut of the coolant pump briefly. Alternatively use a switch valve (Art.No. 342080, accessory), attached to the machine. With the lever on the switch valve (Fig. 9) the direction of flow on the coolant pump is reversed.

4. Service

Disconnect the plug from the mains before starting any repairs! Such work must be carried out only by experts and trained personnel.

4.1. Maintenance

The machine is maintenance free. The gearbox operates in a sealed-off oilbath and therefore needs no lubrication.


4.2. Inspection / Servicing

The motor of the Tornado 2000 / Magnum 2000 / 4000 is equipped with carbon brushes. These wear out and therefore need checking from time to time, and, if necessary, changing. Loosen by about 3 mm ($\frac{1}{8}$ " the 4 screws of the motor cap and remove both caps from the motor. See also point 6: Actions in case of trouble.

5. Machine Wiring and Electrical Components Tornado

Machine Wiring		Tornado 2000		Tornado 2010		Tornado 2020	
		Wire colour/No.	Terminal	Wire colour/No.	Terminal	Wire colour/No.	Terminal
Foot switch	Mains line	brown blue green/yellow	2 (emergency stop) 2 (emergency stop) ↓ casing	brown blue green/yellow	2 (emergency stop) 2 (emergency stop) ↓ casing	brown black black blue green/yellow	1 3 5 A1 ↓ casing
	Connecting line	brown blue green/yellow	2 (motor protection) 1 (emergency stop) ↓ casing	brown blue green/yellow	2 (motor protection) 1 (emergency stop) ↓ casing	black 1 black 2 black 3 black 4 black 5 green/yellow	2 4 6 14 2 (emergency stop) ↓ casing
	Inner line	red red	1 (emergency stop) ↓ 13 (button) 14 (button) ↓ 1 (motor protection)	red red	1 (emergency stop) ↓ 13 (button) 14 (button) ↓ 1 (motor protection)	red red	5→1 (emergency stop) 13→A2
Gearbox	Connecting line	brown blue green/yellow	1 3 ↓ casing	brown blue green/yellow	R S ↓ casing	black 1 black 2 black 3 black 4 black 5 green/yellow	L1 L2 L3 4 5 ↓ casing
	Motor	black 2 black 5 black 6 black 4 black 3 black 1	4 8 10 6 5 2	black 1 black 2 black 3 black 4 black 5 black 6 green/yellow	U1 V1 W1 U2 V2 W2 ↓ casing	black 1 black 2 black 3 black 4 black 5 black 6 black 7 black 8 green/yellow	U1 V1 W1 U2 V2 W2 7 8 ↓ casing
	Resistor	brown blue	5 12				
	Capacitor			brown blue	C1 C2		
Base	Electric pump (Machine model "T")	brown blue green/yellow	1 3 ↓ casing	brown blue green/yellow	R S ↓ casing	brown blue green/yellow	L1 L2 ↓ casing
Electrical Components							
Motor		RW 345	REMS	RW 342	REMS	RW 343	REMS
Cam switch		CA 10 C 58751 * FT22V	REMS	CA 10 C 58761 * FT22V	REMS	CA 10 D-U277 * 01 FT22V	REMS
Foot switch		T 5300	REMS	T 5300	REMS	T 5400	REMS
Capacitor				MP 35/100/330	REMS		

Machine Wiring and Electrical Components Magnum

Machine Wiring		Magnum 2000/4000 		Magnum 2010		Magnum 4010		Magnum 2020		Magnum 4020	
		Wire colour/No.	Terminal	Wire colour/No.	Terminal	Wire colour/No.	Terminal	Wire colour/No.	Terminal	Wire colour/No.	Terminal
Foot switch	Machine Wiring	brown blue	2 (emergency) 2 (emergency)	brown blue green/yellow	2 (emergency) 2 (emergency) ⊥ casing	brown blue green/yellow	2 (emergency) 2 (emergency) ⊥ casing	brown black black blue green/yellow	1 3 5 A 1 ⊥ casing	brown black black blue green/yellow	1 3 5 A 1 ⊥ casing
	Connection wire	brown blue	2 (motor protect.) 1 (emergency)	brown blue green/yellow	2 (motor protect.) 1 (emergency) ⊥ casing	brown blue green/yellow	2 (motor protect.) 1 (emergency) ⊥ casing	black 1 black 2 black 3 black 4 black 5 green/yellow	2 4 6 14 2 (emergency) ⊥ casing	black 1 black 2 black 3 black 4 black 5 green/yellow	2 4 6 14 2 (emergency) ⊥ casing
	Inner wires	red red	1 (emergency) ↓ 13 (switch) 14 (switch) ↓ 1 (motor protect.)	red red	1 (emergency) ↓ 13 (switch) 14 (switch) ↓ 1 (motor protect.)	red red	1 (emergency) ↓ 13 (switch) 14 (switch) ↓ 1 (motor protect.)	red red	5 → 1 (emergency) 13 → A 2	red red	5 → 1 (emergency) 13 → A 2
Gearbox	Connection wire	brown blue	2 1	brown blue green/yellow	R S ⊥ casing	brown blue green/yellow	R S ⊥ casing	black 1 black 2 black 3 black 4 black 5 green/yellow	L ₁ L ₂ L ₃ 4 5 ⊥ casing	black 1 black 2 black 3 black 4 black 5 green/yellow	L ₁ L ₂ L ₃ 4 5 ⊥ casing
	Motor	black 2 black 5 black 6 black 4 black 3 black 1	brown 6 5 3 4 blue	black 1 black 2 black 3 black 4 black 5 black 6 green/yellow	U ₁ V ₁ W ₁ U ₂ V ₂ W ₂ ⊥ casing	black 1 black 2 black 3 black 4 black 5 black 6 green/yellow	U ₁ W ₁ V ₁ U ₂ W ₂ V ₂ ⊥ casing	black 1 black 2 black 3 black 4 black 5 black 6 black 7 black 8 green/yellow	U ₁ V ₁ W ₁ U ₂ V ₂ W ₂ 7 8 ⊥ casing	black 1 black 2 black 3 black 4 black 5 black 6 black 7 black 8 green/yellow	U ₁ W ₁ V ₁ U ₂ W ₂ V ₂ 7 8 ⊥ casing
	Capacitor			brown blue	C ₁ C ₂	brown blue	C ₁ C ₂				
Electrical Components											
Motor	RW 345	REMS	RW 342	REMS	RW 342	REMS	RW 343	REMS	RW 343	REMS	
Cam switch			CA10 C 58761 · FT22V	REMS	CA10 C 58761 · FT22V	REMS	CA10 D-U277 · 01 FT22V	REMS	CA10 D-U277 · 01 FT22V	REMS	
Foot switch	T 5310	REMS	T 5300	REMS	T 5300	REMS	T 5400	REMS	T 5400	REMS	
Capacitor			MP 35/100/330	REMS	MP 35/100/330	REMS					

6. Actions in case of trouble

6.1. **Trouble:** Machine does not start.**Cause:**

- Emergency switch not unlocked.
- Protective motor switch engaged.
- Worn out or faulty brushes (Tornado 2000, Magnum 2000/4000).

6.2. **Trouble:** Machine does not pull through.**Cause:**

- Dies are blunt.
- Poor-quality cooling lubricant.
- Circuit overloaded.
- Wire cross-section of extension cord too small.
- Bad contacts at the plug connections.
- Worn out brushes (Tornado 2000, Magnum 2000/4000).

6.3. **Trouble:** Low or non-existent oil supply at die head.**Cause:**

- Pump defective.
- Insufficient cooling lubricant in the oil tray.
- Strainer in intake clogged.

6.4. **Trouble:** Dies too far open in spite of correct scale setting.**Cause:**

- Die head not closed.

6.5. **Trouble:** Die head does not open.**Cause:**

- Thread was cut to the next pipe diameter up with die head opened.
- Length stop folded away.

6.6. **Trouble:** No workable thread.**Cause:**

- Dies are blunt.
- Dies are wrongly positioned: see numbers.
- Low or non-existent oil supply.

- Poor-quality cooling lubricant.
- Feed movement of tool holder hindered.

6.7. **Trouble:** Pipe slips in the chucks.**Cause:**

- Clamping jaws very dirty.
- Use special chucking jaws for pipes with thick plastic sheathing.
- Clamping jaws worn.

7. Manufacturer's Warranty

The warranty period shall be 12 months from delivery of the new product to the first user but shall be a maximum of 24 months after delivery to the Dealer. The date of delivery shall be documented by the submission of the original purchase documents, which must include the date of purchase and the designation of the product. All functional defects occurring within the warranty period, which clearly the consequence of defects in production or materials, will be remedied free of charge. The remedy of defects shall not extend or renew the guarantee period for the product. Damage attributable to natural wear and tear, incorrect treatment or misuse, failure to observe the operational instructions, unsuitable operating materials, excessive demand, use for unauthorized purposes, interventions by the Customer or a third party or other reasons, for which REMS is not responsible, shall be excluded from the warranty.

Services under the warranty may only be provided by customer service stations authorized for this purpose by REMS. Complaints will only be accepted if the product is returned to a customer service station authorized by REMS without prior interference in an unassembled condition. Replaced products and parts shall become the property of REMS.

The user shall be responsible for the cost of shipping and returning the product.

The legal rights of users, in particular the right to claim damages from the Dealer, shall not be affected. This manufacturer's warranty shall apply only to new products purchased in the European Union, in Norway or Switzerland.