## **EWAMATIC LINEAR**

The flexible solution for all tool types



## Key parameters

The EWAMATIC LINEAR is a universal tool grinding machine for indexable inserts and rotationally symmetrical tools made of carbide, cermet, ceramic or super-hard materials such as CBN and PCD. It machines indexable inserts from 3 mm inscribed circle to 50 mm circumscribed circle diameter, rotationally symmetrical tools and production parts with diameters from 0.2 mm to 200 mm.





#### Ewag AG

The origins of Ewag AG date back to 1946 when the company manufactured precision tool grinding machines for the Swiss watch industry. Today the EWAG product range includes manual machines for grinding and regrinding tools as well as the production of small precision parts, CNC tool grinding machines for grinding as well as laser machines for indexable cutting inserts and rotationally symmetrical tools made from carbide.

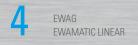
Ewag AG is part of the UNITED GRINDING Group. Together with our sister company, Walter Maschinenbau GmbH, we consider ourselves to be a supplier of systems and solutions for the complete machining of tools and can offer a wide range of products, including grinding, rotary eroding, laser machining, measurement and software.

Our customer focus and our global sales and service network of companyowned locations and employees has been appreciated by our customers for decades.

# EVAMATIC LINEAR

The EWAMATIC LINEAR with automatic clamping systems for all tool types is one of the most flexible production machines on the market. The clamping systems securely hold indexable inserts and rotationally symmetrical tools for precise complete machining in a single clamping.





## The EWAMATIC LINEAR at a glance

#### Application

- Production of rotationally symmetrical tools and production parts from 0.2 to 200 mm diameter
- Production of indexable inserts from 3 mm inscribed circle to 50 mm circumscribed circle diameter
- Machinable materials include HSS, carbide, cermet, ceramic, CBN, PCD

#### The machine

- 6-axis CNC grinding machine
- Vibration-absorbing cast machine base
- Direct drive linear axes in X, Y, Z with glass scales
- Rotary axes B, C with torque direct drives
- Star-shaped wheel changer with 6 grinding spindles
- Ultra-precise wheel changer with Hirth coupling
- Capacity: up to 12 grinding wheels
- Piezo grinding pressure control for super-hard materials
- Various automatic clamping systems (hydr./pneum.): dividing head, clamping brace
- NUM FLEXIUM control
- 6-axis FANUC robot for automatic loading



EWAMATIC LINEAR for grinding indexable inserts and rotationally symmetrical tools made of all materials, with automatic loading by FANUC robot.

#### Software

- ProGrind Software
- NUMROTOplus Software
- Wizard programming
- Human Machine Interface (HMI) for real-time information
- PCD grinding pressure module
- 3D simulation tool
- Increased efficiency due to numerous options



#### EWAMATIC LINEAR Flexibility, precision, productivity

The CNC-controlled EWAMATIC LINEAR focuses on the tailored demands and challenges of the user. It performs a multitude of grinding operations in a single clamping. Its flexibility with regard to tool type, tool geometry and cutting material in the preset dimensional range can hardly be surpassed. Depending on the tool, the star-shaped grinding spindle holder is equipped with up to 12 grinding wheels.

Three criteria have a decisive influence on the ability to achieve high volume performance:

- Automatic flexible loading with 6-axis robot
- Integrated dressing/regeneration of grinding wheels
- Tool measurement in the machine using 3D measuring probe

The EWAMATIC LINEAR uses ProGrind to control the entire workflow from loading to inspection.

#### Flexible clamping systems for all applications

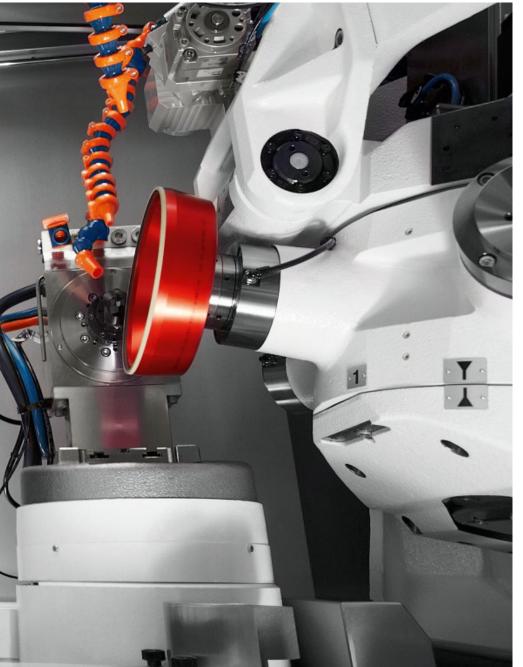
Flexible grinding requires custom-optimised clamping systems which can be automatically detected and installed by the machine via plug & play. The TA 77 dividing head, for example, is used for rotationally symmetrical tools. The workhead with side clamping or the automatic clamping station are preferably used for indexable inserts. EWAG also offers a wide range of custom solutions for the EWAMATIC LINEAR.



## One machine – countless applications







Universal tool suppliers of indexable inserts and rotationally symmetrical tools, irrespective of their geometries and materials, will find their customised production solution in the EWAMATIC LINEAR. Machine, software and peripherals are tailored to custom requirements. The customer's needs come first.

#### **FANUC** robot

The 6-axis robot from FANUC is perfectly matched to the flexibility of the EWAMATIC LINEAR. It automatically loads the grinding centre with the workpiece, thus creating the prerequisite for automatic shift operation.



**Tool examples:** Grinding on the EWAMATIC LINEAR

#### 8 EWAMATIC LINEAR Modules for dynamic grinding performance



- Ultra-precise wheel changer
- Linear direct drives in X/Y/Z axis
- Torque drives in B/C axis

EWAG

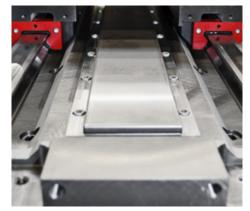
#### Star-shaped grinding spindle holder

With up to six grinding spindle holders. Two grinding wheels possible per holder. Changing the grinding wheels takes only a few seconds, with no impairment to the precision of work.

#### **Torque drive**

The B and C rotary axes are fitted with torque direct drives. Highest dynamic and true running accuracy are the result of it.

- 3D measuring station
- Linear axes with glass scales
- Automatic tool handling



#### Linear direct drives

The EWAMATIC LINEAR is equipped with direct drives in X/Y/Z axis. Highest dynamics and best grinding precision are guaranteed.



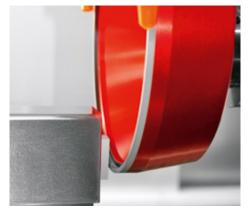
#### **3D tool measuring**

Tools are measured in the production process using an integrated 3D measuring probe from Renishaw. Impermissible tolerances are automatically compensated. Preliminary measurements and tool orientation are automatically detected.



#### Automatic dressing system

The fully integrated dressing system enables the dressing of grinding wheels at the front and periphery of the wheel in the machine. This ensures perfect runout and the high grinding quality of the EWAMATIC LINEAR.



#### Automatic regenerating system

An automatic system comprising hardware and software to regenerate grinding wheels. Grinding pressure control prevents overloads on the grinding wheel, increasing the durability and safeguarding final accuracy.

#### **10** EWAG EWAMATIC LINEAR Flexible and efficient automation



#### **FANUC** robot

The 6-axis robot is design for fully automatic loading. It can be freely programmed, thus enabling maximum loading flexibility.







Multiple shift operation is assured at all times with up to 100 HSK 63 positions or by using indexable insert pallets.

Cleaning stations, presence checks, as well as a vision system and integrated laser marking are just some of the customised automation solutions it offers. Flexibility is our speciality.



### EWAG ProGrind grinding software with NUMROTOplus plug-in

#### **ProGrind** – more than just software!

Innovation demands innovative software. As customer-centric software from EWAG, ProGrind meets all your exacting demands. Programs can be created guickly and easily on all EWAG CNC machines with ProGrind. The input screens feature 3D graphics. The machines can be integrated within your company network via Ethernet. At the same time, our specialists have access for diagnostic and maintenance purposes.



- Production
- **CNC** programming
- Hardware
- Job management •

**EWAMATIC LINEAR** ProGrind grinding software with NUMROTOplus plug-in



**PROFILE LINE** ProGrind grinding software with HELITRONIC TOOL STUDIO plug-in



**COMPACT LINE** ProGrind grinding software with CyberGrinding plug-in



**INSERT LINE** ProGrind HSM grinding software with EwagInsert ISM plug-in



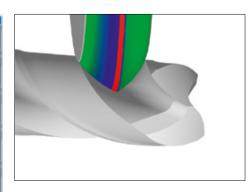


LASER LINE ULTRA LASER LINE PRECISION LaserSoft laser software with LaserPro 3D plug-in

#### Human machine interface (HMI)

The HMI contains all relevant data views. It supports the operator when setting up production orders, at the same time displaying production-related facts in real time.

regrammiert: 0.000 (sem/man) 0 (U/man) 0 (U/ma	Actor OM Toto Advanced Billion Advanced Billion Provide Billion Billio	ProGrind HMI	V N		
X       175.0000       0.00000         Y       330.0000       0.00000         Z       329.0000       0.00000         A       0.00000       0.00000         B       0.00000       0.00000         C       0.00000       0.00000         Verschold       Mc Dates       1000         Verschold       Mc Dates       10000         Verschold       Mc Dates       1000         Verschold       Mc Dates       1000         Verschold       Mc Dates       1000         Verschold       10000       1	X       175.0000       0.0000         Y       330.0000       0.0000         Z       329.0000       0.0000         A       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         C       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         C       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         C       0.0000       0.0000         C       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         C       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         C       0.0000       0.0000         C       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         C       0.0000       0.0000         B       0.0000       0.0000         B			e	
Y       330.0000       0.0000         Z       329.0000       0.0000         A       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         Verwebel 3       User 215 Abstaf Flax DP         User 210 Abstaf Flax       SF4         Ostation X1 100 EN       SF4         Verwebel 3       User 210 Abstaf Flax CP         Kitchen 200 Abstaf Flax       SF5         Verwebel 3       User 210 Abstaf Flax CP         Kitchen 200 Abstaf Flax CP       SF4         Verwebel 3       User 210 Abstaf Flax CP         Kitchen 200 Abstaf Flax CP       SF5         Verwebel 3       User 21 Abstaf Flax         Verwebel 3       SF5         Verwebel 4       SF6         Verwebel 3       SF6         Verwebel 4       SF6         Verwebel 5       SF6         Verwebel 6       SF6         Verwebel 7       SF	Y       330.0000       0.00000         Z       329.0000       0.00000         A       0.00000       0.00000         B       0.00000       0.00000         C       0.00000       0.00000         Versebut       3       Stock frac.0P         User 23.6bdxkf Flac.0P       User 23.6bdxkf Flac.0P         User 21.6kbcxkf Frac.0P       User 23.6bdxkf Flac.0P         User 23.6bdxkf Flac.0P       User 23.6bdxkf Flac.0P         User 23.0bdxkf Frac.0P       User 23.0bdxkf Frac.0P         Kikhatel AUS       Desmoce and kill Rodu B arit         Persebut       0       Desmoce and kill Rodu Frac.0P         Kikhatel AUS       0       User 23.1bdxkf Frac.0P         Versebut       0       Desmoce and kill Rodu Frac.0P         Kikhatel       0       User 23.1bdxkf Frac.0P         Versebut       0       Desmoce and kill Rodu Frac.0P         Versebut       0       Desmoce and kill Rodu Frac.0P         Versebut <td>v</td> <th></th> <td>0.0000</td> <td></td>	v		0.0000	
Y       330.0000       0.0000         Z       329.0000       0.0000         Å       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         C       0.0000       0.0000         Variation       13 (Specific Specific	Y       330.0000       0.0000         Z       329.0000       0.0000         A       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         C       0.0000       0.0000         Status Hall       File       File         Status Hall       File       File         Status Hall       File       File         C       0.0000       File       File         Status Hall       File       File       File       File	•	175.0000	0.0000	
Z       329.0000       0.0000         A       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         C       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         B       0.0000       0.0000         C       0.0000       0.0000         Specific Exerciclustrature       0.0000       0.00000         Versebul       Exerciclustrature       SF5         Specific Exerciclustrature       0.0000 [serv/vini]       0         Versebul       0.0000 [serv/vini]       0         Specific Exerciclustrature       0.000 [serv/vini]       0         Versebul       0.000 [serv/vini]       0         Specific Exerciclustrature       0.000 [serv/vini]       0         Versebul       0.000 [serv/vini]       0         Specific Exerciclustrature       0 [U/main]       0         Versebul       0.000 [serv/vini]       0         Versebul       0.000 [serv/vini]       0         Versebul       0.000 [serv/vini]       0         Versebul       0 [U/main]       0         Versebul<	Z       329.0000       0.00000         A       0.00000       0.00000         B       0.00000       0.00000         C       0.00000       0.00000         C       0.00000       0.00000         C       0.00000       0.00000         Verweist 3       Uiew 23 Abouk Finac OP         Verweist 4       Messearter         Programm Autor Update       Pro	Y	330.0000	0.0000	
A 0.0000 0.0000 B 0.0000 0.0000 C 0.0000 0.0000 C 0.0000 0.0000 B 0.0000 0.0000 C 0.0000 C 0.0000 0.0000 C 0.000 C	A 0.0000 0.0000 B 0.0000 0.0000 C 0.0000 C 0.0000 0.0000 C 0.0000 0.0000 C 0.0000 C 0.0000 0.0000 C 0.0	-			
A 0.0000 0.0000 B 0.0000 0.0000 C 0.0000 0.0000 C 0.0000 0.0000 B 0.0000 0.0000 C 0.0000 0.0000 B 0.0000 0.0000 C 0.0000 0.0000 B 0.0000 0.0000 C 0.0000 0.0000 B 0.0000 0.0000 C 0.0000 0.0000 C C 0.0000 C C 0.0000 0.0000 C C 0.0000 0.0000 C C 0.0000 C C 0.0000 0.0000 C C C 0.0000 C C 0.0000 C C C 0.0000 C C C 0.0000 C C C C 0.0000 C C C C C C C C C C C C C C C C C C C	A 0.0000 0.0000 B 0.0000 0.0000 C 0.0000 0.0000 C 0.0000 0.0000 B 0.0000 0.0000 C 0.0000 0.0000 B 0.0000 0.0000 C 0.0000 0.0000 B 0.0000 0.000	2	329.0000	0.0000	
B 0.0000 0.0000 C 0.0000 0.0000 Sereschub MC Dates Einschhstatus Sereschub MC Dates Einschlastatus Sereschub MC Dates Einschlastatus Newsensultate MDI Compiler Meldungen Zeitanzeige Nersersultate MDI Compiler Meldungen Zeit	B 0.0000 0.0000 C 0.0000 0.0000 C 0.0000 0.0000 Verescheb Verescheb MC Dates Einsichtstatus Verescheb MC Dates Einsichtstatus Scheb Den Geräte Einsichtstatus Scheb Den Geräte Einsichtstatus F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F1	Δ	0.000	0 0000	(sprore)
C       0.0000       0.0000         Versiched       MC Dates       Description AUS         Versiche       Description AUS       Description AUS         Spandeldrebanik       D (U)vmin)       D       Description AUS         Messuresultate       MDI Compiler       Meldungen       Zestancelige         Ne       Meldung       Literal VI Aus       Programm Auto-Update         Programm Auto-Update       Programm Auto-Update       SP8         Scheebern       Gescriptic       IX	C       0.0000       0.0000         Verschulz       Einer 200 Aboukt Finax OP         Kildhald AUS       Einer 200 Aboukt Finax OP         Bischulz       0.0000 (smm,min)       0         Bischulz       0.0000 (smm,min)       0         O Boarno e angle MI Raduit Basis       SPositiks 33-Raduit Reis COW20n/s       Einer 2210 Aboukt Finax OP         Spindeldrebunkt       0 Ummin)       0       SPositiks 33-Raduit Reis COW20n/s         Massersultate       MDI Compare Meldungen       Zeitanzeige       Einer 2210 Aboukt Finax OP         Messresultate       MDI Compare       Zeitanzeige       Einer 221 Aboukt Finax OP         Messresultate       MDI Compare       Zeitanzeige       Einer 221 Aboukt Finax OP         Messresultate       MDI Compare       Zeitanzeige       Einer 221 Aboukt Finax OP         Medung       Lönung       Einer 221 Aboukt Finax OP       Einer 221 Aboukt Finax OP         Medung       Compare Einer Kithwatel       Programm Auto-Update       Einer 200 P         Receiver       ILönung       Messtaster       Programm Auto-Update       Einer         Schebben       Geräte       ILK       Messtaster       Prog. OK       Einer         F1       F2       F3       F4       F5       F6       <				
C       0.0000       0.00000         Terschab       MK Dagen       Einrichtstatus         Vorsduz       Einrichtstatus       Fish         Vorsduz       0       RadunTert         Vorsduz       0       Desmoch angle M Radus B ais         Vorsduz       0.000 (mm/min)       0         Spindeldrehankt       0 (U/min)       0         Spindeldrehankt       0 (U/min)       0         Messresultate       MDI Compiler       Meddungen         Zeitkanzeige       Lönurg       Compiler ist Aldor         Messresultate       MDI Compiler       Meddungen       Zeitkanzeige         Nr       Meddurge       Lönurg       Einstektingen       Fis         Scheiben       Geraite       DK       Messtaster       Programm Auto-Update       SF3         OK       STDP       Kein Zykhas aktiv       Program       Program       SF4	C       0.0000       0.0000         Terschab       MC Dagen       Einrichtstatum         Vordhut       C       Ricka Teil         Vordhut       C       Dammoe right Ricka B wie         Vordhut       Dammoe right Ricka B wie       C         View 22/204 Abrokt Finax OP       Likew 22/Abrokt Finax OP       Likew 22/Abrokt Finax OP         View 22/204 Abrokt Finax       O (U)win)       0       Likew 22/204 Abrokt Finax OP         View 22/204 Abrokt Finax       O (U)win)       0       Likew 22/204 Abrokt Finax OP         View 22/204 Abrokt Finax       Vorgramm Auto-Update       Programm Auto-Update         Programm Auto-Update       Programm Auto-Update       Programm Auto-Update         Programstatic       Do (K       Stopp or jeden Woad <td>В</td> <th>0.0000</th> <td>0.0000</td> <td>-F4</td>	В	0.0000	0.0000	-F4
Sersichub     MC Datres     Einsichtstatus     SF5       Versichub     MC Datres     Einsichtstatus     SF5       Versichub     G000 [smn/min]     0       Spiedeldrehzahk     0 [U/min]     0       Messresultate     MDI     Compiler       Messresultate     MDI     Compiler       Nr     Meldungen     Zeitkanzeige       Scheiben     Gerälte     IJK	Sereschub     MC Datene Einsichtstatus       Verschub     MC Datene Einsichtstatus       Strachtz     Bidstini       Spindeldrehzahz     0.000 [emn/min]       0     Spindeldrehzahz       0 [U/min]     0       Spindeldrehzahz     0 [U/min]       0     Spindeldrehzahz       0 [U/min]     0       Versersultate     MDI Compiler       Meldung     Likeur 22/10 About F nas. OP       Versersultate     MDI Compiler       Meldung     Likeur 22/201 About F nas. OP       Versersultate     MDI Compiler       Messresultate     MDI Compiler       Meldung     Likeur 22/201 About F 10 OP       Versersultate     MDI Compiler       Messresultate     Messresultate       Optionaler Stoop vor jeden Woard     Ervestere Envolutingen       Schebben     Geräte	•	0 0000	0 0000	
Werschub       MC Daten       Einsichtstatus       SF5         Worschub       MC Daten       Einsichtstatus       Dearwoe angle MR Roku B als         Worschub       0.0000 [mmr/min]       0         Spindeldrehzahk       0 [U/min]       0         Messresultate       MDI       Complex       Medungen         Keissersultate       MDI       Complex       Medungen         Reisersultate       MDI       Complex       Medungen         Reisersultate       MDI       Complex       Medungen         Reisersultate       MDI       Complex       Medungen         Reisersultate       MDI       Complex       Programm Auto-Update         Scheiben       Geräte       IX       Messtater       Program Multime         OK       STOP       Kein Zykhus aktiv       Program       geräte	Berschub     MC Daten     Einrichtstatus       Wasshub     MC Daten     Einrichtstatus       Wasshub     Bedunt ein       Mittektorie     0.000 [smn/min]       D     Shot Links 20 Radunt B ein       Spindeldrehzahk     0 [U/min]       D     Uires 23 Aboukt Finas OP       Kinkstatus     0 [U/min]       Pessresultate     MOI Complex       Messresultate     Messresultate       Programm Auto-Update     Programm Auto-Update       Programm Auto-Update     Programm Auto-Update       Schebben     Geräte     DK       Messtaster     Program       Messtaster		0.0000	0.0000	
Without       Complex       Complex       Lines V2 270 Adout Finas: OP         Spindeldrehzahk:       0 (U/min)       0         Spindeldrehzahk:       0 (U/min)       0         Messresultate       MOI Complex       Meldungen         Zeitkanzeige       Lines V2 270 Adout Finas: OP       SF6         Messresultate       MOI Complex       Meldungen       Zeitkanzeige         Ne       Peldurg       Lines       V2 201 Adout Finas: OP       SF7         Scheiben       Geräte       IX       Messtatter       Programmäur: Auftragin Produktor       SF8         OK       STOPP       Kein Zykhas aktiv       IX       Messtatter       Program       SF9	Washud       Diamona risk bit Rokus B wie       Pic         Iffektive       0.0000 [emm/min]       0         Shot Links G3R-Backs Bits CDW20m/s       Users 23 Rokus Bits CDW20m/s         Spandeldrehzahk       0 [U/min]       0         Messresultate       MOI Complex       Meddungen         Zeitkanzeige       Lioung       Complex 12 Jobakt F and CP         Messresultate       MOI Complex       Meddungen       Zeitkanzeige         Nr       Meddungen       Zeitkanzeige       Lioung       Complex II Aboukt F10 OP         Kein Zijkbaund E fit Spindel       Erweitzer Einstellungen       F1       Programm Auto-Update       BF         Schebben       Geräte       EIX       Messtaster       Program       Program         K       Stopp Vor jedes Wood       F1       F1       F1       F1       F1       F1				- FE
Ilfektiv:       0.000 [mm/min]       0         hrogrammiert:       0.000 [mm/min]       0         ipindeldrebzahi:       0 [U/min]       0         Messresultate       MOI Compiler       Middungen         Zeitanzeige       Lices X2 270 Absolut Finas: 0P       Lices X2 270 Absolut Finas: 0P         Messresultate       MOI Compiler       Middungen       Zeitanzeige         Ne       Meldurg       Lices X2 200 Absolut Finas: 0P       Lices X2 200 Absolut Finas: 0P         Messresultate       MOI Compiler       Middungen       Zeitanzeige       SF7         Ne       Meldurg       Lices X2 200 Absolut Finas: 0P       SF7         Scheibern       Compiler Enteichingen       V Programm-Auto-Lipdate       SF8         Scheibern       Geräte       11K       Messtaster       Prositioneen       SF9         OK       STOPP       Kein Zykkas aktiv       Prog. 0K       Mid       Messtaster       Proglicitioneen       SF9	Bitkiv:       0.000 [emry/min]       0         http://magnammient:       0.000 [emry/min]       0         ipiadeldrebrahk:       0 [U/min]       0         ipiadeldrebrahk:       0 [U/min]       0         Messnesuitate       MDI: Compiler       Meddungen         Zeitanzeige       Ibin/min/mini/mini/mini/mini/mini/mini/mi		C Daten Einrichtstatus		
Image: Section of the section of t	interventioner:     Babelerinning       interventioner:     Biblinder (Interventioner)       interventioner:     <		0.000 [mm/min]		- SPos Links 03-Reduc leks COw20m/s
Messresultate       Moti Compiler       Meddungen       Zeitkaszeige       F7         Nr       Meldung       Liner       X.2.202.4 Absolut F3 OP       F7         Nr       Meldung       Liner       X.1.Absolut F100P       F7         Nr       Meldung       Liner       Y.7.202.4 Absolut F3 OP       F7         Nr       Meldung       Liner       Y.7.1 Absolut F100P       F7         Scheiben       Geräte       1.1X       Messtater       Programm Auto-Lipdate         Scheiben       Geräte       1.1X       Messtater       Prositionen       SF9         OK       S100P       Kein Zykkus aktiv       Prog. 0K       F7	Messresultate       MDL       Complete: Fill       Complete: Fill       Fill <td>-</td> <th></th> <td>-</td> <td>ISF6</td>	-		-	ISF6
Messresultate       MDI       Complex       Meldungen       Zeitkanzeige       F7         Nr       Peldurg       Lösung       Genplex       FRoder ist Aldor       Programm Auto-Lipdate       F7         Roboter ist Aldor       Programm Auto-Lipdate       Programm Auto-Lipdate       F7         Scheibern       Geräte       IJK       Messtaster       Positionern       Scheibern       Scheibern       Kein Zytikus aktiv       F79	Messresultate       MDI       Complex       Meddungen       Zeitkanzeige       Likeurg         Ne       Meddung       Zeitkanzeige       Likeurg       Complex       Programs Auto-Lipdate         Ne       Meddung       Executive       Programs Auto-Lipdate       Programs Auto-Lipdate         Optionaler Stopp vor jeden Woard       Ervesterte Enstallungen       Ervesterte Enstallungen         Schebben       Geräte       EIX       Messtaster       Prositionen         K       StipPP       Kein Zyklas aktiv       Frog. 0K       F1       F1	ipindeldrehzahk	: 0 [U/min]	0	
Messresultate     Moti Compiler / Meldungen     Zeitanzeige     Im       Nr     Rebarrs     Loung     Compiler / Meldungen     Programm Auto-Lpdate       Roboter ist Adav     Programm Auto-Lpdate     Programm Auto-Lpdate       ProgrammAuroluse diven Kilahaitel     Optionaler Stoop vor jedem Woard     Envetterte EnzletLingen       Scheibern     Geräte     I.X.     Messtanter       OK     STOPP     Kein Zyklus aktiv     Program	Messeresultate     MDI     Complete     Meldungen     Zeitkanzelige       Nr     Meldung     Lönung     Complete     Folder Ländelungen       Produktion     Programm Auto-Lipidate       Optionaler Stonge vor jeden Waard     Envestente Einstellungen       Schebbern     Geräte       Schebbern     Geräte       Kein Zyklas aktiv     Program       F1     F2       F2     F3       F4     F5				- Linear X2.220.4 Absolut F3 0P
Scheben     Geräte     IX     Messtaster     Positionen       OK     Stop     Kein Zykkas aktiv     Prog. OK     P	Roboter ist Adav     Programm Auto-Update       Programm Auto-Update <tr< td=""><td>Messresultate</td><th>MDI Compiler Meldungen Zeitanzeige</th><td>v</td><td>SF7</td></tr<>	Messresultate	MDI Compiler Meldungen Zeitanzeige	v	SF7
Programsdurchlauf ahre Kähintel     Erwetterte Einstellungen     SF8       Optionaler Stopp vor jeden Woard     Erwetterte Einstellungen     SF8       Altradionren     Aaftrag in Produktion     Offinen     Schlessen       Scheiben     Geräte     EJK     Messtanter     Positionen       OK     STOPP     Kein Zyklus aktiv     Prog. OK     p7	Programsdurchkad dive Kähistel       Erveterte Enstellungen         Optionaler Stopp vor jedes Woard       Erveterte Enstellungen         Auftragen Produktor       Offinen         Scheiben       Geräte       I.K.         Kein Zyklas aktiv       Prositionen         F1       F2       F3         F4       F5       F6         F7       F8       F9         F1       F1       F1	Nr Piel	ldung	Lösung	Compler-Einstellungen
Cotioneler Stoop vor jedem Waard Erweiterte Einstellungen Auftrag in Produktion Offnen Schlessen Scheiben Geräte Eink Messtaster Positionen OK STOPP Kein Zyklus aktiv Prog. OK	Cytomair Scop vor jeden Woard     Ervesterte Einstellungen       Auftrag in Produktion     Offmen       Scheiben     Geräte     EJK       OK     STOPP     Kein Zyklas aktiv       F1     F2       F2     F3       F4     F6       F7     F8       F9     F10       F1     F1				
Scheiben     Geräte     IX     Messtaster     Positionen       OK     STOPP     Kein Zykkus aktiv     Prog. OK     IX	Scheben     Geräte     IX     Messtaster     Positionen       OK     STOPP     Kein Zyklas aktiv     F1     F1     F1				
Scheiben Geräte DK Messtaster Positionen OK STOPP Kein Zyklus aktiv Prog. OK	Scheben Geräte DK Meistaster Positionen OK STOPP Kein Zyklus aktiv Prog. 0K 51 F1 F2 F3 F4 F5 F6 F7 F8 F9 F9 F10 F11 F1				Coponaer scop vor jeden woard
Scheiben Geräte DK Messtaster Positionen OK STOPP Kein Zyklus aktiv Prog. DK	Scheben Geräte LIK Messtaster Positionen OK STOPP Kein Zyklas aktiv Prog. OK F1 F2 F3 F4 F5 F6 F7 F8 F9 F9 F10 F11 F1				
OK STOPP Kein Zyklus aktiv Prog. OK 🕤	OK         STOPP         Kein Zyklus aktiv         Prog. 0K         Image: Comparison of the state of				÷
	F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F1				



#### NUMROTO*plus*

The NUMROTO software is a comprehensive package for producing and regrinding diverse tools. In optional combination with ProGrind, the production of complex tools leaves practically nothing to be desired.

#### **Crushing function**

Controls the forces between the crushing roll and the profile grinding wheel and improves their durability.

- Easy programming
- Only relevant parameters visible
- Customers can design surface itself

-distant	R/offschiefen			
Allen .	Salahaga Salahaga	# tand1		
Territoria de la constante de		C turberes		
And	inschargelator	8.2		
and the second s	Exclution in Endingloople Colladius		N	
	Exclude in Ampleption aldfreed	-	IN.	
Barris - Street	Execute to see the unit set (prior		100	
	New York in different lands whitehing		141	
and a standard and a standard as	Addates			
a latanga ka	Re. Adaptor chill		(bested)	
Participation Proceedings of the Alexandre	Regestrations			
Contraction Printer	No. Altrapport data		(ene)	
a Vehicle As Reports				
2				

#### PCD grinding pressure module

When grinding PCD tools, control of the grinding force is absolutely essential. The module controls the force via the grinding pressure and matches the machine feed rate to it. In this way, blades made of super-hard materials can be economically produced. The force control is activated in the programming wizard.

#### 14 EWAG EWAMATIC LINEAR Hightech technology in tool grinding



- CNC expertise
- Safety architecture
- Great flexibility

The NUM CNC system hardware is controlled via the NUM FLEXIUM operating terminal with integrated PC. The tool grinding machine can also be directly operated near the grinding head using a small and light handheld terminal.

## **Customer Care**

WALTER and EWAG deliver systems and solutions worldwide for all areas of tool machining. Our claim is based on ensuring maximum availability of our machines over their entire service life. For this we have thus bundled numerous services in our customer care program.

From "Start up" through "Prevention" to "Retrofit", our customers enjoy tailor made services for their particular machine configuration. Around the world, our customers can use helplines, which can generally solve a problem using remote service. In addition to that, you will also find a competent service team in your vicinity around the world. For our customers, this means:

- Our team is close by and can quickly be with you.
- Our team will support you to improve your productivity.
- Our team works quickly, focuses on the problem and its work is transparent.
- Our team solves every problem in the field of machining tools, in an innovative and sustainable manner.





**Start up** Commissioning Extension of the guarantee





**Prevention** Maintenance Inspection



Service Customer service Customer advice Helpline Remote service



**Material** Spare parts Replacement parts Accessories



**Rebuild** Machine overhauling Refurbishing of assemblies



**Retrofit** Conversions Retrofitting parts Taking machines back





## Technical data, dimensions

#### Axes

X axis	380 mm
Y axis	240 mm
Z axis	245 mm
Rapid traverse X, Y, Z	20 m/min
A axis, inclined axis	- 15 to + 25°
B axis, rotary axis	± 135°
C axis, rotary axis	∞

#### Drives

Max. grinding wheel diameter	300 mm
Peak power	7.5 kW
Grinding spindle speed	200 — 9,000 rpm

#### Accuracy

Linear resolution	0.0001 mm
Axial resolution	0.001°

#### Others

Power consumption at 400 V/50 Hz	approx. 16 kVA
Weight incl. robot cell	approx. 5,000 kg

#### Tool data<sup>1)</sup>

Automatic clamping system for indexable inserts				
Min. indexable insert inscribed circle	3 mm			
Max. indexable insert circumscribed circle	50 mm			
Pin automatic clamping system				
Pin, diameter	1.6 – 10 mm			

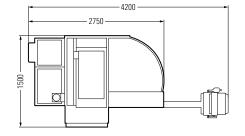
#### Automatic clamping system for rotationally symmetrical tools

Chuck, diameter	0.5 – 32 mm
HSK 63, diameter	0.2 – 200 mm



<sup>1)</sup> The maximum tool dimensions depend on the type of tool

and its geometry, as well as the type of machining.



2250

EWAMATIC LINEAR with robot

EWAMATIC LINEAR

#### Options

- TA 77 (C axis)
- Inclined axis (A axis)
- Grinding spindles (max. 6 pieces)
- High speed spindle up to 50,000 rpm
- Manual clamping system (for lathe tool holder)
- Auto clamping system (turning, milling, grooving inserts)
- Pin clamping system (Mandrel in C-axis)
- Pek clamping system (clamping via stamp)
- Automation with FANUC robot
- Vision system for automatic insert detection
- Automatic regeneration unit
- Crushing function
- Coolant systems
- Coolant mist extraction systems

Measurements in mm. Subject to modifications due to technical progress and errors. No guarantee is provided for this information.

2712

4200

2750

## **Creating Tool Performance**

WALTER and EWAG are globally acting market-oriented technology and service companies, and are system and solution partners for all areas of tool machining. Our range of services is the basis for innovative machining



**Grinding** – Grinding of rotationally symmetrical tools and workpieces

WALTER machines	Use	Materials	Tool dimensions <sup>1)</sup> max. length <sup>2)</sup> / diameter
HELITRONIC ESSENTIAL	PR	HSS TC C/C CBN	255 mm / Ø1 – 100 mm
HELITRONIC MINI POWER	PR	HSS TC C/C CBN	255 mm / Ø1 – 100 mm
HELITRONIC MINI AUTOMATION	PR	HSS TC C/C CBN	255 mm / Ø1 – 100 mm
HELITRONIC BASIC	PR	HSS TC C/C CBN	350 mm / Ø3 – 290 (320) mm
HELITRONIC POWER	PR	HSS TC C/C CBN	350 mm / Ø3 – 290 (320) mm
HELITRONIC POWER 400	PR	HSS TC C/C CBN	520 mm / Ø3 – 315 mm
HELITRONIC VISION 400	PR	HSS TC C/C CBN	370 mm / Ø3 – 315 mm
HELITRONIC VISION 400 L	PR	HSS TC C/C CBN	420 mm / Ø3 – 315 mm
HELITRONIC VISION 700 L	PR	HSS TC C/C CBN	700 mm / Ø3 – 200 mm
HELITRONIC MICRO	Ρ	HSS TC C/C CBN	120 mm / Ø0.1 – 12.7 mm
	R	HSS TC C/C CBN	120 mm / Ø3 – 12.7 mm
EWAG machines	Use	Materials	Tool dimensions <sup>1)</sup> max. length <sup>2)</sup> / diameter
EWAMATIC LINEAR	PR	HSS TC C/C CBN PCD	200 mm / Ø 0.2 – 200 mm
PROFILE LINE	PR	HSS TC C/C CBN	255 mm / Ø1 – 100 mm
WS 11/WS 11-SP	PRM	HSS TC	— / up to Ø25 mm
RS 15	PRM	HSS TC C/C CBN PCD	− / up to Ø25 mm

**Eroding** – Electrical discharge machining and grinding of rotationally symmetrical tools

WALTER machines Use	Materials	Tool dimensions <sup>1)</sup> max. length <sup>2)</sup> / diameter
HELITRONIC DIAMOND EVOLUTION	HSS TC C/C CBN PCD	185/255 mm / Ø1 – 165 mm
HELITRONIC POWER DIAMOND	HSS TC C/C CBN PCD	350 mm / Ø3 – 290 (400) mm
HELITRONIC POWER DIAMOND 400	HSS TC C/C CBN PCD	520 mm / Ø3 – 380 mm
HELITRONIC VISION DIAMOND 400	HSS TC C/C CBN PCD	370 mm / Ø3 – 315 mm
HELITRONIC VISION DIAMOND 400 L	HSS TC C/C CBN PCD	420 mm / Ø3 – 315 mm



**Software** – The intelligence of tool machining and measuring for production and regrinding



**Customer Care** – Comprehensive range of services

Use: P Production R Regrinding M Measuring

Materials: HSS High speed steel TC Tungsten carbide C/C Cermet/ceramics CBN Cubic boron nitride PCD Polycrystalline diamond CVD-D Chemical vapour deposition

solutions for practically all tool types and materials typical for the market with a high degree of added value in terms of quality, precision, durability and productivity.



**Grinding** – Grinding of indexable inserts

EWAG machines	Use	Materials	Indexable inserts <sup>1)</sup> Inscribed / circumscribed circle
EWAMATIC LINEAR	PR	HSS TC C/C CBN PCD	Ø3 mm / Ø50 mm
PROFILE LINE	PR	HSS TC C/C CBN	Ø3 mm / Ø50 mm
COMPACT LINE	PR	HSS TC C/C CBN PCD	Ø3 mm / Ø50 mm
INSERT LINE	PR	HSS TC C/C CBN	Ø3 mm / Ø75 mm
RS 15	PRM	HSS TC C/C CBN PCD	− / up to Ø25 mm



Laser – Laser machining of indexable inserts and/or rotationally symmetrical tools

EWAG machines	Use	Materials	Tool dimensions <sup>1)</sup> max. length / diameter
LASER LINE ULTRA	PR	TC C/C CBN PCD CVD-D MCD/ND	250 mm / Ø 0.1 – 200 mm
LASER LINE PRECISION	P R	CBN PCD CVD-D MCD/ND	250 mm / Ø 0.1 – 200 mm
EWAG machines	Use	Materials	Indexable inserts <sup>1)</sup> Inscribed / circumscribed circle
LASER LINE ULTRA	PR	TC C/C CBN PCD CVD-D MCD/ND	Ø 3 mm / Ø 50 mm
LASER LINE PRECISION	P R	CBN PCD CVD-D MCD/ND	Ø3 mm / Ø50 mm



**Measuring** – Contactless measurement of tools, workpieces and grinding wheels

WALTER machines	Use	Tool dimensions <sup>1)</sup> max. length / diameter
HELICHECK PRECISION	М	420 mm / Ø1 – 320 mm
HELICHECK ADVANCED	м	420 mm / Ø 1 – 320 mm
HELICHECK PRO	М	300 mm / Ø 1 – 200 mm
HELICHECK PRO LONG	М	730 mm / Ø 1 – 200 mm
HELICHECK PLUS	М	300 mm / Ø 0.1 – 200 mm
HELICHECK PLUS LONG	М	730 mm / Ø 0.1 – 200 mm
HELICHECK 3D	М	420 mm / Ø 3 – 80 mm
HELISET PLUS	м	400 mm / Ø1 – 350 mm
HELISET	М	400 mm / Ø 1 – 350 mm

<sup>1)</sup> Maximum tool dimensions are dependent on the tool type and geometry, as well as the type of machining <sup>2)</sup> From the theoretical taper diameter of the workpiece holder.



Ewag AG Industriestrasse 4 · 4554 Etziken, Switzerland Tel. +41 32 613 3131 Fax +41 32 613 3115 info@ewag.com

For worldwide contact details, please visit **www.ewag.com** 



Partner of the Engineering Industry Sustainability Initiative