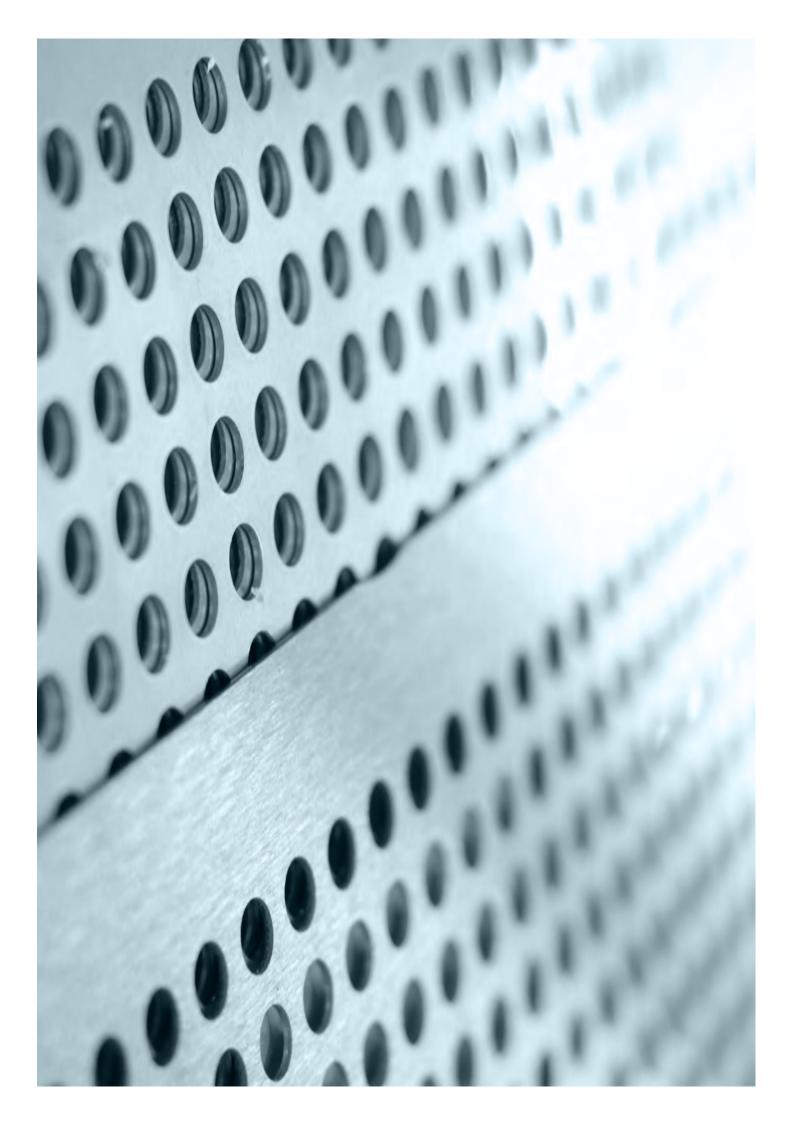
# **MACHINES**





NS Máquinas is a specialized manufacturer of machines for the metal finishing and polishing industry located in Portugal.

Through the years NS Máquinas has been bringing unique features and designs both to tube and sheet metal fabricators. This has been made possible by continual investment in research and development and to a constant pursuit of optimal and flexible solutions.

Today NS is capable of creating and offering machines which combine quality and adequacy for diverse production requirements.

## Enjoying Surface Finishing

#### **CONTENTS**

1 ROUND TUBE FINISHING MACHINES	05
2 RECTANGULAR TUBE AND BAR FINISHING MACHINES	13
3 DEBURRING MACHINES	23
4 MIRROR POLISHING MACHINES	33
5 OTHER BELT FINISHING MACHINES AND EQUIPMENT	39



# Quality you can trust

#### COUNTING WITH VAST EXPERIENCE



**3000** machines produced



Producing machines for the most demanding markets.

"We put all of our machines through a grueling pace throughout a day" [...] A lot of them are running 24/7 and we haven't had any problem with them at all." Kevin Harding, Camdel Metals Corporation, USA, about ML100 3Z



Since 2003 Strong metal finishing know-how



Adequate machines for each application from the small workshop to the continuous production lines. This flat grinder is a fantastic machine. We are all so impressed by the speed and also with the high quality of finish. We have a number of clients who are using us for the polishing service, so I hope the machine will pay for itself very soon." Jimmy Mills, Sparcraft, South Africa, about FG170 ZK

#### INVESTING



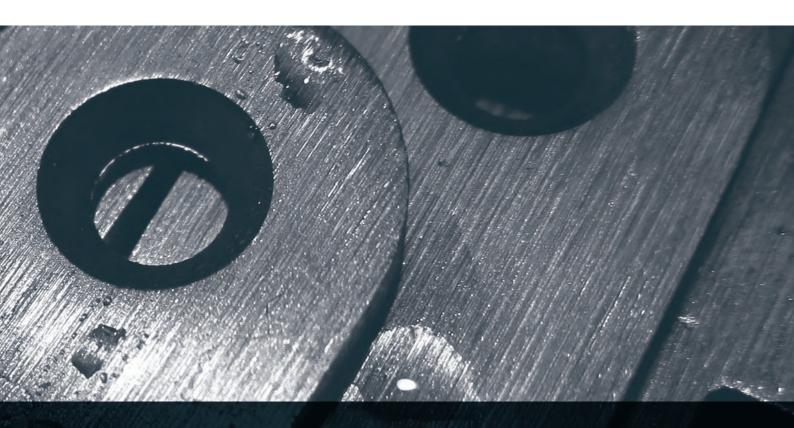
#### Automation

Development of automatic tube and metal sheet loading, unloading and return systems



Constant innovation: 5 new machines launched in the last 2 years







Sustainable sales growth



SUPPLYING A **COMPLETE OFFER** 



**60** Countries global presence in more than 60 countries



Customized Customized solutions

"Thanks to the team from NS. You've done a job that you should be very proud of and sets a new standard in bar grinding quality...I'm very honored to be part of the project ... " **Corey Munn**, AusTech Supplies, Australia, about FGW150 2Z HD



#### Technical Service Quick field and online technical service



Achieving the requested deburring or finishing quality is a process NS Máquinas is experienced in. Counting with a vast range of machines and abrasive options, our team is committed to join and provide you the optimum solution for your surface finishing problem.

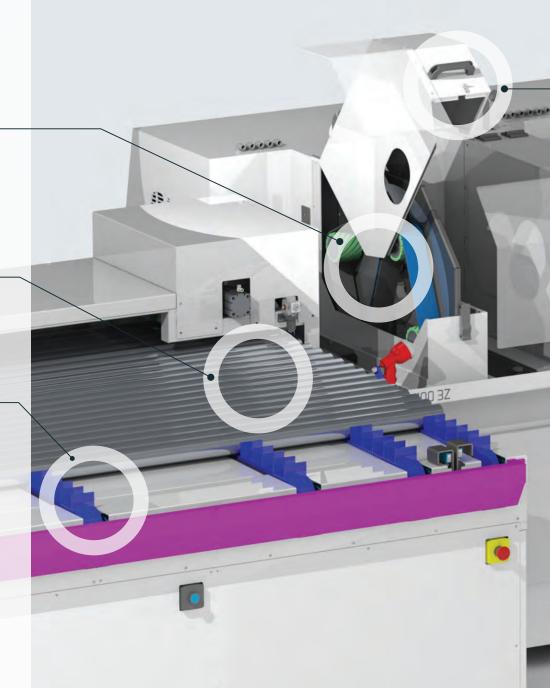




ML PLANETARY SYSTEM: ABRASIVE BELT FINISHING WITHOUT ROTATING THE TUBE. LOW HEAT AND NO VIBRATION ON THE TUBE

SUPERIOR QUALITY IN SATINISING AND FINISHING OF ROUND TUBES AND PIPES. ULTIMATE VERSATILITY FOR OVAL, DRILLED, TAPERED AND BENT TUBES

AUTOMATIC LOADING AND UNLOADING SYSTEMS FOR AUTONOMOUS OPERATION



### ROUND TUBE FINISHING MACHINES

SINGLE OR MULTIPLE STATION DESIGN: 1 UP TO 6 UNITS (6Z)

> DIFFERENT DIAMETER CAPACITIES UP TO Ø310MM

MACHINES AVAILABLE IN DRY AND IN WET CONFIGURATIONS (WITH MANUAL OR AUTOMATIC WATER COOLING AND FILTRATION SYSTEM)

MOBILE TOUCHSCREEN FOR EASY MACHINE CONTROL WITH OPTION FOR PROGRAMS SAVING

MAQUINAS

MADUIN



#### **ML100** $\bigotimes_{114}$ $\bigotimes$ $\bigotimes_{1}$



#### ML50 🖉 🕤 🗋



Minimum tube vibration even on the longest lengths



00A

Straight or curved tubes

polishing



Available with touchscreen for programs saving



Finishing of tubes with very tight bends such as taps

Compact design for the



Compact design for the highest flexibility in curved shapes

Finishing steel tubular furniture products after bending process



el tubular ucts after process



Ø 205  $\bigcirc$ **ML**200  $\bigcirc$ б S



Large diameter tube finishing (up to Ø150mm: ML150 or Ø205mm: ML200)

Finishing of large diameter curved tubes with maximum consistency







#### **ML300** Ø O





capacity. Possible to finish tube surface but also to remove imperfections by using contact pressure on the abrasive belt







Wet cooling system reduces temperature of the tubes during finishing operation and keeps potentially explosive dusts wet, avoiding related risks



A second se





Manual or automatic filtration systems available







#### MLW100 6Z AT 🖉 🖉 🙆 $^{\circ}$

AUTOMATIC TUBE SYSTEMS





Final finishing in one single pass. Different designs up to 6 stations





MLW100 3Z: Standard 3 stations round tube wet finishing



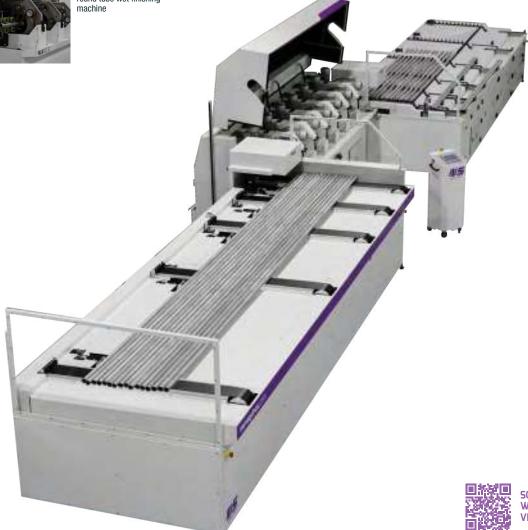


Automatic Bundle Loading System: Designed up to 5 tons maximum load

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Great savings in handling time and operator intervention



SCAN TO WATCH THE VIDE0 ⊳



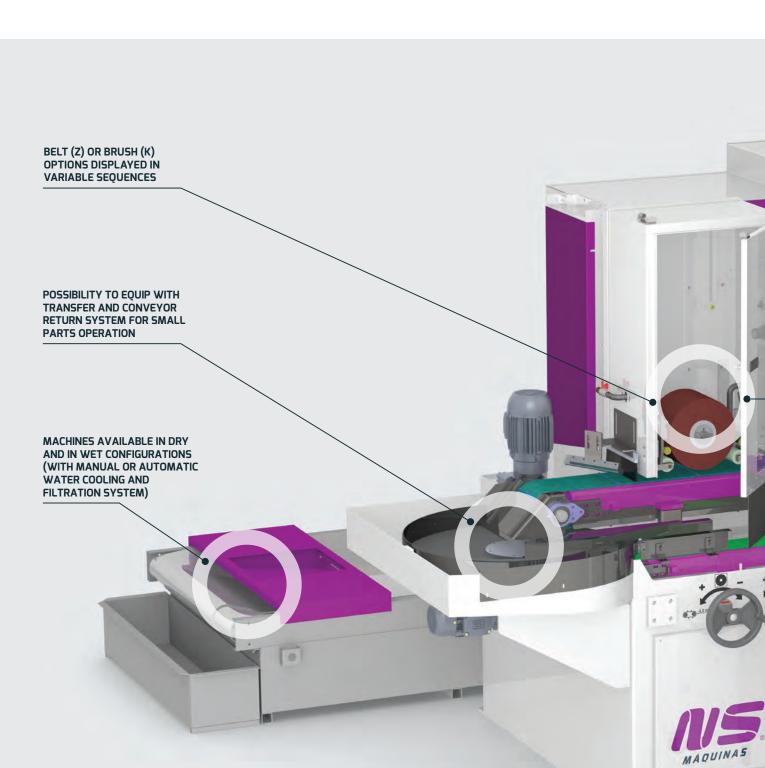
#### Technical Details

	ML100	ML50	ML75	ML150	ML200
Working capacity (Ømm)	10-114	5-51	10-76	20-150	20-205
No. Stations	1	1	1	1	1
Abrasive belts dimensions (mm)	(2x) 940x50	(2x) 500x25	(2x) 860x25	(2x) 1100x50	(2x) 1240x70
Abrasive belts speed (m/s) *	10-25	10-25	10-25	10-25	10-25
Feeding speed (m/min)	1-5	Manual	1-5	1-4	1-4
Abrasive belts motor (kW)	3	2.2	2.2	5.5	7.5
Wheel motor (kW)	1.5	1,5	1.5	2.2	3
Feeding motor (kW)	(2x) 0.12	-	(2x) 0.12	(2x) 0.18	(2x) 0.18
Total Power (kW)	5	4	4	8	11
Consumption (A)	14	12	13	18	24
Dust extractor conection (Ømm)	80	60	80	100	100
Dimensions (mm)	750x1000x1300	650x740x1220	750x1000x1300	1100x950x1350	1150x950x1350
Weight (kg)	250	170	230	480	680

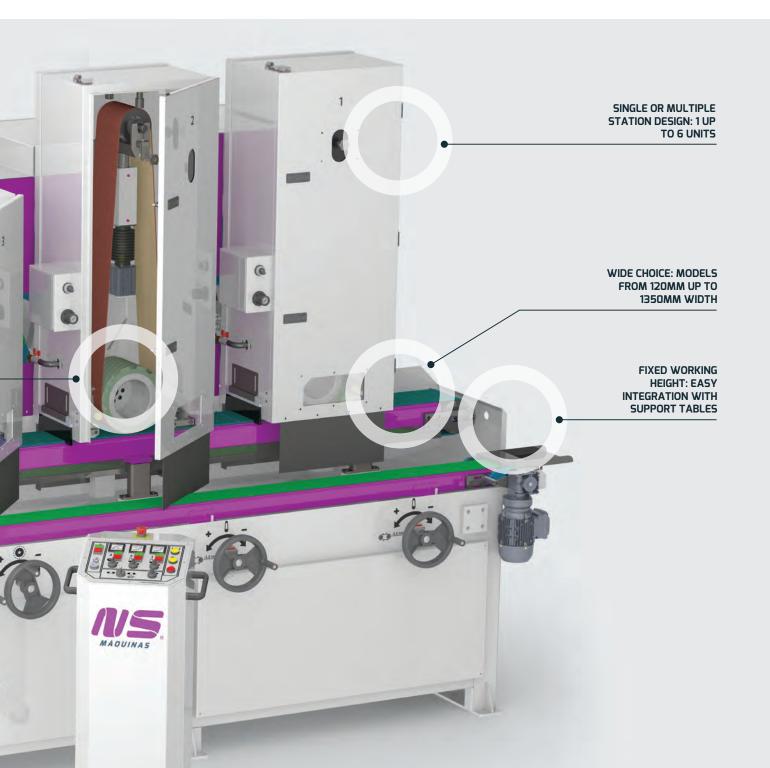
	ML300	ML100 3Z	MLW100	MLW200	MLW100 6Z
Working capacity (Ømm)	40-310	10-114	10-114	20-205	10-110
No. Stations	1	3	1	1	6
Abrasive belts dimensions (mm)	(2X) 2150X120	(3x) (2x) 940X50	(2x) 940X50	(2x) 1240x70	(6x) (2x) 940x50
Abrasive belts speed (m/s)*	10-25	10-25	10-25	10-25	10-25
Feeding speed (m/min)	0.6-3	1-5	1-5	1-4	1-5
Abrasive belts motor (kW)	11	(3x) 3	3	7.5	(6x) 3
Wheel motor (kW)	4	(3x) 1.5	1.5	4	(6x) 1.5
Feeding motor (kW)	(2x) 0.25	(4x) 0.12	(2x) 0.12	(2x) 0.37	(7x) 0.12
Total Power (kW)	17	14	5	13	34
Consumption (A)	35	33	14	28	60
Dust extractor conection (Ømm)	200	(3x) 80	-	-	-
Dimensions (mm)	1700X1610X1800	950X1450X1350	1380x1060x1480	2200x2500x1600	3500x3000x1900
Weight (kg)	1950	600	550	1430	3012

\* with variable speed











#### FC120 ZK



Thickness meter for accurate pressure adjustments



for simple operation for flat bars and rectangular tubes





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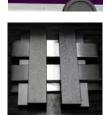
#### k₃₃₀ <sup>™</sup> <sup>™</sup> FG330 2ZK



Capacity of 330mm working width



Abrasive belt automatic oscillation for perfect tracking







#### FGW330 3Z HD 🔤 💆 🏠



Stainless steel tubes, bar stock and metal sheet belt grinding and finishing



Independent abrasive stations construction: accurate setting

isive non-







#### ⊨nd 🖆 🧳 🎇 FGW170 2ZKR











#### TR120 🖂 🧬

SIDE GRINDING MACHINE



Before and after side grinding



Option: counter rotating lamella brushes available for edge rounding after side grinding



Single adjustment with side pressure roller system: constant pressure along the complete bar







Angled grinding heads for upper and lower 45° beveling

Side grinding stations with vertical oscillation for uniform wear of abrasive belts

Double side bars finishing up to 6 grinding stations













METAL SHEET FINISHING MACHINE



Possibility to have upgraded control panel with programs saving mode



Quick abrasive belt replacement



NS

Brush unit with option to be used with oscillation (150 strokes/min)

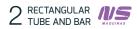




Double or triple abrasive belt station plus finishing brush (2ZK and 3ZK)







#### DMW660 2Z

METAL SHEET WET FINISHING MACHINE





Independent stainless steel compartments for each finishing station



660mm and 1100mm maximum width models











#### **Technical Details**

	FC120	FG170	FG220	FG220 4ZV	FG330	TR120
Working capacity (mm)	120x120	170x200	220x200	220x200	330x200	300x25
No. belt stations (Z)	1	1-2	1-2	4	1-2	1-3
No. brush stations (K)	0-1	1	1-2	-	1	0-1
Abrasive belt dimensions (mm)	120x1850	170x2000	220x2200	220x2200	330x2200	120x1850
Abrasive brush dimensions (mm)	120xØ200	170xØ200	220xØ200	-	330xØ200	(2x) 30xØ250
Abrasive belt speed (m/s)	20	20	20	20	20	20
Abrasive brush speed (m/s)	15	15	15	-	15	18
Feeding speed (m/min)	12	6+12	6+12	6+12	6+12	6
Abrasive belt motor per head (kW)	3	4	5.5	5.5	7.5	3
Abrasive brush motor per head (kW)	1.5	3	4	-	5.5	(2x) 0.25
Feeding motor (kW)	0.37	0.45	0.45	(3x) 0.25	0.55	0.37
Total Power (kW)	5 (1)	8 (1)	10 (1)	23	14 (1)	11 (2)
Consumption (A)	12(1)	18 (1)	22 (1)	44	30 (1)	24 <sup>(2)</sup>
Dust extraction connection (Ø mm)	(2x) 80 <sup>(1)</sup>	(2x) 95 <sup>(1)</sup>	(2x) 100 <sup>(1)</sup>	(4x) 100	(2x) 100 <sup>(1)</sup>	(3x) 100 <sup>(2)</sup>
Dimensions (mm)	1450x850x1800 <sup>(1)</sup>	1700x1000x2000 <sup>(1)</sup>	1700x1250x2000 <sup>(1)</sup>	3750x1350x2150	1750x1400x2050 <sup>(1)</sup>	2175x2100x1260 <sup>(2)</sup>
Weight (kg)	500 (1)	750 (1)	950 <sup>(1)</sup>	2240	1100 (1)	1220 (2)

	FGW170	FGW220	FGW330	DM1100 2ZK	DMW660 2Z	DMW1100 2Z
Working capacity (mm)	170x200	220x200	330x200	1100x120	660x120	1100x120
No. belt stations (Z)	1-6	1-6	1-6	2	2-6	2-6
No. brush stations (K)	0-2	0-2	0-2	1	-	-
Abrasive belt dimensions (mm)	170x2000	220x2200	330x2200	(2x) 1100x2200	660x2200	1100x2200
Abrasive brush dimensions (mm)	170xØ200	220xØ200	330xØ250	1120xØ200	-	-
Abrasive belt speed (m/s)	20	20	20	20	20	20
Abrasive brush speed (m/s)	15	15	15	15	-	-
Feeding speed (m/min)	6+12	6+12	6+12	4-15	4-15	4-15
Abrasive belt motor per head (kW)	4	5.5	7.5	18.5	11	18.5
Abrasive brush motor per head (kW)	3	4	5.5	9.2	-	-
Feeding motor (kW)	0.45	0.75	0.75	0.37	0.37	0.45
Total Power (kW)	9 (3)	12 <sup>(3)</sup>	16 <sup>(3)</sup>	49	25	40
Consumption (A)	15 <sup>(3)</sup>	25 <sup>(3)</sup>	30 (3)	97	50	85
Dust extraction connection (Ø mm)	-	-	-	(3x) 150	-	-
Dimensions (mm)	2100x1100x2200 <sup>(3)</sup>	2100x1150x2200 <sup>(3)</sup>	2100x1300x2200 <sup>(3)</sup>	2230x2210x2205	2650x2310x2450	2750x2800x2450
Weight (kg)	1250 (3)	1300 <sup>(3)</sup>	1450* (3)	4200	4100	5200

<sup>(1)</sup> Values for ZK version
 <sup>(2)</sup> Values for 3Z version
 <sup>(3)</sup> Values for 2Z version

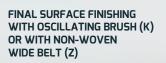




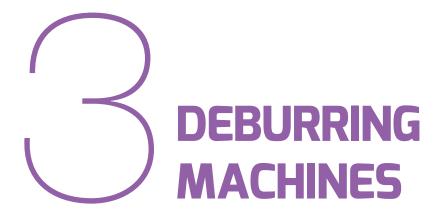
EDGE ROUNDING UNIT **BOTH FOR SMALL AND** LARGE PARTS WITH **ABRASIVE CROSS BELTS** (C) OR WITH PLANETARY BRUSHES (PK)

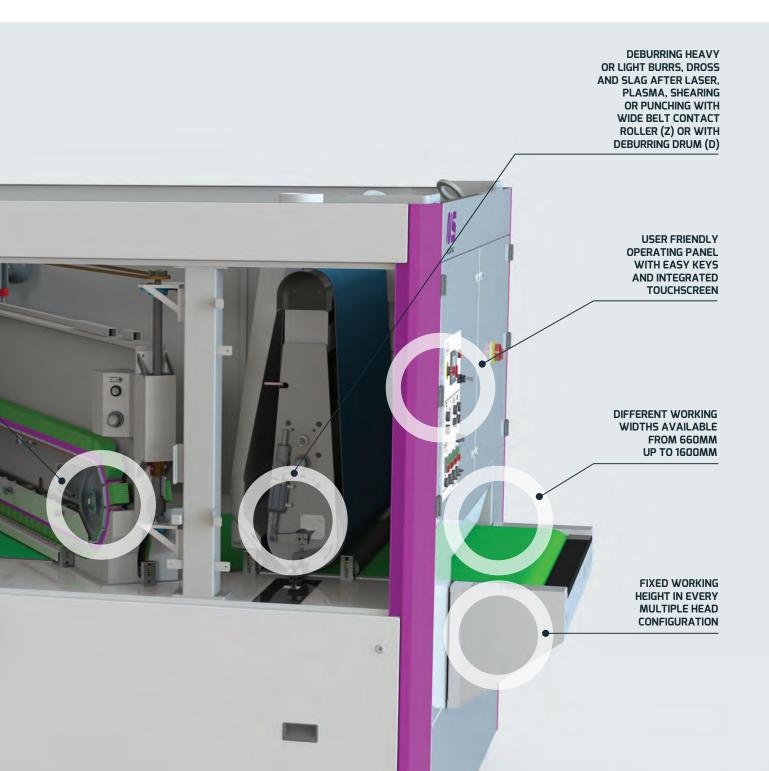
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SINGLE AND DOUBLE SIDED CONFIGURATIONS















Larger working capacity up to 1600mm width



Rounding edges of thick plate steel parts





PARTS RETURN SYSTEM



Ideal for small parts when processing both sides top and bottom



Easy to remove and store



store

Continuous flow of parts with single operator





#### DM1100 2C

DOUBLE SIDED EDGE ROUNDING











Top and bottom edge rounding of laser, waterjet or punched parts



Easy abrasives replacement: automatic positioning of upper and lower cross belts



Single sided small parts processing down to 50x50mm thanks to additional conveyor and support table







#### DM1100 Z2C

DEBURRING AND DOUBLE SIDED EDGE ROUNDING MACHINE





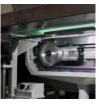
Upper deburring and edge rounding station





Large deburring drum as alternative to remove heavy burrs and slag

Parts return system





Lower edge rounding station



Small parts processing option

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Deburring with wide abrasive belt and double sided edge rounding with cross belts







#### <u>–</u> <u>@</u>, <u>\_</u> **DM**1100 DC

THICK STEEL PLATES DEBURRING AND EDGE ROUNDING MACHINE



Deburring drum for thick plasma and flame cut deslagging and deburring



Conveyor belt width 1100mm with integrated 600mm magnetic hold down for small parts processing. Automatic material thickness measurement



Smooth edges with a radius from two counter rotating abrasive cross belts



Floating drum adjusts to material distortion and thickness tolerances. The drum oscillates to improve abrasive lifetime and deslagging results









SCAN TO WATCH THE VIDEO ▷



#### AUTOMATIC TRANSPORT SYSTEMS



#### DM660 ZPK 🔚 🗕 🐼

DEBURRING AND EDGE ROUNDING MACHINE







Deburring unit and planetary double brush station for edge rounding



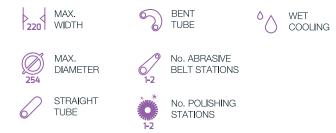
Large radius on heavy plate parts even in internal contours





#### **Technical Details**

	DM1100 C	DM1600 C	DM1100 2C	DM1100 DC
Working capacity (mm)	1100x50	1600x50	1100x50	1100x120
No. contact drum stations	-	-	-	1
No. cross belt stations	1	1	2	1
Abrasive paper dimensions (mm)	-	-	-	1150x1520
Contact drum speed (rpm)*	-	-	-	185-650
Cross belt speed (m/s)*	2-8	2-8	2-8	2-8
Feeding speed (m/min)	0.6-3.2	0.6-3.2	0.6-3.2	0.5-4.0
Contact drum motor (kW)	-	-	-	11
Cross belt motor (kW)	(2x) 3	(2x) 4	(4x) 3	(2x) 3
eeding motor (kW)	0.18	0.12	(3x) 0.18	0.37
Total Power (kW)	6	8	13	19
Consumption (A)	18	13	30	40
Dust extraction connection (Ø mm)	150	150	196	(2x) 150
Dimensions (mm)	2213x1530x1940	2730x1740x1940	2560x1980x2150	2258x2900x2220
Neight (kg)	1200	1790	2250	4100
	DM1100 ZC	DM1100 Z2C	DM1100 ZCK	DM660 ZPK
Vorking capacity (mm)	1100x120	1100x120	1100x120	660x120
No. belt stations	1	1	1	1
No. cross belt stations	1	2	1	-
No. brush stations	-	-	1	1
Abrasive belt dimensions (mm)	1100x2200	1100x2200	1100x2200	660x2200
Abrasive brush dimensions (mm)	-	-	1120xØ200	(2x) 800xØ350xØ100
Abrasive belt speed (m/s)*	8-22	8-22	8-22	8-22
Cross belt speed (m/s)*	2-8	2-8	2-8	-
Abrasive brush speed (m/s)*	-	-	8-18	6-31
Feeding speed (m/min)	0.9-13	0.6-3.2	0.9-13	0.4-12
Abrasive belt motor per head (kW)	18.5	18.5	18.5	11
Cross belt motor (kW)	(2x) 3	(4x) 3	(2x) 3	-
Abrasive brush motor per head (kW)	-	-	9.2	(2x) 2.2
	0.07	(3x) 0.18	0.37	0.37
Feeding motor (kW)	0.37			
	27	33	37	29
Fotal Power (kW)		33 62	37 73	29 56
Total Power (kW) Consumption (A)	27			
Feeding motor (kW) Total Power (kW) Consumption (A) Dust extraction connection (Ø mm) Dimensions (mm)	27 55	62	73	56





AUTOMATIC POLISHING SOAP; SPRAY GUN WITH LIQUID COMPOUND OR SOLID POLISHING BAR SYSTEM

DIFFERENT MODELS AVAILABLE: ROUND TUBES UP TO Ø254MM, RECTANGULAR TUBES UP TO 220MM



6)

## MIRROR POLISHING MACHINES

SINGLE OR MULTIPLE POLISHING STATIONS

UNIQUE DESIGNS FOR HIGH QUALITY MIRROR POLISHING. SYSTEMS WITHOUT TUBE SUPPORT



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#### $\mathbf{MP100} \quad \varnothing \quad \diamond \quad \mathbf{\widehat{v}}$

ROUND TUBE POLISHING MACHINE



#### PC70 2P ♭<sub>n</sub> ∮ ∅ ⊥ ♀

ROUND AND RECTANGULAR TUBE POLISHING MACHINE







RECTANGULAR TUBE AND FLAT BAR POLISHING MACHINE





Suitable for rectangular tubes and flat bars









35









MANUAL POLISHING AND FINISHING MACHINE



PL40 and PL80 machines are available in different are available in different configurations: ZP (1 abrasive belt plus one polishing wheel unit), PP (double polishing wheel unit) and ZZ (double abrasive belt)



Simple and reliable polishing machines with one single motor







Long distance from the polishing unit to the body of the machine: accessibility for awkward-shaped work pieces



Double motor for independent operation with two workers





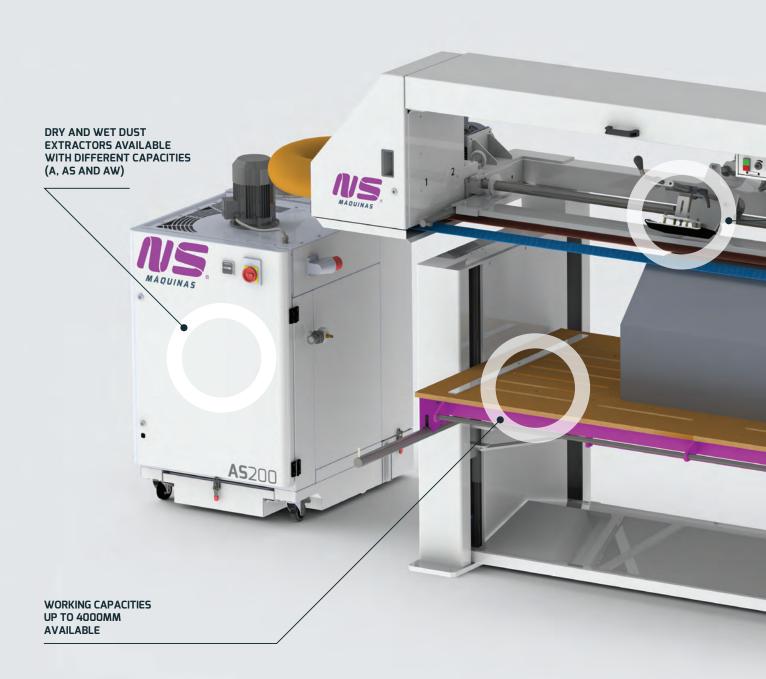


### **Technical Details**

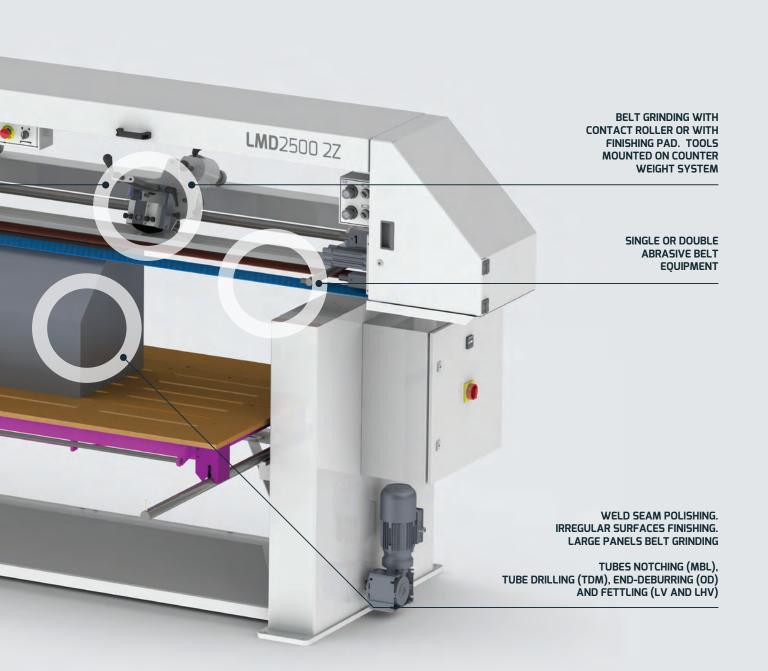
	MP100	PC70 2P	RC200	RC250	PP220 2P	PL40	PL80
Warking annaity (Group)							
Working capacity (Ømm)	40-114	Ø70 or 70x70	10-206	10-254	220x200	-	-
No. of Polishing Stations (P)	1	2	1	1	2	0-2	0-2
No. of Abrasive Belt Stations (Z)	-	-	1	1	-	0-2	0-2
Polishing wheel dimensions (mm)	(3x) (2x) Ø180-240	(2x) (3x) Ø350x35	(3x) Ø350x75	(3x) Ø350x75	(2x) 220xØ400	(3x) Ø500x35	(3x) Ø500x35
Abrasive belts dimensions (mm)	-	-	100x3000	100x3000	-	3500x50	3500x50
Polishing wheel speed (m/s)	up to 35	26.6-36	30	30	15-35m/min	30	30
Abrasive belts speed (m/s)	-	-	25	25	-	30	30
Feeding speed (m/min)	0-3	1-6	1-5	1-5	2-8	-	-
Polishing motor (kW)	5.5	(2x) 5.5	4	5.5-7.5	(2x) 7.5	4	4-7.5
Abrasive belts motor (kW)	-	-	4	5.5-7.5	-		4-7.5
Feeding motor (kW)	(2x) 0.12	(2x) 0.25	1.5	1.5	(2x) 0.25	-	-
Total Power (kW)	6	12	6-7	7-9	16	4	8-15
Consumption (A)	22	24	11-15	15-18	80	9	18-30
Dust extractor conection (Ømm)	120	(2x) 120	100	100	(2x) 150	(2x) 120	(2x) 120
Dimensions (mm)	1250x1100x1550	3760x1400x2125	1700x900x1950	1700x900x1950	2582x1315x2191	1250x650x2600 <sup>(1)</sup>	1800x700x2800 <sup>(1)</sup>
Weight (kg)	420	2050	530	550	2000	320 (1)	580 (1)

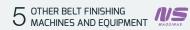
(1) Values for ZP model





## OTHER BELT FINISHING MACHINES AND EQUIPMENT







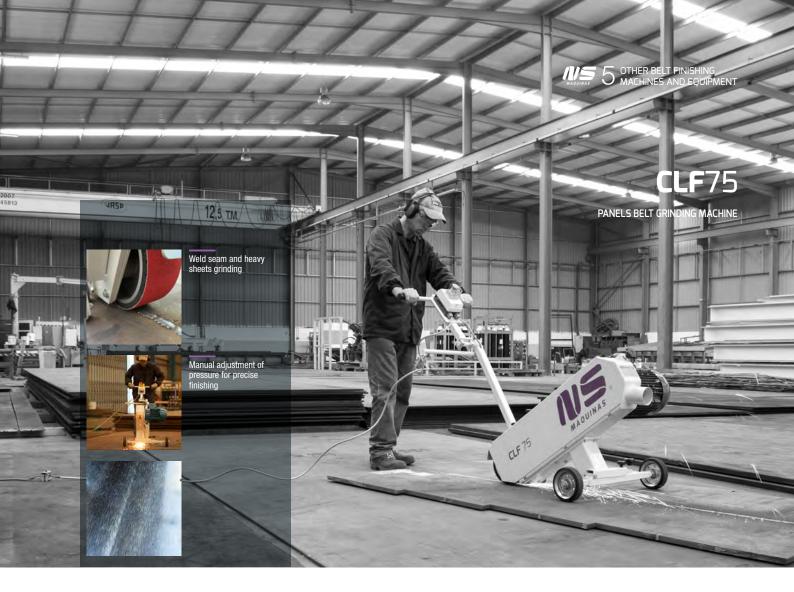
LONG BELT FINISHING MACHINE





LONG BELT FINISHING MACHINE





### LMD2500 2Z

LONG BELT FINISHING MACHINE



Double station: belt grinding and finishing in one machine

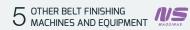












### **LR**30 AT

METAL SHEET DEBURRING MACHINE

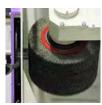


#### **OD**120

#### TUBE END DEBURRING MACHINE



Orbital brush with double rotation deburring inside and outside edge of tubes without rotating them



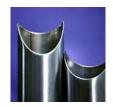
Variety of tubes and profiles with the same model

del





MBL120





Top abrasive belt section for tube end deburring











### **LHV**200

HORIZONTAL AND VERTICAL BELT GRINDING MACHINE



Horizontal and vertical abrasive belt working position





LV200 VERTICAL BELT GRINDING MACHINE



Fettling tubes at 45°



Adjustable table and guide angles









Filter bag dust extractors

Single or double bag filter available in different capacities (A100, A200, A300 and A400)









Ample capacity for all machine requirements (AS200, AS400 and

AS800)



AS200

AS200





Wet Systems made in steel or in stainless steel (AW600, AW800 and AW1300)





### **Technical Details**

	LMD2500	LMD3100	LMD4000	LR30 AT	MBL120	TDM2
Working capacity (Ømm)	2500x850x700	3100x850x600	4000x1000x700	0-15	○ 110 □ 110x110	<ul> <li>○ 80</li> <li>□ 80x80</li> <li>— 80x15</li> </ul>
Max. Drill (mm)	-	-	-	-	-	Ø 43; M10 (flow drill)
Abrasive belts dimensions (mm)	7800x120	9000x120	10800x120	30xØ250	2000x120	-
Abrasive belts speed (m/s)	20	20	20	6	30	-
Main motor (kW)	4	4	5.5	(2x) 0.22-0.15	3	(2x) 2.2
Total Power (kW)	5	5	6	1	3	6
Consumption (A)	9	10	12	2	7	10
Dust extractor conection (Ømm)	120	120	120	80	(2x) 80	-
Dimensions (mm)	4000x1600x2000	4600x1600x2000	5500x1900x2050	1520x820x1150	1450x950x1200	4100x1700x1450
Weight (kg)	920	930	1000	180	210	400

LB50 -	CLF75	LHV200	LV200	OD120	OD160
-					
	-	-	-	10-120	10-160
1750x50	2000x75	3200x200	3000x200	(3x) Ø250x60	(4x) Ø250x60
30	30	18	19	18+35	18+35
0.75	4	3	3	3	4
2	9	6	6	8	10
-	80	150	120	-	-
760x340x380	1520x700x1030	1900x700x1200	810x1100x1850	1140x670x1400	1140x670x1400
35	97	190	300	505	540
	30 0.75 2 - 760x340x380	30     30       0.75     4       2     9       -     80       760x340x380     1520x700x1030	30       30       18         0.75       4       3         2       9       6         -       80       150         760x340x380       1520x700x1030       1900x700x1200	30       30       18       19         0.75       4       3       3         2       9       6       6         -       80       150       120         760x340x380       1520x700x1030       1900x700x1200       810x1100x1850	30       30       18       19       18+35         0.75       4       3       3       3         2       9       6       6       8         -       80       150       120       -         760x340x380       1520x700x1030       1900x700x1200       810x1100x1850       1140x670x1400

	A100	A200	AS200	AS400	AW600	AW1300
Motor (kW)	1.1	1.5	2.2	4	3	15
Filters (mm)	Ø450x1100	(2x) Ø480x1500	(2x) Ø325x400	(6x) Ø325x750	-	-
Capacity (m <sup>3</sup> /h)	1700	2200	2280	4000	3200	11800
Connection (Ømm)	150	150	150	150	170	350
Dimensions approx. (mm)	1000x500x2200	1700x500x2200	955x750x1450	1200x1100x2250	Ø600x2200	Ø1300x3300
Weight approx. (kg)	60	80	170	470	200	920

With a technical and sales network spread over the 5 continents NS is able to supply the complete and on time support from the machine purchase and set-up to the spare parts delivery and technical advice.

NS invites you to come and visit the company where you may join NS team and feel and experience the use of an NS machine.

# NS is close to the customer

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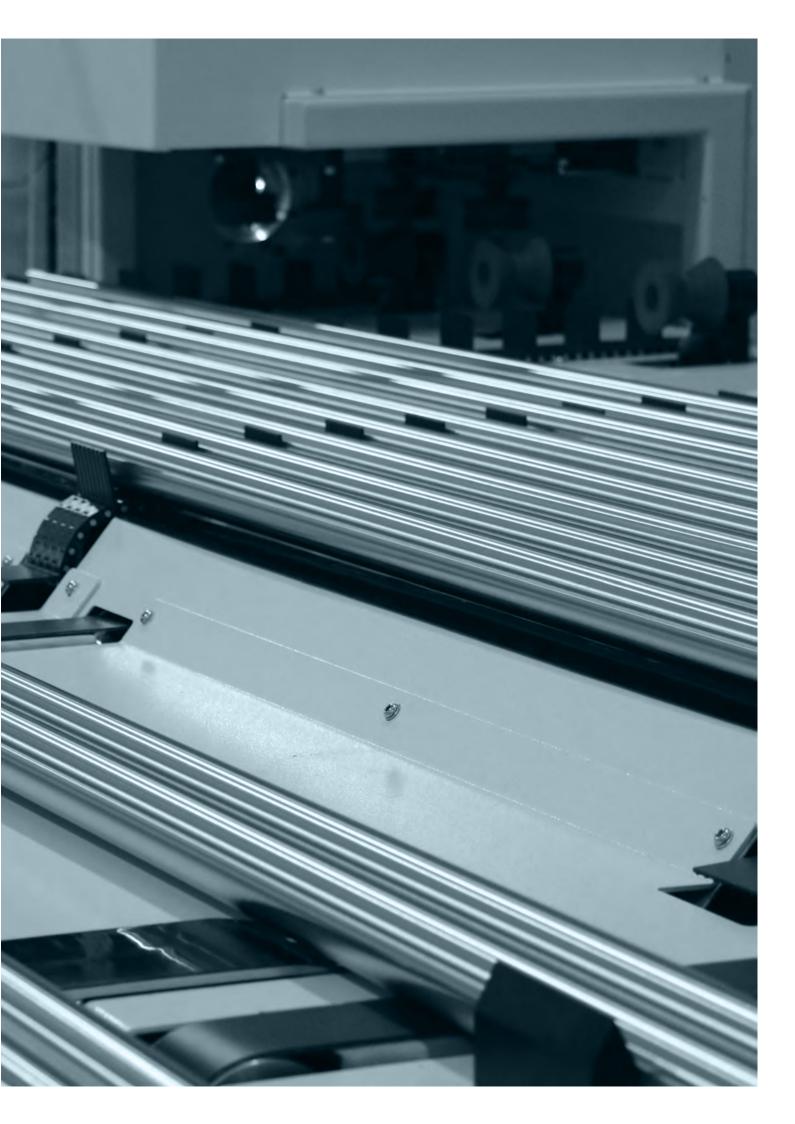
#### SOME OF OUR REFERENCES



## "Limits don't exist..."

Jacek Szostak

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