

14.6 Working spindles

Make	PRECISE			WESTWIND			
	SC 3063	SM170S	SM220S	D1331-17	D1331-26	D1686-10	D1769-02
Type	SC 3063	SM170S	SM220S	D1331-17	D1331-26	D1686-10	D1769-02
RPM [1000 1/min]	10 - 60	8-170	15-220	20 - 125	15 - 125	30 - 180	20 - 155
Rated power [watt] with rpm:	1200 60.000	80@60k 650@170k	600 220.000	425 36.000	495 36.000	402 60.000	
Drive motor	3-phase	3-phase	3-phase	3-phase	3-phase	3-phase	3-phase
Power for acceleration and braking 10 sec.	2,5 KVA	1,5 KVA	1,5KVA	1,7 KVA 2,2 KVA ⁽¹⁾	1,7 KVA 2,2 KVA ⁽¹⁾	1,7 KVA	KVA
Drilling performance [mm]	0,8-6,35	0,1-6,35	Up to 6,35	0,1 - 4 (6,35) ⁽²⁾	0,1 - 4 (6,35) ⁽²⁾	0,1 - 4 (6,35) ⁽²⁾	0,1 - 4 (6,35) ⁽²⁾
Routing performance [mm]	up to 3,175	--	--	up to 2,4 ⁽³⁾	up to 2,4	--	--
Bearing	Ball bearing	Air bearing	Air bearing	Air bearing	Air bearing	Air bearing	Air bearing
Temperature [°C]	18-25	16-20	16-20	16-20	16-20	16-20	16-20
Heat transfer to cooling water [watt] ⁽⁴⁾	500	600	600	620	480	560	450
Coolant flow [l/min]	0,9	1,2	1,4	1,0	1,9	1,6	2,0
Air consumption [nl/min]	--	95	130	89	57	125	74
Air pressure [bar]	--	5,5-5,8	5,5-5,8	5,5 - 5,8	5,5 - 5,8	5,5 - 5,8	5,6 - 5,8
Axial load [N]		258	200	245	245	178	220
Radial load [N]		65		116	116	71	66
Axial stiffness [N/μm]	28						
Radial stiffness [N/μm]	35						
Weight [kg]	4,8	3,0	3,5	3,2	3,2	3,6	
Speed setting	static frequency converter, infinitely adjustable via CNC						
Tool clamping system	direct via collet						
Tool change	manual and automatic, locked as long as spindles rotate						
Tool diameter	3.175 mm (1/8")						
Tool length	standard 38 mm, 50 mm for drilling in soft tools						
Spindle cooling	closed cooling circuit with electronically controlled cooling unit						
Speed control	by means of built-in Hall generator or optical sensor						
Overload control (motor)	via built-in thermistor, automatic spindle shut-off						

¹⁾ for 6 sec., but only with braking card (Option) ⁽³⁾ with reduced feed rate, max. 0,5 m/min
⁽²⁾ with pre drilling, recommend ⁽⁴⁾ at max. RPM

14.7 Tool change

The tool change unit consists of the magazine change system (cassette or Chain) and the tool gripper. The cassette magazine system is mounted on the traverse slide (X- axis), the chain is mounted back on the traverse, whereas the tool gripper is mounted to the machine table (Y- axis).

The tools to be used have to have a shaft diameter of 3.175 mm (1/8"). Tools used for the standard version have to be equipped with stop rings. On option, tools without stop rings can be implemented as well.

NUMBER OF MAGAZINE CASSETTES	1 or 2 per working station
NUMBER OF TOOLS (per cassette)	110,
EUROMAGAZINE (per cassette)	10 bars with 10 tools (11 positions) each
NUMBER OF MAGAZINE (OPTION CHAIN)	MX1 = 260 Euro magazines, MX2 = 330 Euro magazines with 10 tools (11 positions) each

NUMBER OF TOOLS (per drill head) (OPTION CHAIN)	The number of the Euro magazines per drill head is dependent of exploitation of the chain.
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The assignment of the individual Euro magazines to the drill head is managed by the CNC.

TOOL CHANGE TIME	Approx. 12-35 sec, depending on spindle speed, position, performance of frequency converter and use of process control equipment as e.g. laser monitoring station
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TOOL CHANGE MONITORING	Monitoring tool gripper: up and down position
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OPTIONS

RINGLESS TOOL FITTING	Stop rings are no longer needed (only in combination with mechanical length check or laser measuring station). Automatic tool length adjustment.
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BROKEN DRILL BIT DETECTION(BBD)	The tool is monitored when returned or picked up by the spindle
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MECHANICAL LENGTH CHECK(TLC)	Checking the free-clamping length of ring less tools, in particular. If there is no BBD available, tool breakage can be detected after the drilling process.
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LASER-MEASURING STATION	Measuring length, diameter and truth of the tool collected. If there is no BBD available, tool breakage can be detected after the drilling process.
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14.4 Working table

TABLE SIZE (TOOLING PLATES)	MX1	: max. 742 x 650 mm
	MX2	: max. 1410 x 650 mm
	MX2 XXL	: max. 1410 x 1080 mm

FORMATTABLE (STANDARD)

XL	Stations	Drill head distance without mushrooms	Drill head distance with mushrooms	max. Format with mushrooms	max. Format with loader
MX1	1			638 (25,1")	633 (24,4")
MX1 DH	1			534 (21,0")	534 (21,0")
MX2-1	1	1316 (51,8)	1236 (48,6)	1236 (48,6)	1236 (48,6")
MX2	2	658 (25,9)	658 (25,9)	638 (25,1")	633 (24,9")
MX2-1XXL	1	1316 (51,8)	1236 (48,6)	1236 (48,6)	1236 (48,6")
MX2 XXL	2	658 (25,9)	658 (25,9)	638 (25,1")	633 (24,9")

Format Y = 650mm (25,5"), Option: Y = 750mm (29,5")

Format Y XXL= 1067mm (42")

TOOLING SYSTEM

Prism-slot or customer- specific

Options: - mushroom pressure foot

- depth clamber for pin less clamping

- ML tooling with soft tool inserts

STACKING PINS

∅ on request, 3.0 to 5.0 mm, centered of custom-specific

SLOT DEPTH

Standard 10,5 mm

with automation 12,5mm, the stacking pin must look out of the panel between 8 and 12 mm.

MACHINE ZERO

Standard left rear

PROGRAM ZERO

Standard left rear or custom-specific

14.1 Machine specifications

14.1.1 Machine- specific data

System		MX1	MX2	MX2 XXL
Machine weight approx.		4000 kg	5700 kg	6800
Loader weight (empty) approx.		600 kg	800 kg	800
Machine dimensions in mm (w/o motor projection controller and loader) *	Width	1570	2090	2090
	Height	1720	1720	1730
	Depth	1920	1920	2500
Machine dimensions in mm with controller	Width appr.	2260	2780	2780
Machine dimensions in mm with loader (w/o motor projection)*	Width	1570	2090	2090
	Height	1800	1800	1800
	Depth	2960	2960	3765
Thermal radiation in W approx. (w/o periphery units)	Average	900	900	900
	Max.	1250	1250	1250

14.1.2 Thermal radiation of periphery units

Water re-cooler at flow temperature 18°C room temperature 22 °C	TYP BL40	App. 4600 Watt
	TYP LM58	App. 9000 Watt
Air dryer	SD 35	App. 350 Watt
	SD 50	App. 500 Watt
	SD 65	App. 550 Watt
Exhaust	GS-F 80	App. 1000 Watt
	DS 1000, DS 1022	App. 2200 Watt