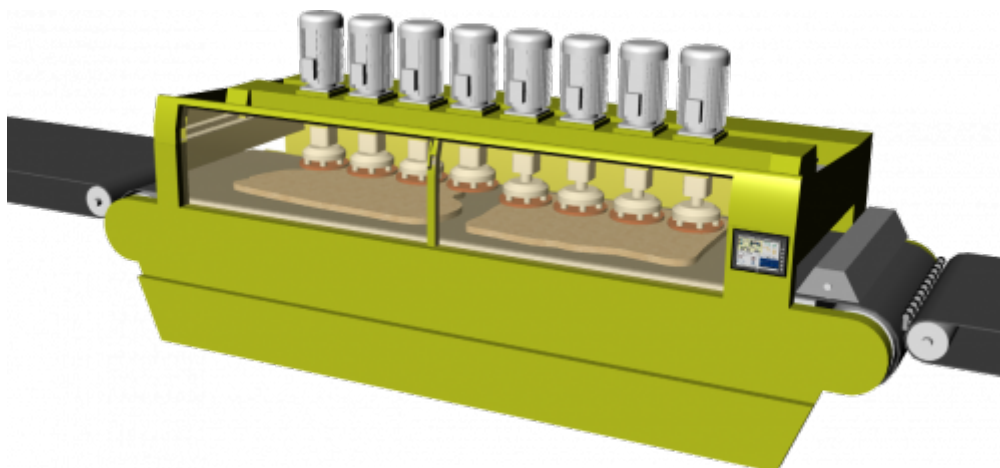


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Multi-head Polishing machine : User Manual

Quality in Electronic
Manufacturing

Document	P1P51FC20-008Q		
Description	Installation and user manual		
Drawn up	Riccardo Furlato		
Approved	Gabriele Bazzi		
Link:	http://www.qem.eu/doku/doku.php/en/strumenti/qmoveplus/j1p51/mdu_p1r11fb30-001q/funzionamento		
Languages	English		
Release	Description	Notes	Date
01	New Manual		22/05/13

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Description

The **P1P51FC20 - 008Q** application, installed on the *Qmove+ J1-P51-FC20* and *Remote I/O modules RMC-2M*, has been designed to control a marble slab polishing machine with mobile beam.

Salient Features of the control

- Control of 2 axes in analog (beam + belt)
- Control of up to 24 heads (depending on hardware)
- Control of accessories (brush, sprays)
- Slab sizing by Sensor bar
- Abrasive wear control and statistics
- Head pressure control with work programs
- Touchscreen functions for data settings and actions by buttons
- Staggered motor startup
- Operator help messages
- Alarm messages

1. Operation

Standard Buttons

- Yellow settings can be modified. Press to change, use the keypad to enter a setting.



- Select multiple choice parameters.



- Confirm parameter setting



- Go to previous screen



or



- Change screen



or



- Scroll list

Function keys

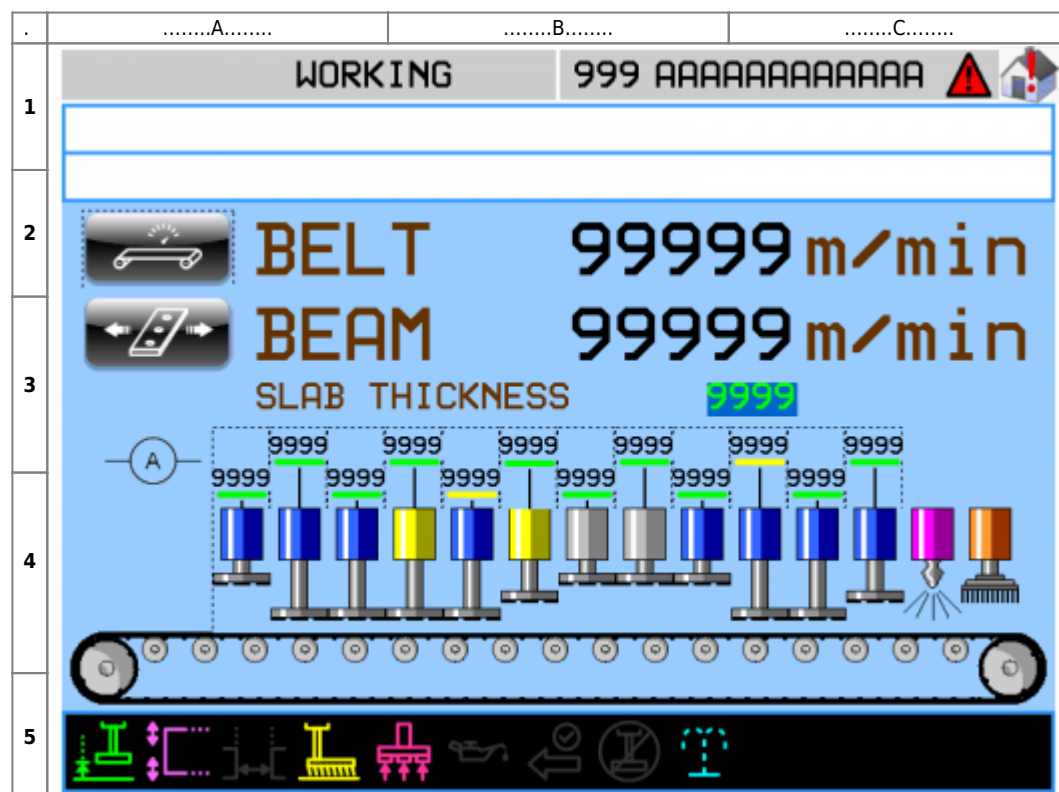
Key	Function	Led
	Main Menu	-
	Language 1 / Language 2	On = Language 2
	Change Belt direction in manual	On = in reverse
	Start homing	Flashing = homing not ok, Off = homing ok
	Alarm page or Press for 1 sec to Reset Alarms	Flashing = Alarm
	Go to previous screen - Press 1 sec to Go to Main screen	

Start screen



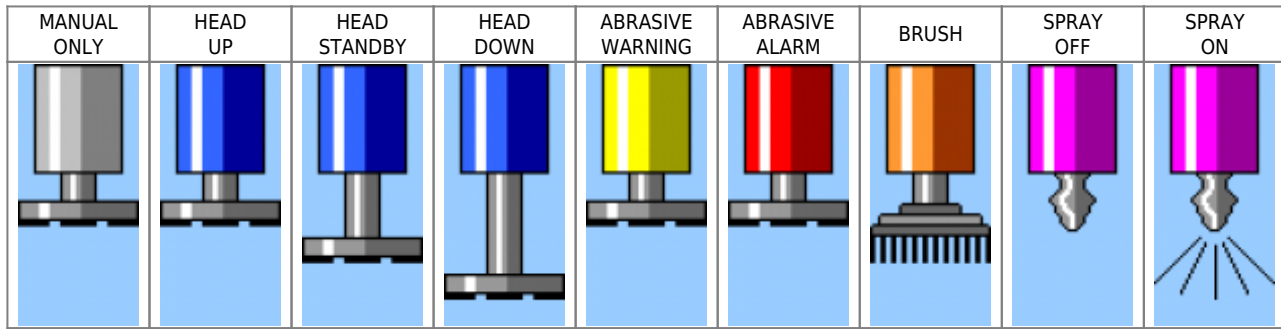
	Select language Standard languages: ENGLISH - ITALIAN (all languages/alphabets possible with Unicode)
	Go to next page

2. Main screen

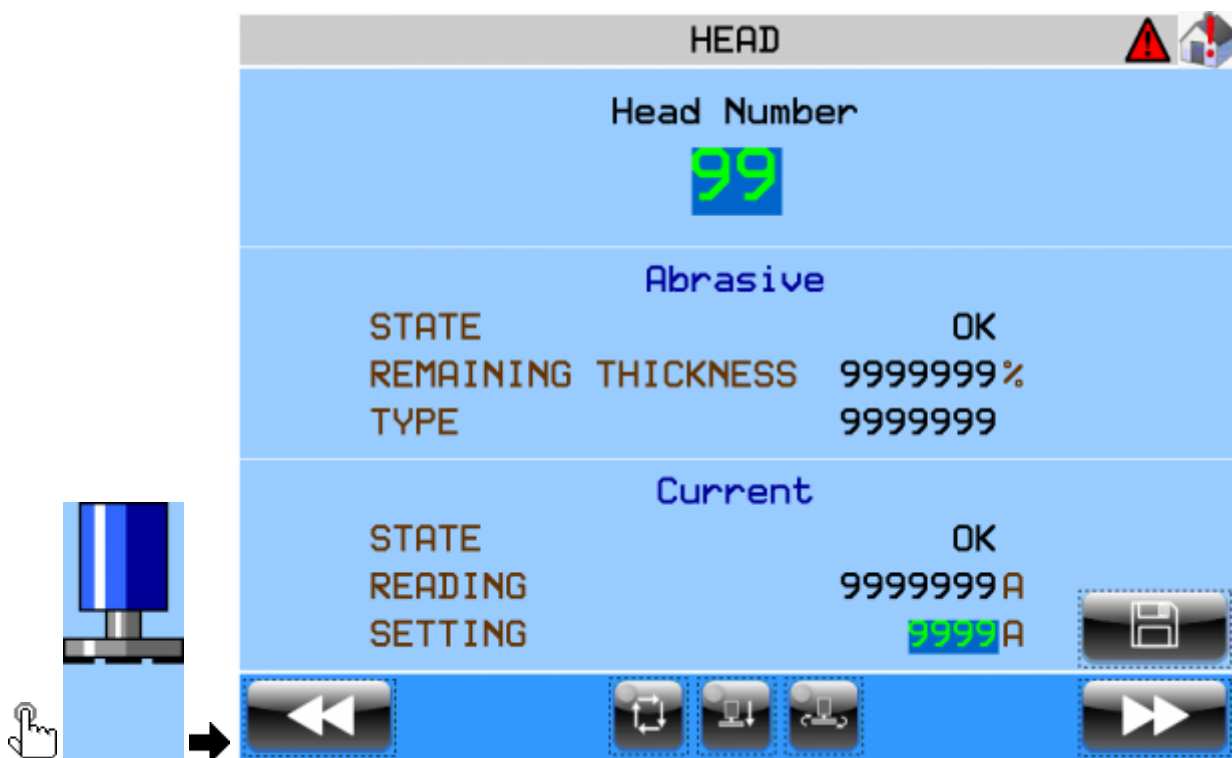


	A	B	C
	Machine State		Machine/Homing States
1	WORKING - STOP STANDBY - MANUAL SIMULATION MOTORS START STOPPING	Program Number/Name	 Manual  Automatic  Alarm  Homing Not OK  Homing running  Homing ok
2	Alarm and Warning messages		
3	Beam speed		Press for Beam screen
	Belt speed		Press to change
	Enter the Slab thickness		
4	Head motor current Head State	Press for Current screen Press for Abrasive screen	
5	Options Tool bar	Press Bar for Options screen	

2.1 Head State

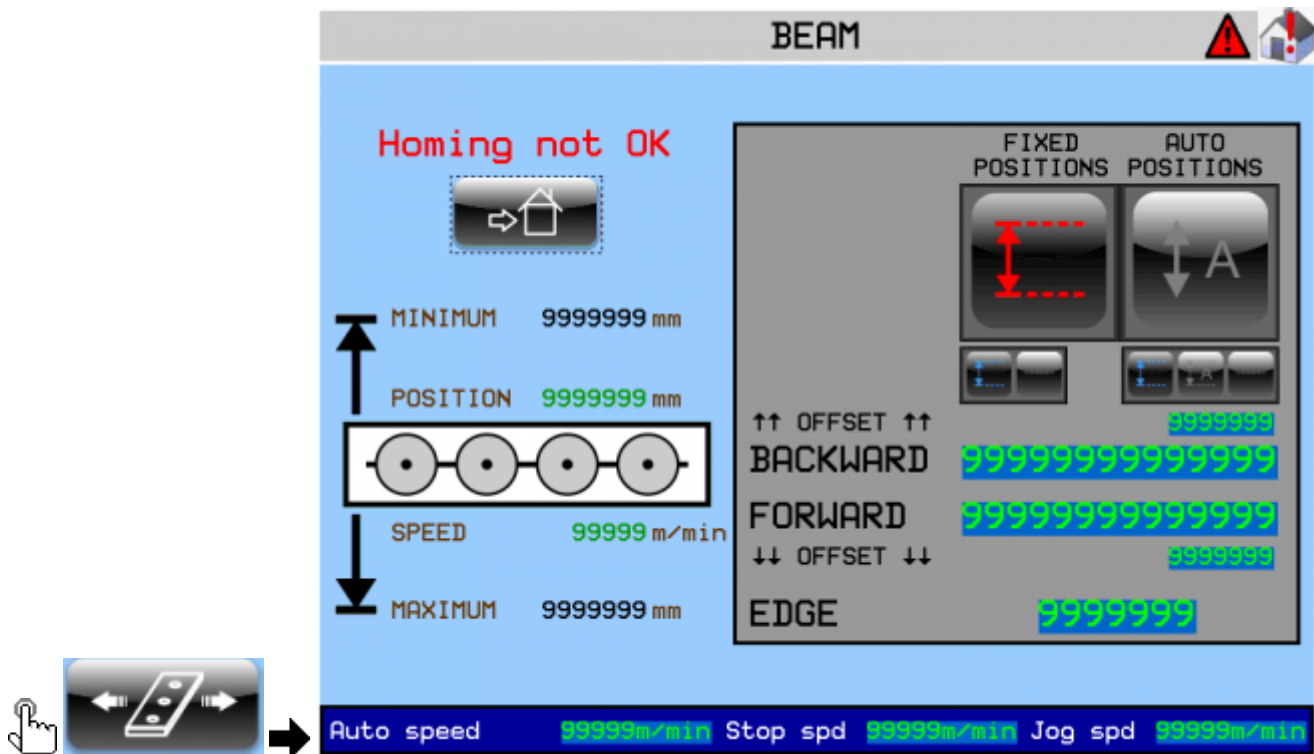


Motor current	OK	WARNING	ALARM
	9999 	9999 	9999



	Save changes in program		
	Auto OFF		Auto ON
	Head UP		Head DOWN
	Motor OFF		Motor ON

2.2 Beam



FIXED POINTS	NAME	DESCRIPTION
	and	Beam position with no piece on the Belt. Button 1 = setup position, Button 2 = central beam position
	BACKWARD	Minimum position setting [mm]
	FORWARD	Maximum position setting [mm]
	EDGE	Size of the edge [mm], for edge doubling option. See Options

AUTO-SCAN	and	Position of the Beam with no piece on the Belt. Button 1 = setup position, Button 2 = last position, Button 3 = central position
	BACKWARD	Auto-scan minimum position for the pieces on the belt [mm]
	↑↑ OFFSET ↑↑	Offset for the BACKWARD position correction, (positive to widen, negative to reduce)
	FORWARD	Auto-scan maximum position of the pieces on the belt [mm]
	↓↓ OFFSET ↓↓	Offset for the FORWARD position correction, (positive to widen, negative to reduce)
	EDGE	Size of the edge [mm], for the edge doubling option. See Options

NAME	DESCRIPTION
POSITION	Beam Position [mm]
SPEED	Beam Speed [m/min]
MINIMUM	Minimum position limit of the Beam [mm]
MAXIMUM	Maximum position limit of the Beam [mm]

NAME	DESCRIPTION
Auto Speed	Work speed as a percentage of the max speed
Stop Speed	Positioning speed at end cycle, as a percentage of the max speed
Jog Speed	Speed of manual movements, as a percentage of the max speed

Machine in STOP, for Homing OR from any page.

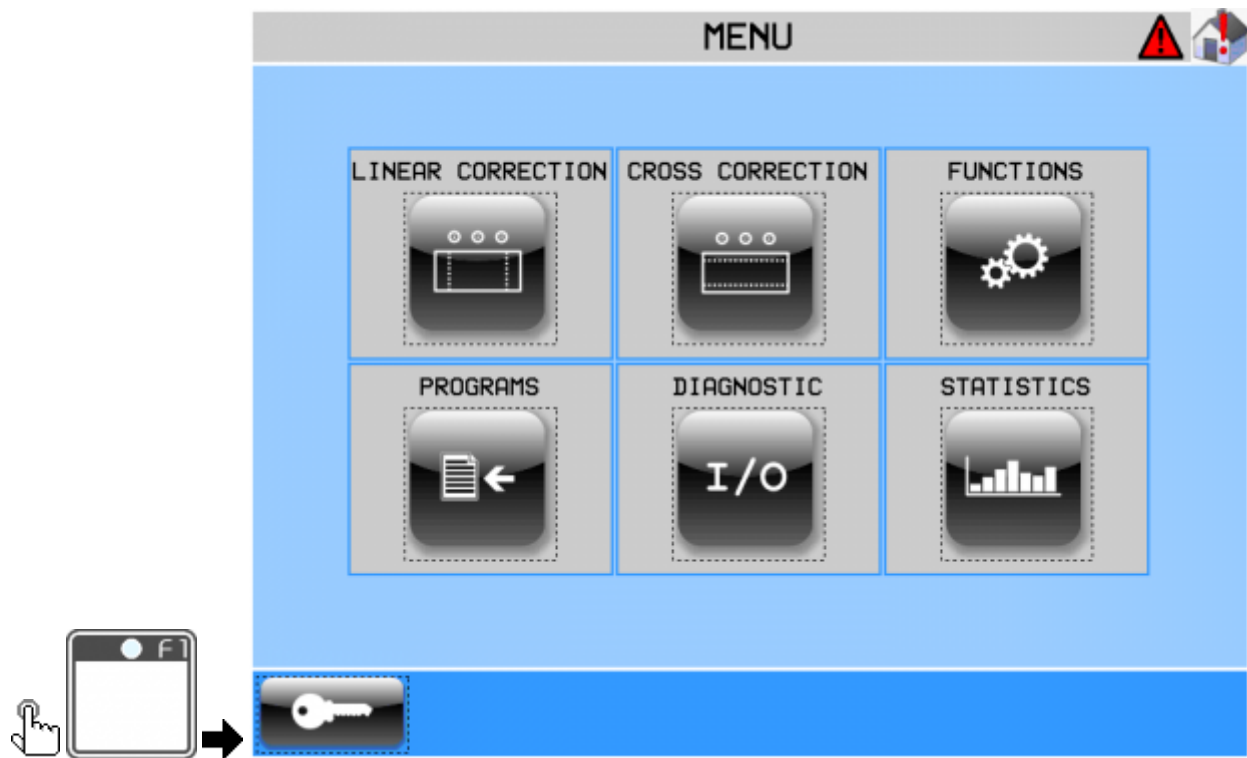
2.3 Options



 Option for ON/OFF

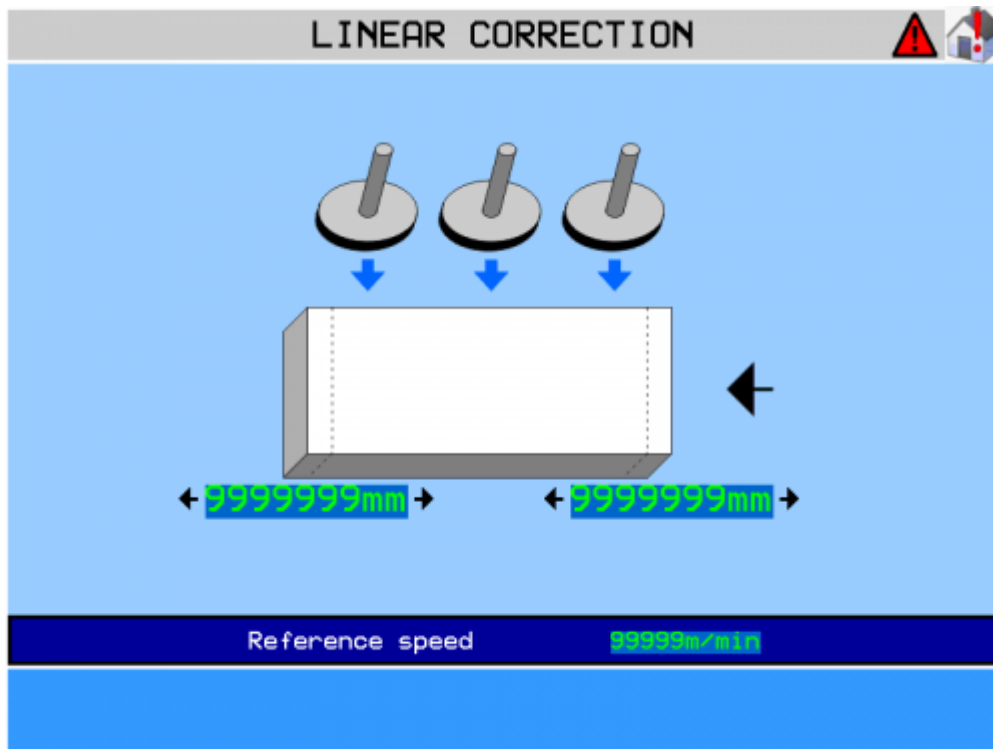
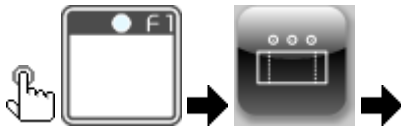
SYMBOL	NAME	DESCRIPTION
	Standby UP	A short Head Up, ready for use Set the head up time in Setup(under password)
	Edge Doubling	The edge is polished twice Set the edge width in Beam setup
	Slab Spacing	The slabs are spaced on the belt, by stopping the feed roller Set the space by change the roller end and belt start sensors distance
	Brush	The brush acts like a head For a correct operation, set the brush distance in Head Distances
	Abrasive Wear	A warning when the abrasive is worn
	Lubrication	Start a lubrication cycle the ON/OFF lubrication times are set in the Setup section (under password)
	Previous machine	An output is given to operate a previous machine
	Simulation	The beam operates normally, but the heads do not go down
	Water Spray	The spray acts like a head For a correct operation, set the spray distance in Head Distances

3. Main Menu



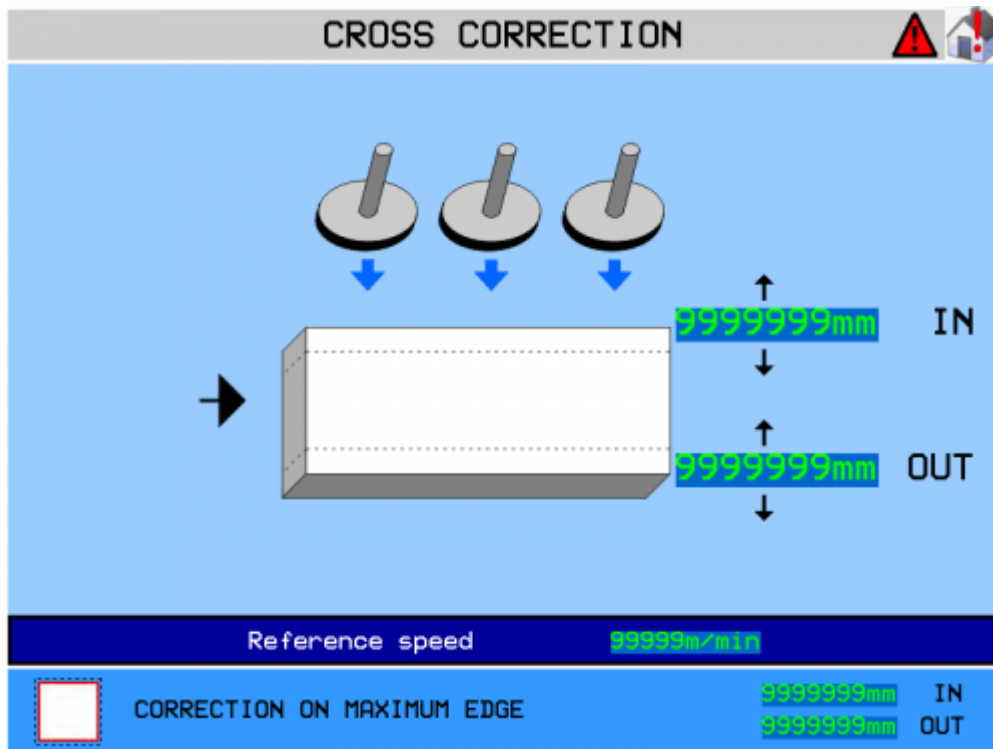
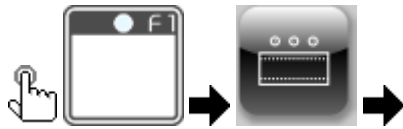
SETUP Reserved setup section. See specific manual

3.1 Linear Correction



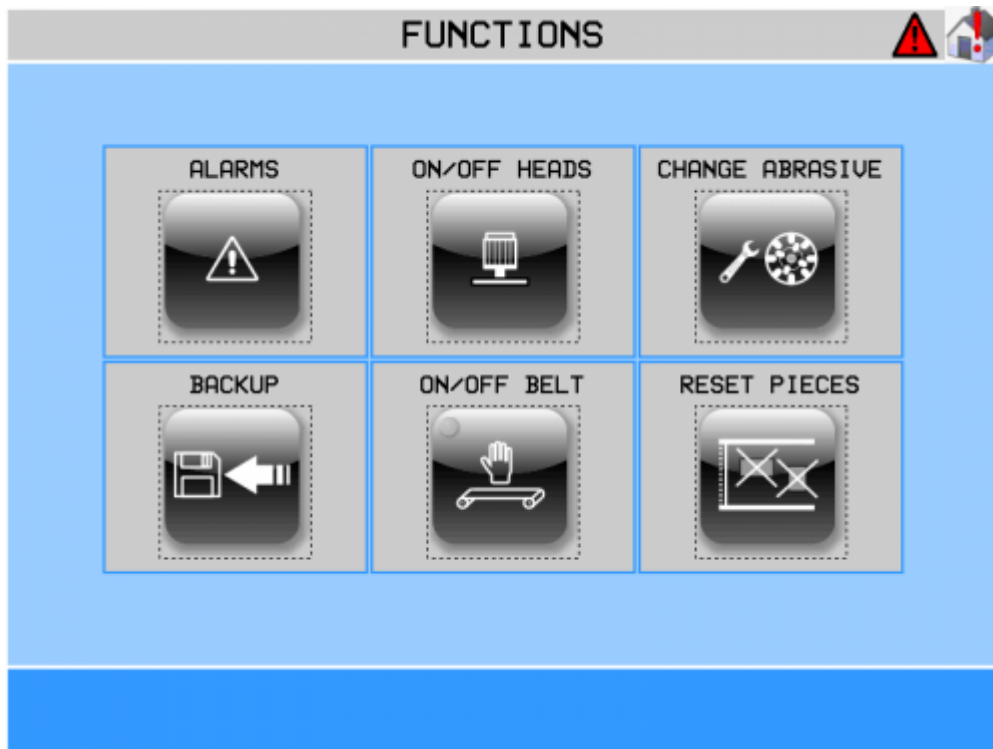
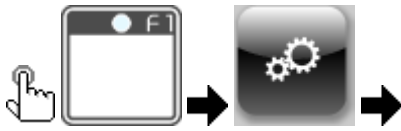
Parameter	Unit Measure	Range	Description
Front correction (on left)	mm	-9999.9 - 9999.9	Advance space (positive) or delay (negative) of head operation on front of piece
Back correction (on right)	mm	-9999.9 - 9999.9	Advance space (positive) or delay (negative) of head stop on end of piece
Reference speed	mm/s	0 - 99999.9	Speed used as reference for the corrections. Proportional correction varies with the speed change. Setting = 0 Constant correction at any speed

3.2 Cross Correction



Parameter	Unit Measure	Range	Description
IN correction (above)	mm	-9999.9 - 9999.9	Advance (positive) or delay (negative) the head start on the front edge of the slab
OUT correction (below)	mm	-9999.9 - 9999.9	Advance (positive) or delay (negative) the head stop on the back edge of the slab
Reference speed	mm/s	0 - 99999.9	Speed used as reference for corrections The follows speed changes. Setting = 0 Constant correction at any speed
CORRECTION ON MAXIMUM EDGE	mm	-9999.9 - 9999.9	 New setting of IN and OUT corrections

3.3 Functions



3.3.1 Alarms



ALARMS					
date	hour	code	par1	par2	
1-> 99/99/9999	99:99	999	99999	99999	
2-> 99/99/9999	99:99	999	99999	99999	
3-> 99/99/9999	99:99	999	99999	99999	
4-> 99/99/9999	99:99	999	99999	99999	
5-> 99/99/9999	99:99	999	99999	99999	
ACTIVE ALARMS					99



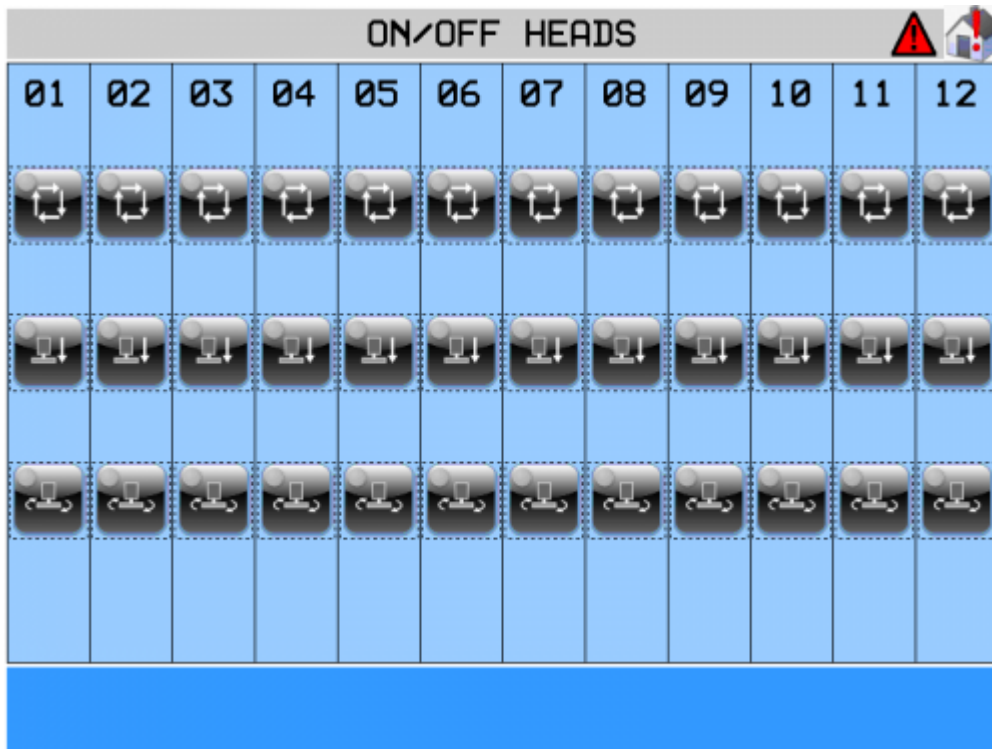
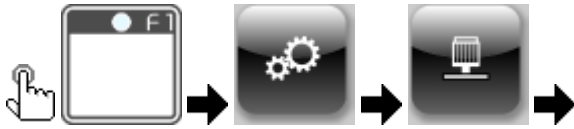


Cancel alarms and restore machine operation

If alarm repeats, a new message is given - If there is no alarm, the Main screen is opened.

Message	Cause	Remedy
Air pressure	No air pressure or pressure switch fault (I37 off)	Check pressure switch and cabling
Overload cutout	A cutout has tripped (I33)	Check the cutouts and cables
Beam Inverter fault	Beam inverter fault (I34 off)	Check the inverter and cables
Belt Inverter fault	Belt inverter fault (I35 off)	Check the inverter and cables
Roller Inverter fault	Feed roller inverter fault (I36 off)	Check the inverter and cables
Emergency	Emergency button pressed (I01, I17)	Release the emergency button and check the cables
CANbus error (RMC2M/a)	CANopen comm error at node 1 = RMC2M beam	Switch the system Off - On. Check the cables
CANbus error (RMC2M/b)	CANopen comm error at node 2 = RMC2M cabinet	Switch the system Off - On. Check the cables
Distance over maximum limit	A Head distance is too long for the linear step Only during automatic	Check the head distances Increase the linear step (SETUP)
Beam encoder fault	No Beam encoder pulses received, Follow error	Check the encoder, the axis movement, the cables
Water pressure	No water pressure or pressure switch fault (I38 off)	Check the pressure switch and cables
No Abrasive	Abrasive worn out and needs changing	Check head abrasive levels
Pressure regulation error	Motor current out of range	Modify work pressure parameters

3.3.2 On/Off Heads



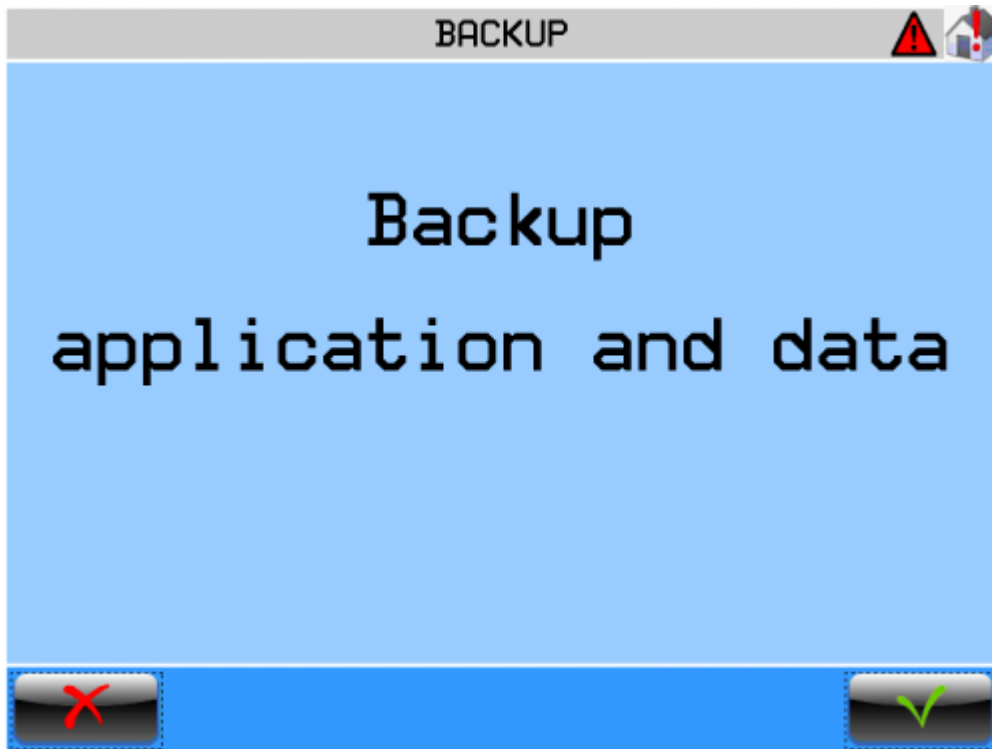
Press the number button of a head to force its operation.

	Auto OFF		Auto ON
	Head UP		Head DOWN
	Motor OFF		Motor ON

3.3.3 Change Abrasive



3.3.4 Backup



3.3.5 On/Off Belt

In Manual mode



3.3.6 Cancel Pieces



Cancel all pieces on the Belt and memorised by the Sensor Bar

3.4 Programs



SELECT PROGRAM  

number	name	
→ 999	AAAAAAAAAAAAAAAAAA	
999	AAAAAAAAAAAAAAAAAA	
999	AAAAAAAAAAAAAAAAAA	
999	AAAAAAAAAAAAAAAAAA	
999	AAAAAAAAAAAAAAAAAA	

Load program  → Main screen

Open program  →

PROGRAM  

Name **AAAAAAAAAAAAAA**

HEAD	CURRENT	HEAD	CURRENT
01	9999	07	9999
02	9999	08	9999
03	9999	09	9999
04	9999	10	9999
05	9999	11	9999
06	9999	12	9999

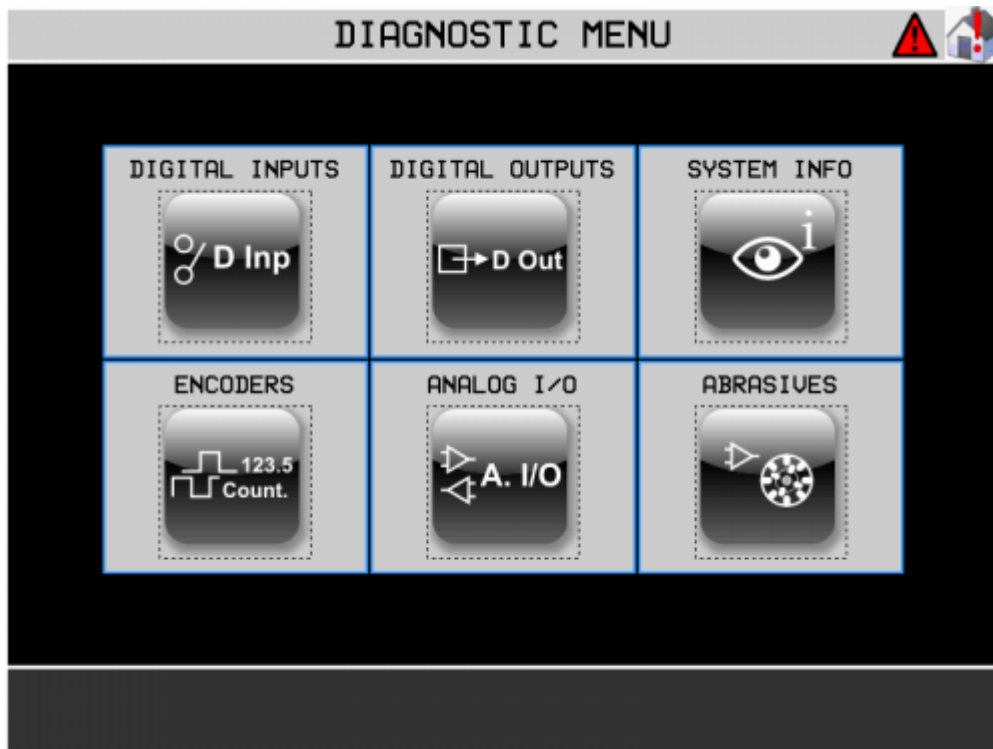
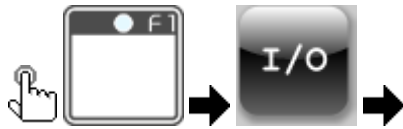
SAVE CHANGES  

Save changes in
program

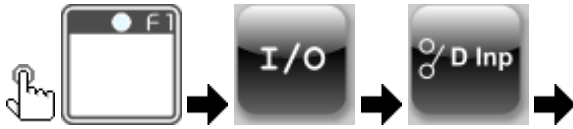
Number **999** Name **AAAAAAAAAAAAAA**

 →  

3.5 Diagnostic



3.5.1 Digital Inputs



DIGITAL INPUTS																	
J1P51								RMC2M 1									
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	133	134
117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	135	136
137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154
155	156																
								RMC2M 1									
197	198	199	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114
1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132
1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150
1151	1152	1153	1154	1155	1156	1157	1158	1159	1160								
								RMC2M 2									
1161																	

See Installation Manual for Input Identification

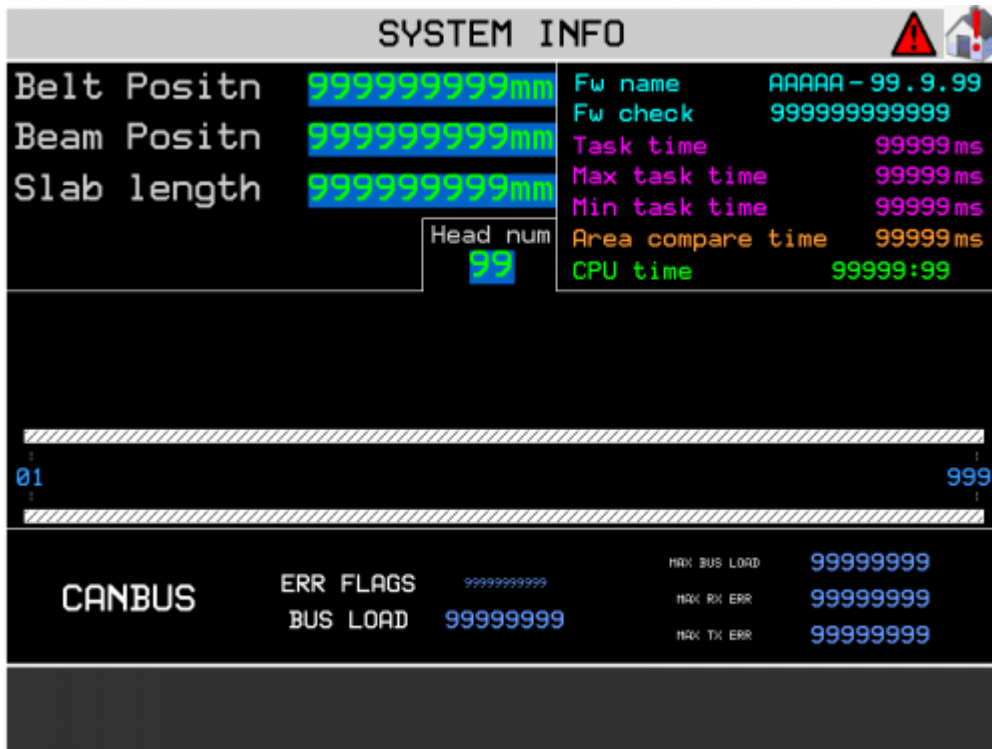
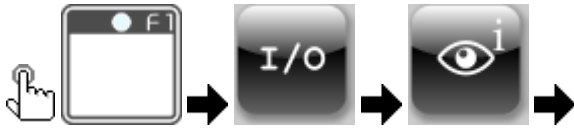
3.5.2 Digital Outputs



DIGITAL OUTPUTS																	
J1P51								RMC2M 2									
001	002	003	004	005	006	007	008	009	010	011	012	013	014	015	016	033	034
035	036	037	038	039	040	041	042	043	044	045	046	047	048	049	050	051	052
053	054	055	056	057	058	059	060	061	062	063	064	065	066	067	068	069	070
071	072	073	074	075	076												

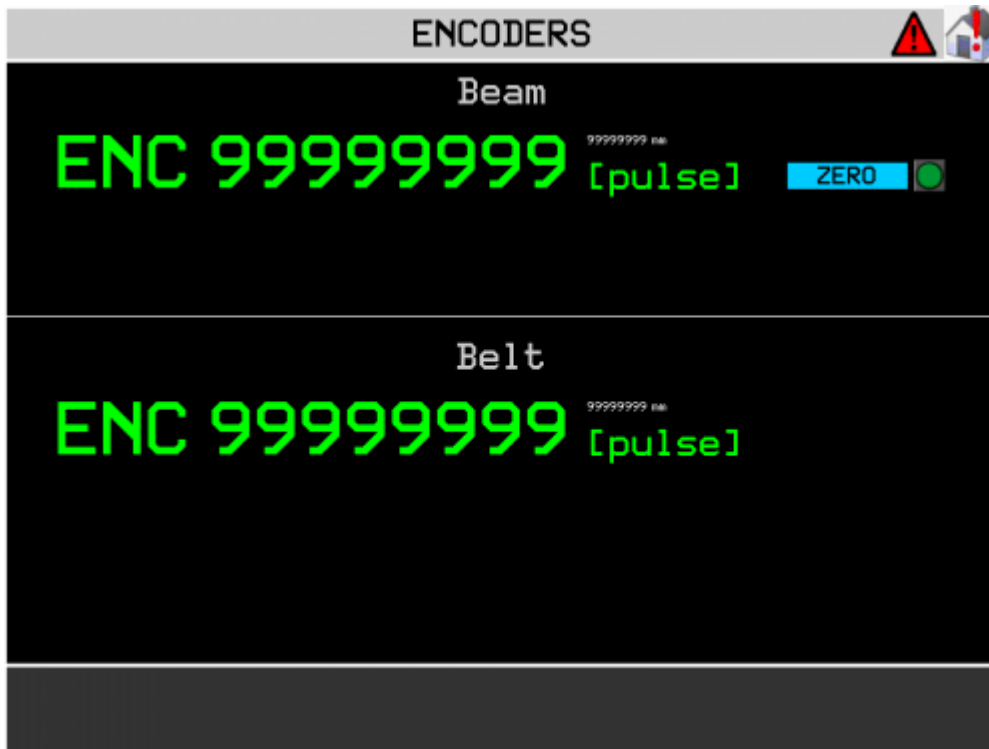
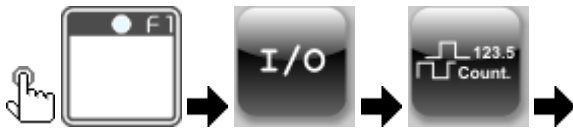
See Installation Manual for Output Identifications

3.5.3 System Info

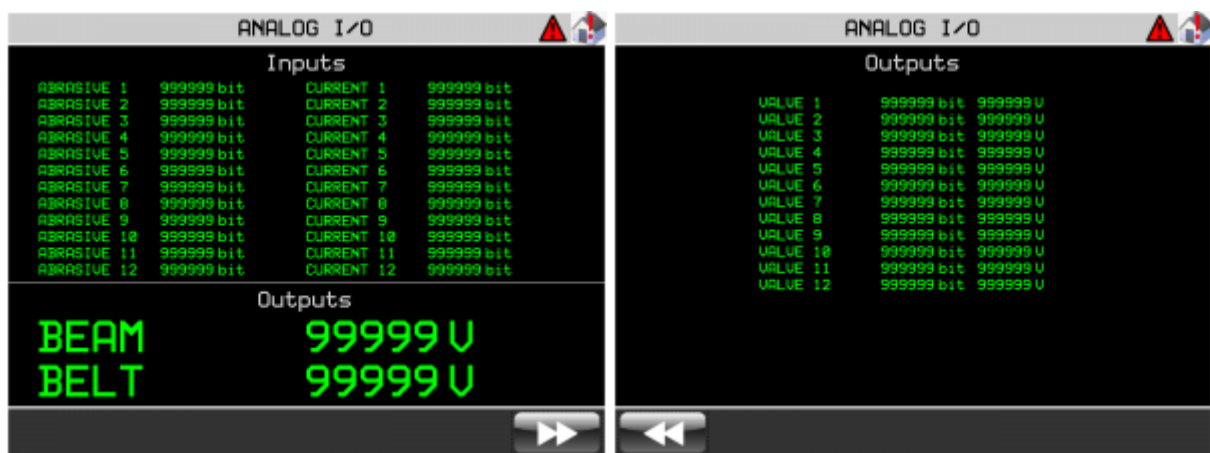


	Belt, beam and last piece positions
	J1P51 CPU data: Fw name : firmware and checksum Task time : average CPU cycle time, maximum and minimum scan time Area compare time : average Scan bar analysis time, defining head mode CPU time : total CPU RUN time (hh:mm).
	Enter a Head Number. See virtual Slab position under the specific head. Below see the slab under the Scan bar.
	CANBUS network communication state: ERR FLAGS : error code as a series of bit BUS LOAD : % traffic load MAX BUS LOAD : maximum % traffic MAX RX ERR : maximum receive errors MAX TX ERR : maximum transmit errors

3.5.4 Encoder count inputs

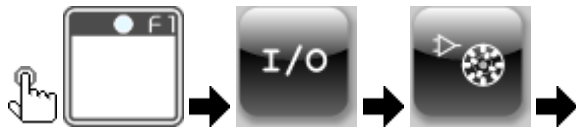


3.5.5 Analog Inputs/Outputs



See Installation Manual for Analog Input Identifications

3.5.6 Abrasives



ABRASIVES
⚠️ 🏠

Head Number

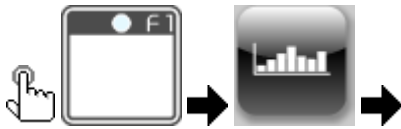
99

	WORKED LENGTH	9999999 m
USED ABRASIVE	EFFICIENCY	9999999 %
REMAINING ABRASIVE	ESTIMATED LENGTH	9999999 %/m
INITIAL THICKNESS	9999999 mm	
ABRASIVE TYPE	9999999	

⏪
⚙️
⏩

INITIAL THICKNESS	Enter the thickness of a new abrasive
ABRASIVE TYPE	Enter a new abrasive code
	Reset consumption data

3.6 Statistics



STATISTICS  		
	PARTIAL	TOTAL
START DATE	99/99/9999 99:99	99/99/9999 99:99
	hh:mm	hh:mm
MACHINE ON TIME	999999:99	999999:99
MACHINE WORK TIME	999999:99	999999:99
MACHINE ALARM TIME	999999:99	999999:99
WORKED LENGTH	9999999 m	9999999 m
WORKED SLABS	9999999	9999999



Reset partial statistics

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