Okamoto PFG-450DXA ACC-6.18DX3

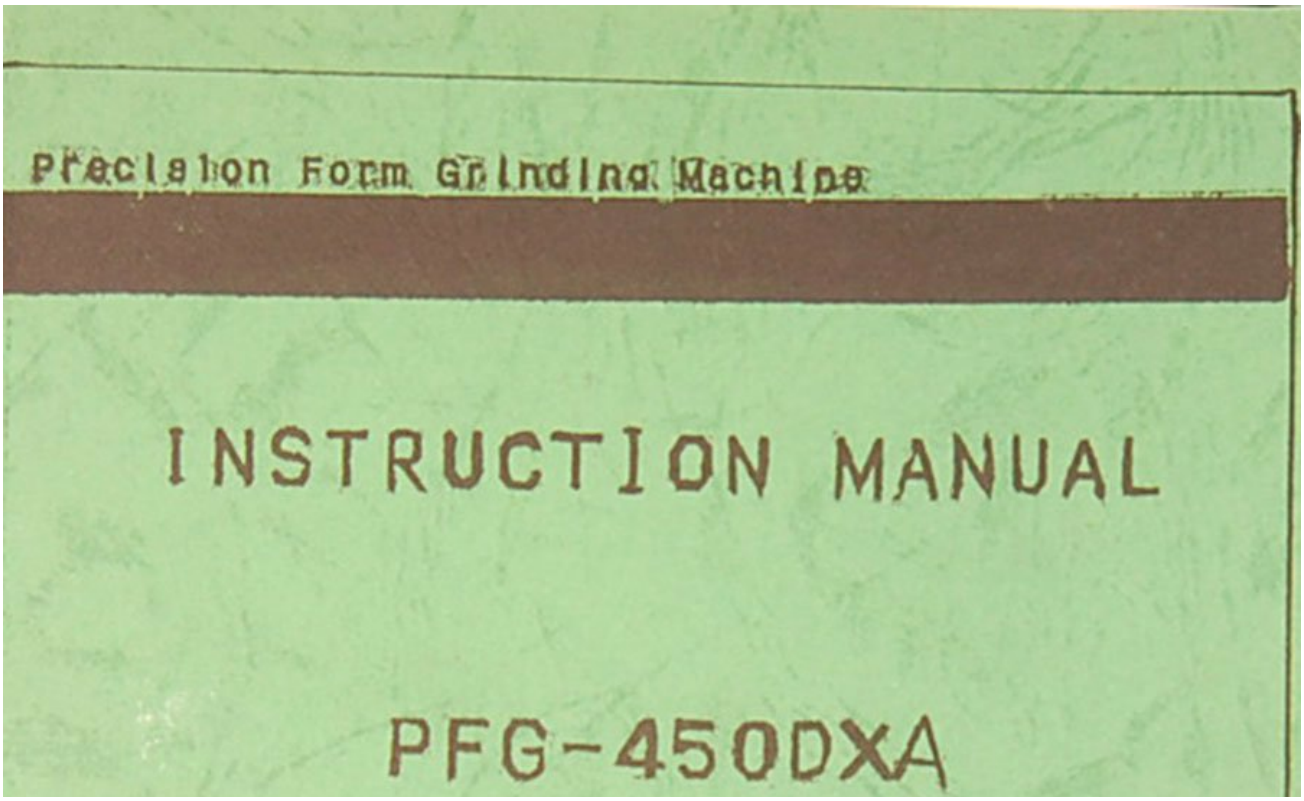
Okamoto PFG-450DXA ACC-6.18DX3 Form Grinding Machine Instruction Manual

Model: PFG-450DXA ACC-6.18DX3

1. General Information

This section provides an introduction to the Okamoto PFG-450DXA ACC-6.18DX3 Form Grinding Machine, including its nomenclature and general overview.

1.1 Nomenclature (Front View)



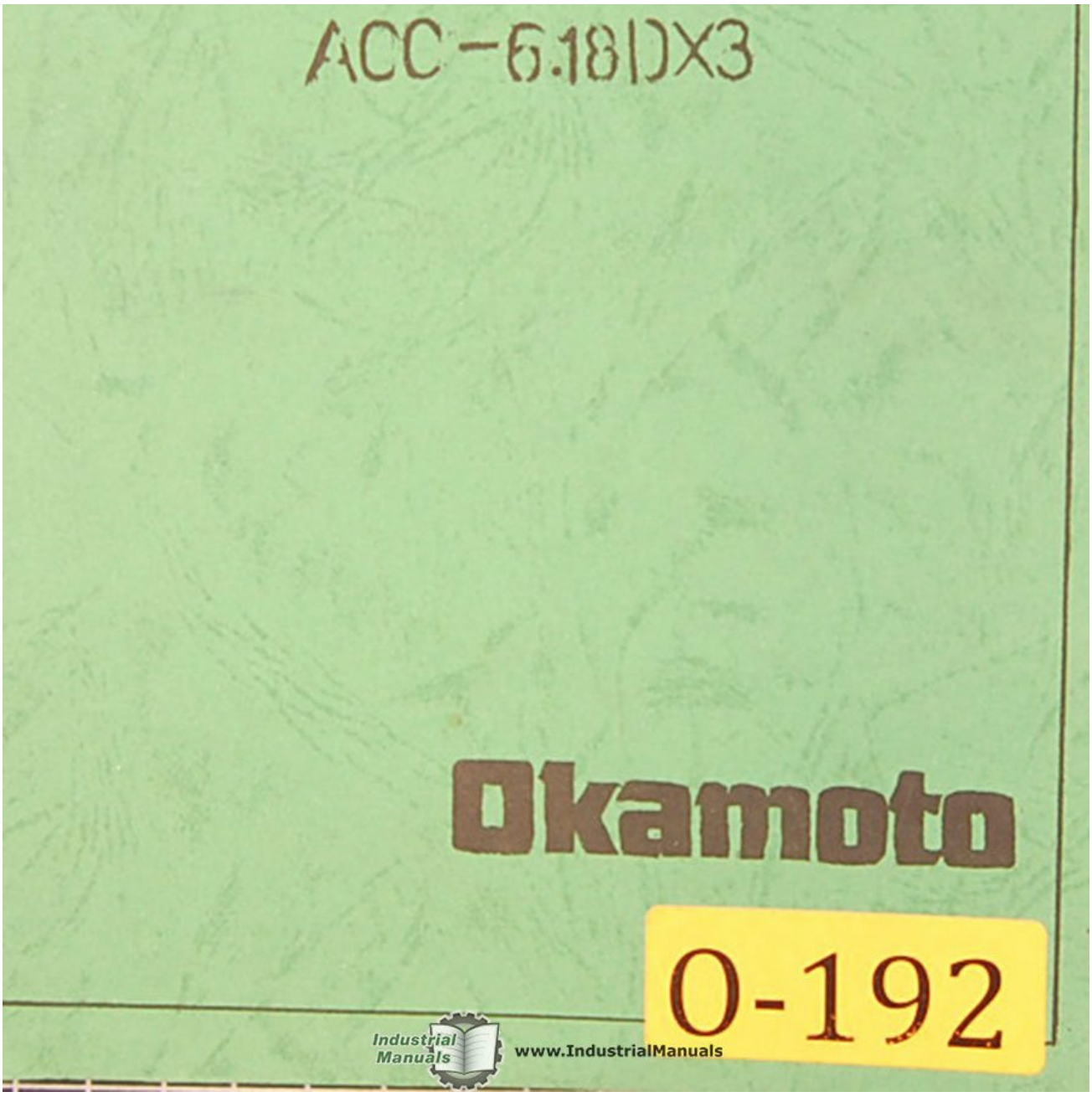
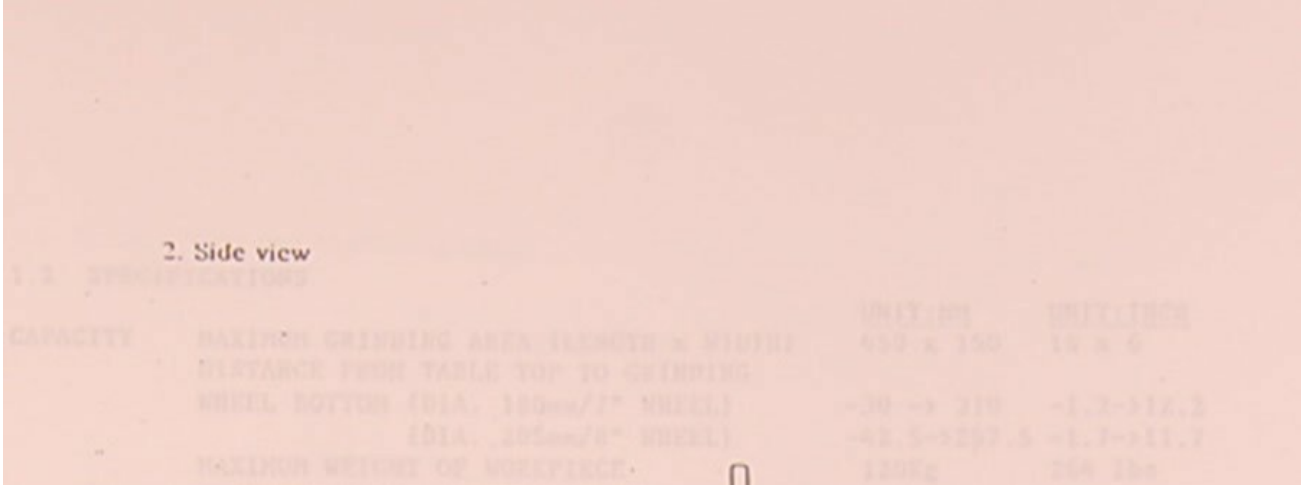


Figure 1: Front view of the Okamoto PFG-450DXA ACC-6.18DX3 Form Grinding Machine. Key components such as the column, wheel spindle motor, wheel head, wheel guard, table, table dog, saddle, table longitudinal feed handwheel, saddle cross feed handwheel, wheel vertical feed manual pulse generator, hydraulic unit operation panel, operation box, power box, frame, and cross feed operation box are indicated.

1.2 Nomenclature (Side View)



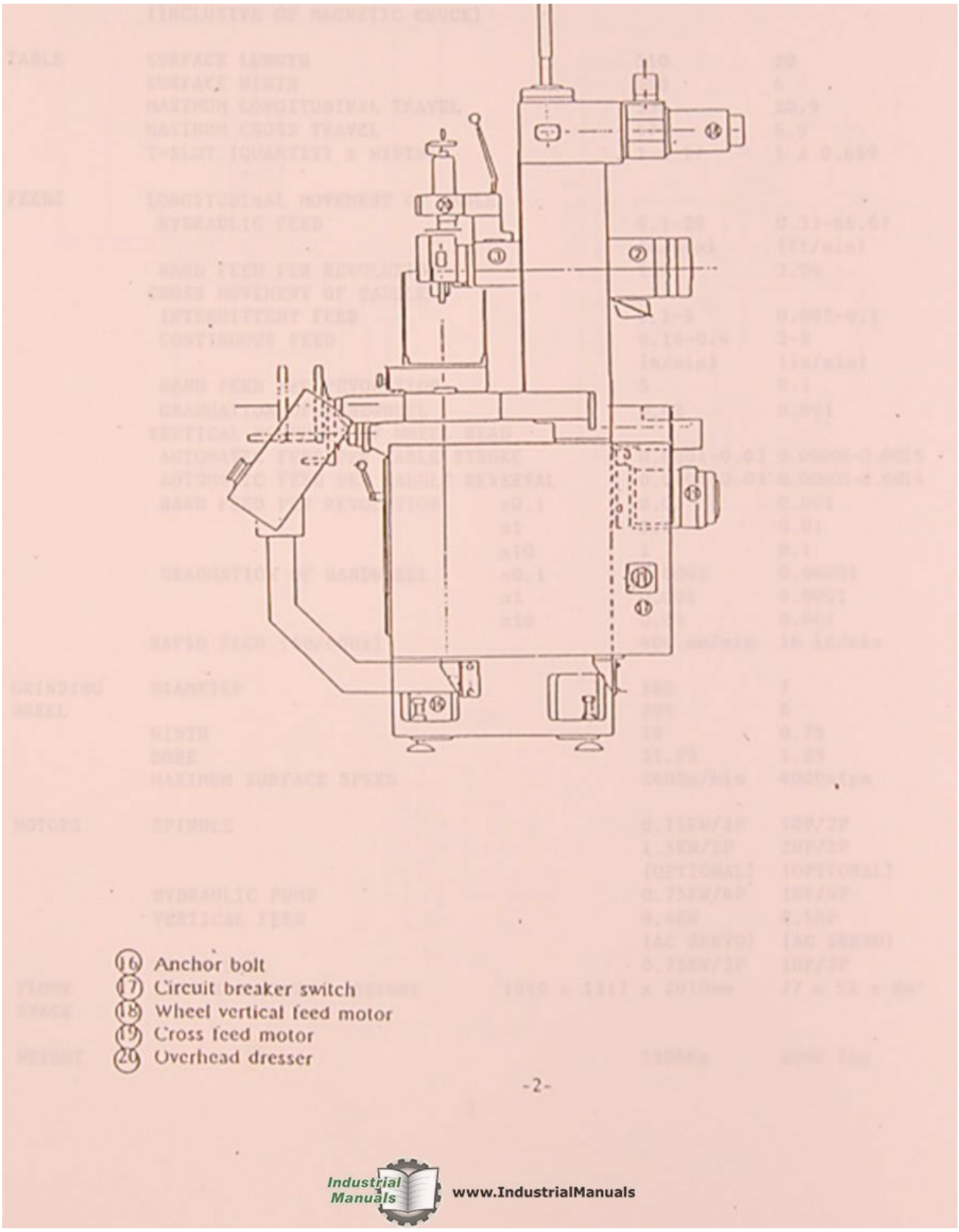


Figure 2: Side view of the Okamoto PFG-450DXA ACC-6.18DX3 Form Grinding Machine. This view highlights additional components including the anchor bolt, circuit breaker switch, wheel vertical feed motor, cross feed motor, and overhead dresser.

2. Setup and Installation

Proper setup and installation are crucial for the safe and efficient operation of the grinding machine. Follow these guidelines carefully.

2.1 Transportation and Installation of Machine

This section covers the procedures for safe transportation and proper installation of the machine. It includes details on site preparation, leveling, and securing the machine to ensure stability and optimal performance.

2.2 Hydraulic Oil and Lubrication Oil

Details the types of hydraulic and lubrication oils required for the machine, their proper levels, and filling procedures. Information on the hydraulic circuit diagram and lubrication schematic diagram is provided to guide correct fluid management.

2.3 Electric Wiring

Instructions for power connection and wiring are outlined here. Emphasizes safety precautions for electrical setup, including proper grounding and connection to the main power supply.

3. Operating Instructions

This section provides comprehensive instructions for operating the Okamoto PFG-450DXA ACC-6.18DX3 Form Grinding Machine.

3.1 Operational Descriptions

Provides detailed descriptions of the machine's operation, including the functions of the electric operation panel, hydraulic operation panel, table longitudinal movement, and saddle cross feed movement. Understanding these controls is essential for effective use.

3.2 Trial Operation

Outlines the steps for initial trial operation, including essential checks before start-up and the recommended trial operation sequence to ensure all systems are functioning correctly.

3.3 Handling of Grinding Wheel

Detailed instructions for managing the grinding wheel, covering selection of the proper wheel, understanding maximum surface speed, wheel guard capacity, attaching the wheel flange, installation and removal of the wheel flange assembly on the wheel spindle, trial run procedures after wheel installation, dressing, and wheel balancing.

3.4 Automatic Cycle Grinding

Explains the different kinds of automatic grinding cycles available, including traverse grinding (intermittent cross feed), traverse grinding (continuous feed), and plunge grinding. This section helps optimize grinding processes.

3.5 Precautions in Operating and Handling

Important safety precautions and operational guidelines are provided, especially when high accuracy is required. This includes information on table speed limits for heavy workpieces, saddle clamp usage, precautions when a new chuck is installed, and proper coolant management.

4. Maintenance

Regular maintenance is essential to ensure the longevity and optimal performance of your Okamoto PFG-450DXA ACC-6.18DX3 Form Grinding Machine.

4.1 Hydraulic System Maintenance

Procedures for maintaining the hydraulic system, including checking fluid levels, replacing filters, and inspecting for leaks. Proper hydraulic system maintenance prevents operational issues.

4.2 Wheel Spindle Unit Maintenance

Instructions for maintaining the wheel spindle unit, including lubrication, inspection for wear, and ensuring proper alignment. This helps maintain grinding precision.

5. Troubleshooting

This section provides guidance for identifying and resolving common issues that may arise during the operation of the grinding machine.

5.1 General Troubleshooting

A checklist for common operational issues, guidance on the replacement of the controller (DX-4B), and interpretation of operation panel display and alarm indications to diagnose problems effectively.

5.2 Grinding Troubles and Corrective Actions

Addresses specific grinding problems such as rough surface finishes, chattering marks, grinding burns and cracks, wheel loading, wheel shedding, and wheel dulling. Corrective actions are provided for each issue to restore optimal grinding performance.

6. Specifications

Detailed technical specifications for the Okamoto PFG-450DXA ACC-6.18DX3 Form Grinding Machine are provided below.

1.2 SPECIFICATIONS

			UNIT:MM	UNIT:INCH
CAPACITY	MAXIMUM GRINDING AREA (LENGTH x WIDTH)		450 x 150	18 x 6
	DISTANCE FROM TABLE TOP TO GRINDING WHEEL BOTTOM (DIA. 180mm/7" WHEEL)		-30 -> 310	-1.2->12.2
	(DIA. 205mm/8" WHEEL)		-42.5->297.5	-1.7->11.7
	MAXIMUM WEIGHT OF WORKPIECE (INCLUSIVE OF MAGNETIC CHUCK)		120Kg	264 lbs
TABLE	SURFACE LENGTH		510	20
	SURFACE WIDTH		150	6
	MAXIMUM LONGITUDINAL TRAVEL		530	20.9
	MAXIMUM CROSS TRAVEL		175	6.9
	T-SLOT (QUANTITY x WIDTH)		1 x 17	1 x 0.669
FEEDS	LONGITUDINAL MOVEMENT OF TABLE			
	HYDRAULIC FEED		0.1-20 (m/min)	0.33-66.67 (ft/min)
	HAND FEED PER REVOLUTION		100	3.94
	CROSS MOVEMENT OF SADDLE			
	INTERMITTENT FEED		0.1-5	0.002-0.1
	CONTINUOUS FEED		0.16-0.4 (m/min)	3-8 (in/min)
	HAND FEED PER REVOLUTION		5	0.1
	GRADUATION OF HANDWHEEL		0.02	0.001
	VERTICAL MOVEMENT OF WHEEL HEAD			
	AUTOMATIC FEED PER TABLE STROKE		0.0001-0.03	0.00005-0.0015
	AUTOMATIC FEED PER SADDLE REVERSAL		0.0001-0.03	0.00005-0.0015
	HAND FEED PER REVOLUTION	x0.1	0.01	0.001
		x1	0.1	0.01
		x10	1	0.1
	GRADUATION OF HANDWHEEL	x0.1	0.0001	0.00001
		x1	0.001	0.0001
		x10	0.01	0.001
	RAPID FEED (50/60Hz)		400 mm/min	16 in/min
GRINDING WHEEL	DIAMETER		180	7
			205	8
	WIDTH		19	0.75
	BORE		31.75	1.25
	MAXIMUM SURFACE SPEED		2400m/min	8000sfpm
MOTORS	SPINDLE		0.75KW/2P	1HP/2P
			1.5KW/2P (OPTIONAL)	2HP/2P (OPTIONAL)
	HYDRAULIC PUMP		0.75KW/4P	1HP/4P
	VERTICAL FEED		0.4KW (AC SERVO)	0.5HP (AC SERVO)
	CROSS FEED		0.75KW/3P	1HP/3P
FLOOR SPACE	LENGTH x WIDTH x HEIGHT		1940 x 1317 x 2010mm	77 x 52 x 80"
WEIGHT			1200Kg	2640 lbs

Figure 3: Technical specifications table for the Okamoto PFG-450DXA ACC-6.18DX3 Form Grinding Machine. This table includes details on capacity (maximum grinding area, maximum weight of workpiece), table feeds (longitudinal movement, hand feed per revolution, intermittent and continuous feed), grinding wheel dimensions (diameter, width, bore, maximum surface speed), motors (spindle, hydraulic pump, vertical feed, cross feed), floor space, and weight.

7. Reference and Electrical Drawings

The complete manual includes detailed reference drawings and tables, which are essential for understanding the machine's construction and operation. Additionally, comprehensive electrical drawings are provided, such as wiring diagrams, operation panel wiring, connector pin assignment, control box details, and settings for display panel functions. These are crucial for advanced maintenance, repair, and electrical diagnostics.

8. Warranty and Support Information

Warranty and support details for the Okamoto PFG-450DXA ACC-6.18DX3 Form Grinding Machine are not available in this document. Please refer to your purchase documentation or contact Okamoto customer service for specific warranty terms and support assistance.