



## **TG4 - 63**

*12.6" (320 mm) x 24.8" (630 mm), 3-Axis CNC, Automatic Indexing Wheelhead Cylindrical Grinder*

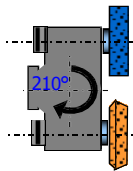
### **SECTION ONE: GRINDER SPECIFICATIONS TG4-63**

#### **MACHINE CAPACITY:**

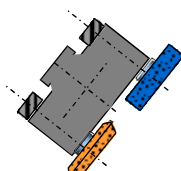
|                              |                  |
|------------------------------|------------------|
| Swing                        | Ø 12.6" (320 mm) |
| Distance Between Centers     | Ø 24.8" (630 mm) |
| Maximum OD Grinding Diameter | Ø 11.8" (300 mm) |
| Maximum Load Between Centers | 330 lbs (150 Kg) |
| Centerline Height from Floor | 42.5" (1,080 mm) |

#### **WHEELHEAD:**

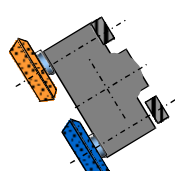
|   |  |
|---|--|
| OD Wheel Size x 2 Wheels (OD x ID)          | Ø 16" x 5" (405 mm x 127 mm)           |
| Maximum Wheel Width                         | 1.97" (50 mm), [2.9" (75mm) as option] |
| Wheel Surface Speed                         | 8,850 SFPM (45 m/s)                    |
| Spindle                                     | JTEKT STAT® Bearing                    |
| Minimum Move Increment X-Axis (on diameter) | 0.000010" (0.0001 mm)                  |
| Wheelhead Rapid X-Axis Feed (on diameter)   | 590 IPM (15 m/min)                     |
| Wheel infeed                                | Linear Guide/Servo Motor               |
| Wheelhead Swivel Range                      | 210°                                   |
| Swivel Method                               | Direct Drive Servo Motor               |
| Swivel Increment                            | .00001°                                |



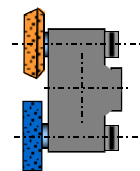
Standard wheel configuration



Standard wheel configuration in 30° angle wheel position



Standard wheel configuration in reverse angle wheel position



Standard wheel configuration in straight wheel position

#### **TABLE:**

|                               |                          |
|-------------------------------|--------------------------|
| Minimum Move Increment Z-Axis | 0.000010" (0.0001 mm)    |
| Wheelhead Rapid Z-Axis Feed   | 590 IPM (15 m/min)       |
| Table feed                    | Linear Guide/Servo Motor |

#### **WORKHEAD:**

|                       |               |
|-----------------------|---------------|
| Type                  | Dead Spindle  |
| Workhead Center Taper | MT #4         |
| Work Speed (Variable) | 10 to 500 rpm |

#### **FOOTSTOCK:**

|                           |  |
|---------------------------|--|
| Type                      | Hydraulic Retract with Manual Taper adjustment |
| Footstock Center          | MT No. 4                                       |
| Maximum Center Retraction | 2.36" (60 mm)                                  |
| Taper adjustment Amount   | ± .0018" (.045 mm)                             |



## **SECTION ONE: GRINDER SPECIFICATIONS TG4-63 CONTINUED**

### **TABLE:**

Type One (1) Piece, Traversing

### **DRESSER:**

Type Stationary Diamond Holder  
 Location Workhead Mount

### **MOTORS:**

|   |                   |
|---|-------------------|
| Wheel Drive Motor x 2 Motors                                  | 6.7 hp (5 Kw)     |
| Work Drive Motor (Brushless AC Servomotor)                    | 1.75 hp (1.3 Kw)  |
| Wheelhead (X-Axis) Feed Drive Motor (Brushless AC Servomotor) | 1.75 hp (1.3 Kw)  |
| Table (Z-Axis) Feed Drive Motor (Brushless AC Servomotor)     | 1.75 hp (1.3 Kw)  |
| Wheelhead Swivel Motor (Direct Drive Servomotor)              | 1.2 hp (.9 Kw)    |
| Hydraulic Pump Motor  | 1 hp (.75 Kw)     |
| Wheel Spindle Lubrication Motor                               | 2 hp (1.5 Kw)     |
| Lubrication Oil Pump  | .12 hp (.09 Kw)   |
| Spindle Oil Fan Cooler  | .047 hp (.035 Kw) |
| Coolant Pump  | 1 hp (.75 Kw)     |
| Bed Wash Pump   | .25 hp (.18 Kw)   |

### **POWER REQUIREMENT:**

**200Volt, 3-Phase, 60 Hz**

### **FLUID CAPACITIES:**

|                       |                   |
|-----------------------|-------------------|
| Spindle Oil Lube Tank | 13.2 gal (50 lit) |
| Hydraulic Oil Tank    | 2.6 gal (10 lit)  |
| Lubrication Oil Tank  | 1.5 gal (6 lit)   |
| Coolant Tank          | 60 gal (230 lit)  |

### **Please Note:**

- KVA subject to change, depending on options and machine specifications
  - Machine specifications are subject to change without notice
- Machine is built to standard JTEKT SPD specifications for the North American market

***SECTION TWO: EQUIPMENT AND FEATURES INCLUDED IN BASE MACHINE***

- 2.01** Box-type well-ribbed heavy-duty machine bed of high-strength metal castings with coolant isolation cover (Reduces heat displacement)
- 2.02** Hydraulic and lubrication power units
- 2.03** X and Z Axis linear guide systems offers high speed with high accuracy
- 2.04** Wheel feed system featuring:
- High-performance brushless AC servomotor with absolute encoder feedback
  - Backlash-free precision ball screw using a direct coupling
  - Speeds up to 590 IPM (15 m/min) and .000010" (.0001 mm) min. program increments
- 2.05** Wheelhead swivel system featuring:
- Backlash free, Direct drive motor performs high accuracy positioning at high rotational speeds
  - Motor location prevents coolant penetration
- 2.06** The JTEKT stat bearing wheelhead featuring no metal-to-metal contact, high rigidity and excellent damping capacity and minimized heat generation
- 6.7 hp (5 Kw) - motor with overload prevention
  - Automatic hydrostatic lubrication to wheel spindle with pressure confirmation
  - Fan Cooler for spindle oil
- 2.07** Rigid wheel guards with adjustable front hoods
- Designed in compliance with OSHA requirements.
  - Wheel speed up to 8,850 SFPM (45 m/s)
  - Standard wheel size of 16" (405mm) OD x 1.97" (50mm) wide x 5" (127mm) ID
  - Flexible coolant nozzles
- 2.08** Standard size wheel sleeve and flange assembly (2 sets included).
- 5" (127mm) ID, wheel width of .78" (20mm) to 2.5" (65mm)
  - Balance weight segment set - 3 piece/set
- 2.09** Standard wheel (2 pieces included).
- 16" (405mm) OD x 1.97" (50mm) wide x 5" (127mm) ID
- 2.10** Dead spindle workhead
- AC servomotor, infinitely variable speeds of 10 to 500 rpm
  - MT #4 work center
  - Work spindle jog button
- 2.11** Hydraulically operated type footstock with manual fine taper adjustment
- 2.36" (60 mm) retraction stroke
  - MT # 4 work center
  - $\pm .0018"$  (.045 mm) taper adjustment amount

***SECTION TWO: EQUIPMENT AND FEATURES INCLUDED IN BASE MACHINE***

- 2.12** Diamond holder mounted on Workhead.
  - Abundant dress patterns.
  - Includes (1) diamond tool
- 2.13** JTEKT programmable lateral locator unit for bi-directional shoulder locating mounted on Angle wheel side
- 2.14** Coolant supply unit
  - 60 gal (230 lit) reservoir
  - 2nd Pump for bed flushing
  - Low level detection
- 2.15** Standard carbide-tipped work centers, MT #4.
- 2.16** Set of leveling screws and pads.
- 2.17** Full Machine Enclosure for mist containment
  - Manual front sliding doors
  - Access panels (without interlocks) for machine maintenance
  - Duct for customer supplied mist collector
  - Please note: A mist collector is required on machines with a full enclosure (Will be quoted upon request)
- 2.18** Slideway covers, bed covers.
- 2.19** Standard tool kit
- 2.20** Wheel lifting hook
- 2.21** One (1) hard copy set of manuals and One (1) CD ROM
- 2.22** JTEKT 3-axis CNC unit, Model GC50X3, including movable pendant type operation panel with keyboard type manual data input, manual pulse generator, including these
  - 12" color LCD touch screen
  - 64-part program storage memory each up to 30 steps
  - Instructional Screens
  - Maintenance Screens:
  - Programmable dressing cycle with automatic compensation
  - Programmable jump on timing for the in-process gauge
  - Programmable flagging cycle
  - Jog feed axis selector.
  - Grinding feed override switch from 0 to 150% in 10% steps
  - Dressing feed override switch from 0 to 150% in 10% steps
  - Rapid feed override switch from 0, 10, 50 & 100% settings
  - Wheel spindle on/off
  - Emergency return
  - Emergency stop
  - Wheel Change Forecast
  - Program number display
  - USB Port and Memory Stick

**\* Control specifications subject to change without notice**

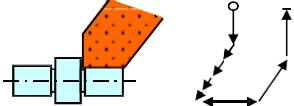
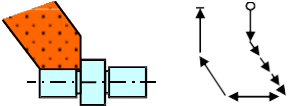
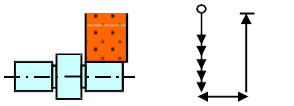
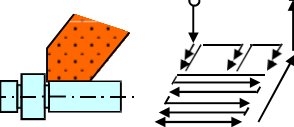
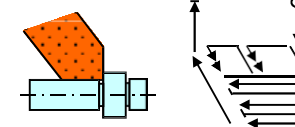
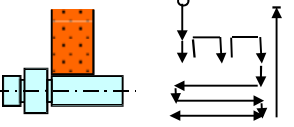
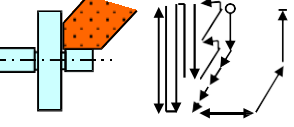
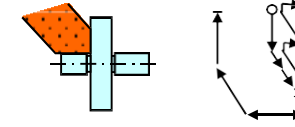
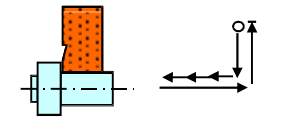
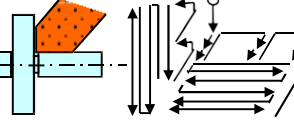
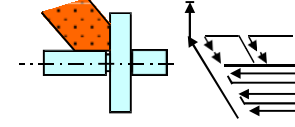
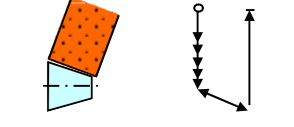
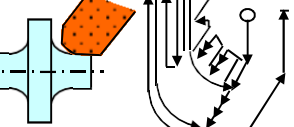
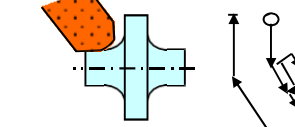
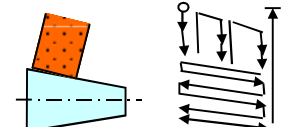
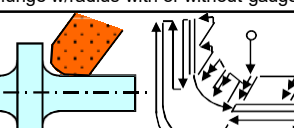
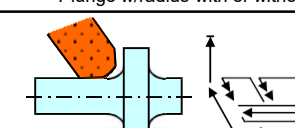
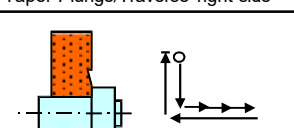
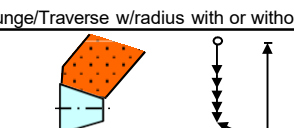
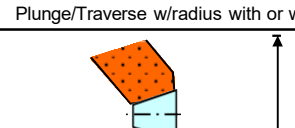
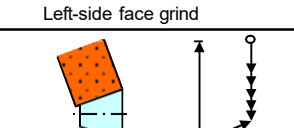
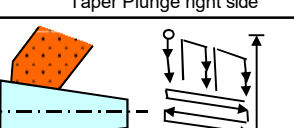
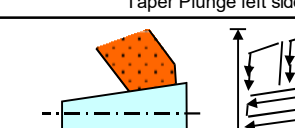
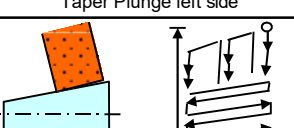
***SECTION TWO: EQUIPMENT AND FEATURES INCLUDED IN BASE MACHINE*****2.23 Machine start-up and training**

- NOTE: Prior to requesting a service representative, the Pre-Installation Checklist must be completed, signed and returned to JTEKT's service department.
- Machine purchase includes one JTEKT Service Representative for five (5) working days, eight (8) hours per day (including travel to and from customer's facility).
- Visit includes the following:
  1. Installation inspection
  2. Machine start-up
  3. Explanation of machine operation
  4. Machine set-up instruction
  5. Basic part program training including plunge, traverse and combination plunge/traverse grinding, using a JTEKT standard training work piece.



## ***SECTION TWO: EQUIPMENT AND FEATURES INCLUDED IN BASE MACHINE***

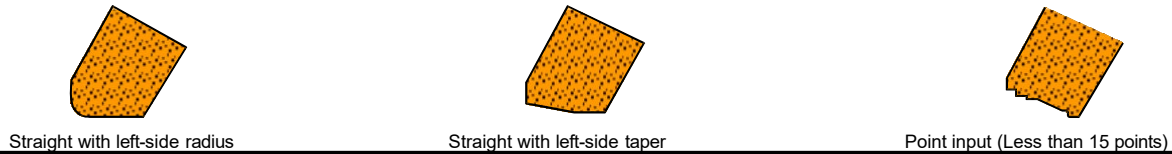
### **OD GRIND CYCLES**

| <b>ANGLE WHEEL</b>  | <b>REVERSE ANGLE WHEEL</b>  | <b>STRAIGHT WHEEL</b>  |
|---|---|--|
| <br>Plunge with or without gauge                     | <br>Plunge with or without gauge                     | <br>Plunge with or without gauge          |
| <br>Plunge/Traverse with or without gauge            | <br>Plunge/Traverse with or without gauge            | <br>Plunge/Traverse with or without gauge |
| <br>Plunge w/shoulder with or without gauge          | <br>Plunge w/shoulder with or without gauge          | <br>Right-side face grind                 |
| <br>Plunge/Traverse w/shoulder with or without gauge | <br>Plunge/Traverse w/shoulder with or without gauge | <br>Taper Plunge right side               |
| <br>Plunge w/radius with or without gauge          | <br>Plunge w/radius with or without gauge          | <br>Taper Plunge/Traverse right side    |
| <br>Plunge/Traverse w/radius with or without gauge | <br>Plunge/Traverse w/radius with or without gauge | <br>Left-side face grind                |
| <br>Taper Plunge right side                        | <br>Taper Plunge left side                         | <br>Taper Plunge left side              |
| <br>Taper Plunge/Traverse right side               | <br>Taper Plunge/Traverse left side                | <br>Taper Plunge/Traverse left side     |

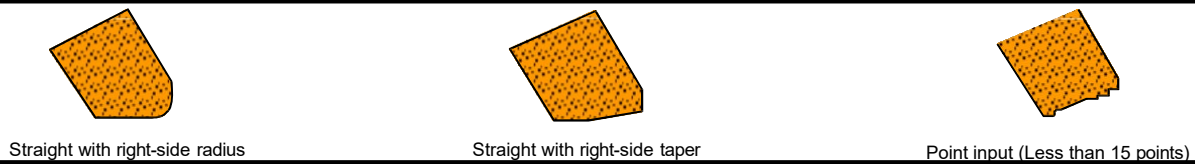


## ***SECTION TWO: EQUIPMENT AND FEATURES INCLUDED IN BASE MACHINE***

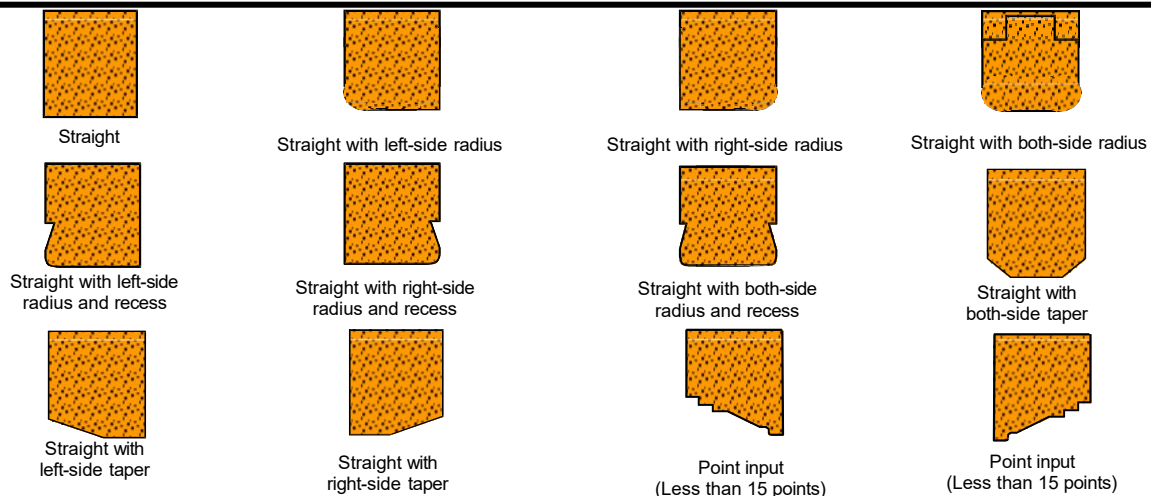
### **OD DRESS CYCLES** **ANGLE WHEEL DRESS CYCLES**



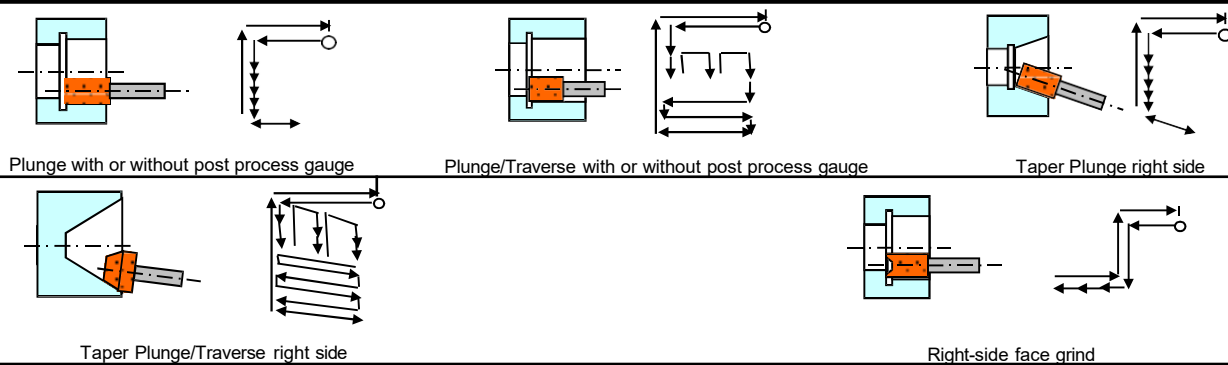
### **REVERSE ANGLE WHEEL DRESS CYCLES**



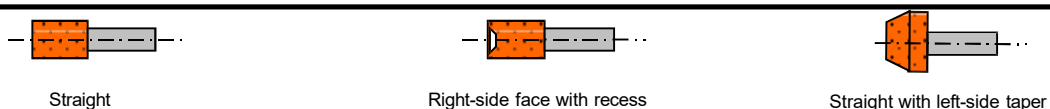
### **STRAIGHT WHEEL DRESS CYCLES**



### **ID GRIND CYCLES**



### **ID DRESS CYCLES**

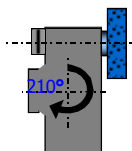


**\* Control specifications subject to change without notice**

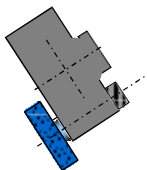


## ***POSSIBLE WHEELHEAD CONFIGURATIONS AND POSITION EXAMPLES***

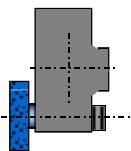
### **ONE STRAIGHT OD WHEEL**



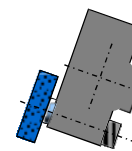
210° CW, Swivel Capability



150° CW, Swivel Position

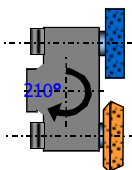


180° CW Swivel Position

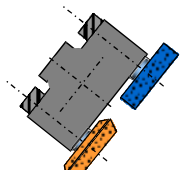


210° CW Swivel Position

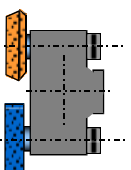
### **ONE STRAIGHT AND ONE ANGULAR OD WHEEL**



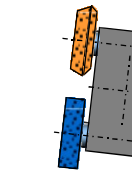
210° CW, Swivel Capability



30° CW, Swivel Position

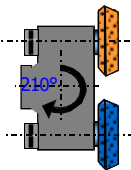


180° CW Swivel Position

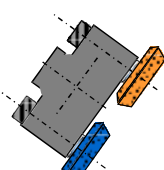


195° CW Swivel Position

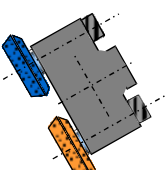
### **ONE ANGULAR AND ONE REVERSE ANGULAR OD WHEEL**



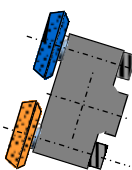
210° CW, Swivel Capability



30° CW, Swivel Position

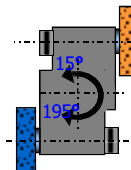


150° CW, Swivel Position

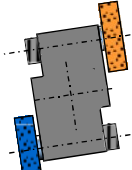


210° CW, Swivel Position

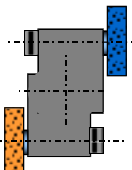
### **TWO STRAIGHT OD WHEELS**



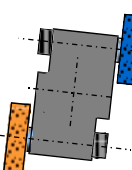
195° CW, 15° CCW Swivel



15° CCW Swivel Position

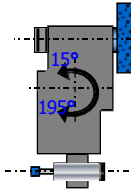


180° CW Swivel Position

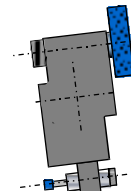


195° CW Swivel Position

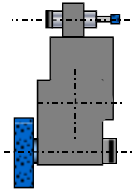
### **ONE STRAIGHT OD AND ONE ID WHEEL**



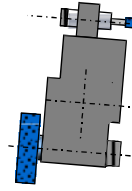
195° CW, 15° CCW Swivel



15° CCW Swivel Position

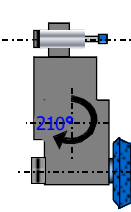


180° CW Swivel Position

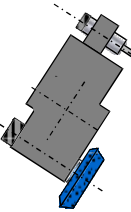


195° CW Swivel Position

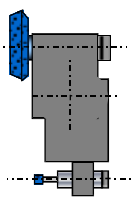
### **ONE ANGULAR OD AND ONE ID WHEEL**



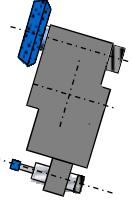
210° CW, Swivel Capability



30° CW, Swivel Position



180° CW Swivel Position



210° CW, Swivel Position