

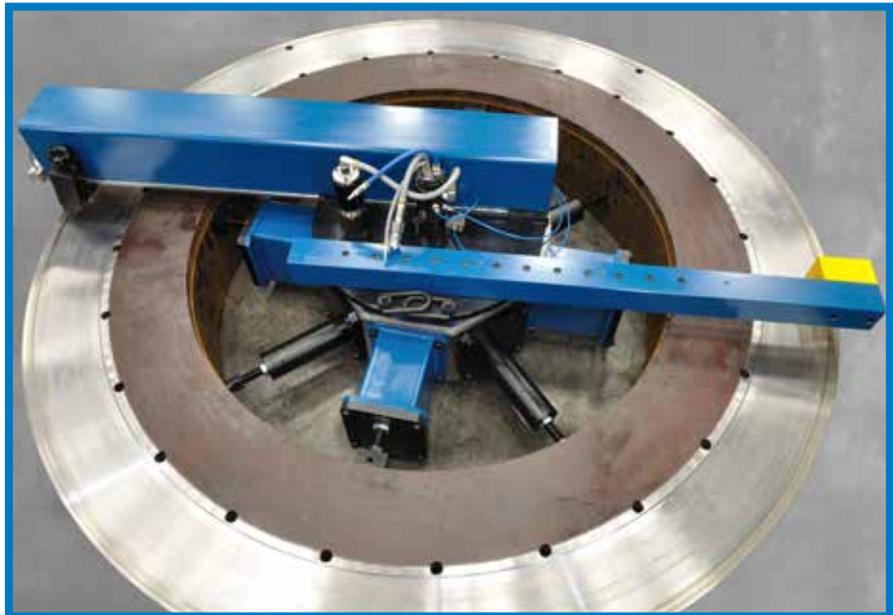
## One of a family of rugged, heavy-duty flange facers with facing AND milling capabilities.

### Rugged Machine Design

- Large, heavy duty construction-grade bearings provide powerful, rigid performance throughout the entire machine facing range, even machining over bolt hole patterns.
- Oversized ring gear accommodates extremely high torque levels for challenging flange repair applications, and these machines are able to generate a phonographic finish.

### Flexible and Versatile

- Both radial and axial feed is achieved with a pneumatic feedbox. Manual feeding for rapid positioning is also possible.
- Feed rate is adjusted remotely at the pneumatic conditioning unit, providing the ultimate in operator safety and the flexibility for feed rate adjustments even during machining operations.
- Infinitely variable feed rates from 0.002 - 0.035 inches (0.0508 - 0.889 mm)/rev provides operational flexibility.
- Reversible feed box can be mounted to provide either radial or axial feed.
- Turning and counterweight arms can both be adjusted for the desired swing clearance and machining range.
- Tool head can be rotated a full 360° providing the ability to create a variety of



chamfers, O-Ring grooves, lens rings and other angular surfaces as needed.

- Pneumatic & hydraulic drive options available.
- Chucking system can be removed to allow the flange facer to be face-mounted.
- Can be mounted both OD and ID or surface-mounted
- Milling option available with precision downfeed ball screw
- Back facing attachment available for heat exchanger repair.

### Quick and Easy Setup

- Modular design allows many of the machine components to be removed to facilitate easier setup and storage.
- Unique chucking system minimizes parts to greatly simplify machine setup and tear down.
- Quick-adjust leveling feet make setup quick and easy.



**FF6300 Flange Facer**  
Range 12-60" (304-1524mm)



**FF7200 Flange Facer**  
Range 30-72" (762-1829mm)



**FF8200 Flange Facer**  
Range 45-120" (1143-3048mm)

# SPECIFICATIONS

	US	Metric
<b>Machine Performance Ranges</b>		
ID: Mounting range	45 - 120 inches	1143.0 - 3048.0 mm
Facing diameter range	45 - 120 inches	1143.0 - 3048.0 mm
Milling diameter range	45 - 120 inches	1143.0 - 3048.0 mm
Grinding diameter range	45 - 120 inches	1143.0 - 3048.0 mm
Swing diameter @ minimum with feedbox on end of arm	84.7 inches	2151.4 mm
Radial tool slide travel	12 inches	304.8 mm
Axial tool head travel	4 inches	101.6 mm
Depth required inside bore for ID chuck ( $\pm 0.25$ inches ( $\pm 6.4$ mm) is travel of leveling foot)	12.13 $\pm$ 0.25 inches	308.1 $\pm$ 6.4 mm
Feed Rate	0.002 - 0.040 in/rev	0.051 - 1.016 mm/rev
OD: Mounting range *	89.8 - 136.4 inches	2280.9 - 3464.6 mm
Facing diameter range	45 - 120 inches	1143.0 - 3048.0 mm
Milling diameter range	45 - 113.5 inches	1143.0 - 2882.9 mm
Grinding diameter range (w/ feed box)	45 - 118 inches	1143.0 - 2997.2 mm
Grinding diameter range (w/o feed box)	45 - 120 inches	1143.0 - 3048.0 mm
Refer to ID for specifications not listed		
Surface Mount: minimum machining diameter	36.0 inches	914.4 mm
Milling Option: Vertical Stroke, milling head	8 inches	203.2 mm
<b>Rotational Drive System</b>		
Drive type	Pneumatic or hydraulic drive with pinion and internal ring gear	
Pinion gear to ring gear reduction	7.429:1	
Single point turning speed range:		
Pneumatic	5 - 29 RPM	
Hydraulic (based on motor choice)	1.8 - 18 RPM	
Milling & grinding speed ranges (with 150:1 reducer):		
Pneumatic	0.004 - 0.173 RPM	
Feed rate at 120 inch (3048.0 mm) diameter	1.5 - 65.2 inches/minute	38.1 - 1656.1 mm/minute
Hydraulic (based on motor choice)	0.002 - 0.374 RPM	
Power input requirements		
Pneumatic - 3.5 Hp (2.6 kW)	50 ft <sup>3</sup> /min @ 90 psi	1.42 m <sup>3</sup> /min @ 620 kPa
Hydraulic	10 gpm@1200 psi	37.9 L/min @ 8273 kPa
<b>Measures</b>		
For machine dimensions, please refer to dimensional drawings		
ID machine weight, approximate	4000 lb	1814.4 kg
ID machine weight with mill, approximate	4150 lbs	1882.4 kg
OD machine weight, approximate	3775 lb	1712.3 kg
OD machine weight with mill, approximate	3925 lbs	1780.4 kg
Chuck crate dimensions, (for ID and OD machines) (WxDxH)		
Wood, approx.	93 x 40.5 x 40 in	2362 x 1029 x 1016 mm
Metal, approx.	90.2 x 40.2 x 36.2 in	2291 x 1021 x 920 mm
Leg crate dimensions (for ID and OD machines) (WxDxH)		
Wood, approx.	94 x 43.5 x 19 in	2388 x 1105 x 483 mm
Metal, approx.	94.2 x 42.7 x 19.2 in	2393 x 1085 x 488 mm
OD mount hardware crate dimensions (for OD machine only) (WxDxH)		
Wood, approx.	94 x 43.5 x 19 in	2388 x 1105 x 483 mm
Metal, approx.	94.2 x 42.7 x 19.2 in	2393 x 1085 x 488 mm

## Testing Data

Flatness at 82 inch (2083 mm) diameter: .0068 inches (0.17 mm)

On a dedicated fixture made of A-36 steel in a controlled environment with single point machine, after warm-up.

\* OD mount minimum arm swing is 84.7 inches (2151.4 mm) diameter. An additional customer supplied structure will be required to chuck below the minimum swing diameter with the feedbox attached..

All dimensions should be considered reference. Contact your CLIMAX Representative for precision dimensions. Specifications are subject to change without notice. There are no systems or components on this machine that are capable of producing hazardous EMC, UV or other radiation hazards. The machine does not use lasers nor does it create hazardous materials such as gasses or dust.

# TOOL CONFIGURATIONS

The FF8200 can be configured in several ways to meet your specific machining needs.

Select **OPTION 1** for **single-point machining only**

Select **OPTION 2** for **milling only**

Select **OPTION 3** for **BOTH milling and single-point machining**

## **OPTION 1:** To configure your FF8200 for **Single-Point Machining Only**

Please follow these steps, select:

1. Base Package
2. Feed Assembly
3. Drive Motor Assembly
4. Hydraulic Motor
5. Turning Arm Assembly
6. Counterweight Assembly
7. Chuck Assembly
8. Shipping Container

<b>1. Base Package</b>		
Rotary table, tool kit, operator's manual		<b>58187</b>
<b>2. Feed Assembly</b>		
Pneumatic Feed Assembly w/ Remote Air Control		<b>58671</b>
<b>3. Drive Motor Assembly</b>		
Pneumatic Motor and Drive Assembly (Pneumatic drive system includes: Pneumatic motor w/fittings and mount, rotary union, hoses, feed trip valve, cam, and pneumatic conditioning unit with low pressure drop out.)		<b>58186</b>
Hydraulic Drive Assy w/ Feed Conditioning Unit for <b>60 Series QD</b> - DOES NOT INCLUDE MOTOR (Hydraulic drive system includes: Hyd motor mount, hoses, fittings, rotary union, feed trip valve, cam, and feed pneumatic conditioning unit.)		<b>58180</b>
Hydraulic Drive Assy w/ Feed Conditioning Unit for <b>ISO 16028 QD</b> - DOES NOT INCLUDE MOTOR (Hydraulic drive system includes: Hyd motor mount, hoses, fittings, rotary union, feed trip valve, cam, and feed pneumatic conditioning unit.)		<b>84105</b>

<b>4. Hydraulic Motor for Rotary Table Drive (If Hydraulic drive is selected in step 3). Rated at 10 gpm, 1200 PSI</b>	
<b>14.9 cu in</b> (244.2 cu cm), 3.6 - 18 RPM	<b>69216</b>
<b>18.7 cu in</b> (306.4 cu cm), 2.8 - 14 RPM	<b>69217</b>
<b>24.0 cu in</b> (393.3 cu cm), 2.2 - 11 RPM	<b>69218</b>
<b>29.8 cu in</b> (488.3 cu cm), 1.8 - 9 RPM	<b>69219</b>
* Multiple units may be ordered.	
<b>5. Turning Arm Assembly</b>	
Turning Arm Assembly with Single Point Tool Head	<b>57872</b>
Milling Arm Assembly with Single Point Tool Head	<b>62578</b>
<b>6. Counterweight Assembly</b>	
Counterweight Assembly	<b>58066</b>
Counterweight Milling Arm Assembly	<b>62515</b>
<b>7. Chuck Assembly</b>	
ID Chuck Assembly	<b>57881</b>
OD Chuck Assembly, Standard Turning Arm	<b>61372</b>
ID/OD Chuck Assembly, Standard Turning Arm	<b>61454</b>
OD Chuck Assembly, Turning with Milling Arm	<b>62666</b>
ID/OD Chuck Assembly, Turning with Milling Arm	<b>62674</b>
<b>8. Shipping Container</b>	
Wooden Crate for ID Mount Machine	<b>58421</b>
Metal Container for ID Mount Machine	<b>59936</b>
Wooden Crate Set for ID/OD Mount Machine	<b>62679</b>
Metal Container Set for ID/OD Mount Machine	<b>61724</b>

### Hydraulic Power Units for single pointing

<b>HP1000, 208 - 230 Volts</b>				
Cordset/hose length		Quick Connect Style		P/N
Feet	Meters	60 Series QD	ISO 16028 CE	
20	6	✓		93687
50	15	✓		93724
100	30	✓		94021
20	6		✓	94022
50	15		✓	94023
100	30		✓	93980
<b>HP1000, 380 - 415 Volts</b>				
Cordset/hose length		Quick Connect Style		P/N
Feet	Meters	60 Series QD	ISO 16028 CE	
20	6	✓		94024
50	15	✓		93725
100	30	✓		94025
20	6		✓	94026
50	15		✓	94027
100	30		✓	94028

<b>HP1000, 460 Volts (440 - 480 volts)</b>				
Cordset/hose length		Quick Connect Style		P/N
Feet	Meters	60 Series QD	ISO 16028 CE	
20	6	✓		94029
50	15	✓		93770
100	30	✓		94030
20	6		✓	94031
50	15		✓	94032
100	30		✓	94033
<b>HP1000, 575 Volts</b>				
Cordset/hose length		Quick Connect Style		P/N
Feet	Meters	60 Series QD	ISO 16028 CE	
20	6	✓		94034
50	15	✓		93744
100	30	✓		94035
20	6		✓	94036
50	15		✓	93745
100	30		✓	94037

# TOOL CONFIGURATIONS

## OPTION 2: To configure your FF8200 for Milling Only

Please follow these steps, select:

1. Base Package
2. Drive Motor Assembly
3. Hydraulic Motor
4. Turning Arm Assembly
5. Counterweight Assembly
6. Milling Head
7. Tooling
8. Milling Head Swivel Assembly
9. Hydraulic Motor for Milling Head
10. Chuck Assembly
11. Shipping Container

<b>1. Base Package</b>		
Rotary table, tool kit, drag brake assembly, operator's manual		<b>62673</b>
<b>2. Drive Motor Assembly</b>		
Pneumatic Motor and Drive Assembly (Pneumatic drive system includes: Pneumatic motor w/fittings and mount, gearbox, rotary union, hoses, feed trip valve, and pneumatic conditioning unit with low pressure drop out.)		<b>62571</b>
Hydraulic Drive Assy w/Gearbox & Feed Conditioning Unit for <b>60 Series QD</b> - DOES NOT INCLUDE MOTOR (Hydraulic drive system includes: Hyd motor mount, gearbox, hoses, fittings, and rotary union.)		<b>62585</b>
Hydraulic Drive Assy w/Gearbox & Feed Conditioning Unit for <b>ISO 16028 QD</b> - DOES NOT INCLUDE MOTOR (Hydraulic drive system includes: Hyd motor mount, gearbox, hoses, fittings, and rotary union.)		<b>84107</b>
<b>3. Hydraulic Motor for Rotary Table Drive (If Hydraulic drive is selected in step 2). Rated at 10 gpm, 1200 PSI (Multiple units may be ordered)</b>		
<b>8.0 cu in</b> (131.1 cu cm), 0.05 - 0.20 RPM (Milling Only at < 60 in. (1524 mm))		<b>69214</b>
<b>14.9 cu in</b> (244.2 cu cm), 0.02 - 0.11 RPM		<b>69216</b>
<b>18.7 cu in</b> (306.4 cu cm), 0.018 - 0.09 RPM		<b>69217</b>
<b>24.0 cu in</b> (393.3 cu cm), 0.014 - 0.07 RPM		<b>69218</b>
<b>29.8 cu in</b> (488.3 cu cm), 0.012 - 0.06 RPM		<b>69219</b>
<b>4. Turning Arm Assembly</b>		
Milling Arm Assembly (does not include tool head)		<b>72698</b>
<b>5. Counterweight Assembly</b>		
Counterweight Milling Arm Assembly		<b>62415</b>

<b>6. Milling Head</b>			
Milling Head Assembly Inch #50 Taper NMTB			<b>62282</b>
Milling Head Assembly Inch #50 Taper CATV			<b>62734</b>
Milling Head Assembly Metric #50 Taper NMTB			<b>62644</b>
Milling Head Assembly Metric #50 Taper CATV			<b>62735</b>
<b>7. Tooling (for inch CATV milling head assembly only)</b>			
CAT50 4 in (101.6 mm) Face Mill w/ Inserts			<b>103034</b>
CAT50 5 in (127.0 mm) Face Mill w/ Inserts			<b>103035</b>
CAT50 6 in (152.4 mm) Face Mill w/ Inserts			<b>103036</b>
CAT50 8 in (203.2 mm) Face Mill w/ Inserts			<b>103038</b>
CAT50 10 in (254.0 mm) Face Mill w/ Inserts			<b>103040</b>
Carbide Inserts			<b>47229</b>
<b>8. Milling Head Swivel Assembly</b>			
Milling Head Swivel Plate Assembly Kit			<b>83125</b>
<b>9. Hydraulic Motor for Milling Head</b>			
<b>Cubic in</b>	<b>Cubic cm</b>	<b>60 Series QD</b>	<b>ISO 16028 QD</b>
8.0	131.1	53459	69498
9.6	157.3	53458	69499
11.9	195.0	46950	69500
14.9	244.2	46375	69501
18.7	24.0	46549	69502
24.0	393.3	46550	69503
<b>10. Chuck Assembly</b>			
ID Chuck Assembly			<b>57881</b>
OD Chuck Assembly for Milling			<b>62669</b>
ID/OD Chuck Assembly for Milling			<b>62677</b>
<b>11. Shipping Container</b>			
Wooden Crate for ID Mount Machine			<b>58421</b>
Metal Container for ID Mount Machine			<b>59936</b>
Wooden Crate Set for ID/OD Mount Machine			<b>62679</b>
Metal Container Set for ID/OD Mount Machine			<b>61724</b>

### Hydraulic Power Units for milling only

<b>HP2500, Dual Pump, 208 - 230 Volts</b>				
Cordset/hose length		Quick Connect Style		P/N
Feet	Meters	60 Series QD	ISO 16028 CE	
20	6	✓		90274
50	15	✓		90976
100	30	✓		90977
20	6		✓	90987
50	15		✓	90988
100	30		✓	90989
<b>HP2500, Dual Pump, 380 - 415 Volts</b>				
Cordset/hose length		Quick Connect Style		P/N
Feet	Meters	60 Series QD	ISO 16028 CE	
20	6	✓		90978
50	15	✓		90979
100	30	✓		90980
20	6		✓	90990
50	15		✓	90991
100	30		✓	90992

<b>HP2500, Dual Pump, 460 Volts (440 - 480 volts)</b>				
Cordset/hose length		Quick Connect Style		P/N
Feet	Meters	60 Series QD	ISO 16028 CE	
20	6	✓		90981
50	15	✓		90982
100	30	✓		90983
20	6		✓	90993
50	15		✓	90994
100	30		✓	90995
<b>HP2500, Dual Pump, 575 Volts</b>				
Cordset/hose length		Quick Connect Style		P/N
Feet	Meters	60 Series QD	ISO 16028 CE	
20	6	✓		90984
50	15	✓		90985
100	30	✓		90986
20	6		✓	90996
50	15		✓	90997
100	30		✓	90998

# TOOL CONFIGURATIONS

## OPTION 3: To configure your FF8200 for Milling, or Milling with Single Pointing

Please follow these steps, select:

1. Base Package
2. Feed Assembly
3. Drive Motor Assembly
4. Hydraulic Motor
5. Turning Arm Assembly
6. Counterweight Assembly
7. Milling Head
8. Tooling
9. Milling Head Swivel Assembly
10. Hydraulic Motor for Milling Head
11. Chuck Assembly
12. Shipping Container

<b>1. Base Package</b>		
Rotary table, tool kit, drag brake assembly, operator's manual		<b>62670</b>
<b>2. Feed Assembly</b>		
Pneumatic Feed Assembly w/ Remote Air Control		<b>58671</b>
<b>3. Drive Motor Assembly</b>		
Pneumatic Motor and Drive Assembly (Pneumatic drive system includes: Pneumatic motor w/fittings and mount, gearbox, rotary union, hoses, feed trip valve, and pneumatic conditioning unit with low pressure drop out.)		<b>62591</b>
Hydraulic Drive Assy w/Gearbox & Feed Conditioning Unit for <b>60 Series QD</b> - DOES NOT INCLUDE MOTOR (Hydraulic drive system includes: Hydraulic motor mount, gearbox, hoses, fittings, feed trip valve, cam, and feed pneumatic conditioning unit.)		<b>62594</b>
Hydraulic Drive Assy w/Gearbox & Feed Conditioning Unit for <b>ISO 16028 QD</b> - DOES NOT INCLUDE MOTOR (Hydraulic drive system includes: Hydraulic motor mount, gearbox, hoses, fittings, feed trip valve, cam, and feed pneumatic conditioning unit.)		<b>84109</b>
<b>4. Hydraulic Motor for Rotary Table Drive (If Hydraulic drive is selected in step 3). Rated at 10 gpm, 1200 PSI (Multiple units may be ordered)</b>		
<b>8.0 cu in</b> (131.1 cu cm), 0.05 - 0.20 RPM (Milling Only at < 60 in. (1524 mm))		<b>69214</b>
<b>14.9 cu in</b> (244.2 cu cm), 3.6 - 18 RPM / 0.02 - 0.11 RPM		<b>69216</b>
<b>18.7 cu in</b> (306.4 cu cm), 2.8 - 14 RPM / 0.018 - 0.09 RPM		<b>69217</b>
<b>24.0 cu in</b> (393.3 cu cm), 2.2 - 11 RPM / 0.014 - 0.07 RPM		<b>69218</b>
<b>29.8 cu in</b> (488.3 cu cm), 1.8 - 9 RPM / 0.012 - 0.06 RPM		<b>69219</b>
<b>5. Turning Arm Assembly</b>		
Milling Arm Assembly with Single Point Tool Head		<b>62578</b>

<b>6. Counterweight Assembly</b>				
Counterweight Milling Arm Assembly			<b>62527</b>	
<b>7. Milling Head</b>				
Milling Head Assembly Inch #50 Taper NMTB			<b>62282</b>	
Milling Head Assembly Inch #50 Taper CATV			<b>62734</b>	
Milling Head Assembly Metric #50 Taper NMTB			<b>62644</b>	
Milling Head Assembly Metric #50 Taper CATV			<b>62735</b>	
<b>8. Tooling (for inch CATV milling head assembly only)</b>				
CAT50 4 in (101.6 mm) Face Mill w/ Inserts			<b>103034</b>	
CAT50 5 in (127.0 mm) Face Mill w/ Inserts			<b>103035</b>	
CAT50 6 in (152.4 mm) Face Mill w/ Inserts			<b>103036</b>	
CAT50 8 in (203.2 mm) Face Mill w/ Inserts			<b>103038</b>	
CAT50 10 in (254.0 mm) Face Mill w/ Inserts			<b>103040</b>	
Carbide Inserts			<b>47229</b>	
<b>9. Milling Head Swivel Assembly</b>				
Milling Head Swivel Plate Assembly Kit			<b>83125</b>	
<b>10. Hydraulic Motor for Milling Head</b>				
	<b>Cubic in</b>	<b>Cubic cm</b>	<b>60 Series QD</b>	<b>ISO 16028 QD</b>
	8.0	131.1	53459	69498
	9.6	157.3	53458	69499
	11.9	195.0	46950	69500
	14.9	244.2	46375	69501
	18.7	24.0	46549	69502
	24.0	393.3	46550	69503
<b>11. Chuck Assembly</b>				
ID Chuck Assembly			<b>57881</b>	
OD Chuck Assembly for Milling			<b>62669</b>	
ID/OD Chuck Assembly for Milling			<b>62677</b>	
<b>12. Shipping Container</b>				
Wooden Crate for ID Mount Machine			<b>58421</b>	
Metal Container for ID Mount Machine			<b>59936</b>	
Wooden Crate Set for ID/OD Mount Machine			<b>62679</b>	
Metal Container Set for ID/OD Mount Machine			<b>61724</b>	

### Hydraulic Power Units for milling only (for single pointing see page 3)

<b>HP2500, Dual Pump, 208 - 230 Volts</b>				
Cordset/hose length		Quick Connect Style		P/N
Feet	Meters	60 Series QD	ISO 16028 CE	
20	6	✓		90274
50	15	✓		90976
100	30	✓		90977
20	6		✓	90987
50	15		✓	90988
100	30		✓	90989
<b>HP2500, Dual Pump, 380 - 415 Volts</b>				
Cordset/hose length		Quick Connect Style		P/N
Feet	Meters	60 Series QD	ISO 16028 CE	
20	6	✓		90978
50	15	✓		90979
100	30	✓		90980
20	6		✓	90990
50	15		✓	90991
100	30		✓	90992

<b>HP2500, Dual Pump, 460 Volts (440 - 480 volts)</b>				
Cordset/hose length		Quick Connect Style		P/N
Feet	Meters	60 Series QD	ISO 16028 CE	
20	6	✓		90981
50	15	✓		90982
100	30	✓		90983
20	6		✓	90993
50	15		✓	90994
100	30		✓	90995
<b>HP2500, Dual Pump, 575 Volts</b>				
Cordset/hose length		Quick Connect Style		P/N
Feet	Meters	60 Series QD	ISO 16028 CE	
20	6	✓		90984
50	15	✓		90985
100	30	✓		90986
20	6		✓	90996
50	15		✓	90997
100	30		✓	90998

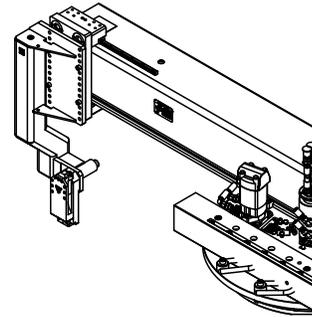
# ACCESSORIES, MACHINE OVERVIEW

Get even more out of your Flange Facer with these accessories:

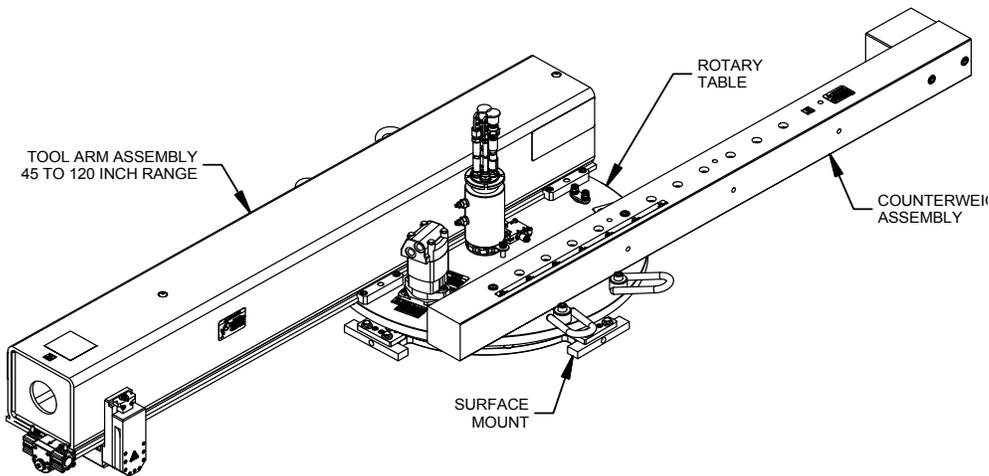
- Surface mount** PN 79540
- Backfacing attachment** PN 69711  
(requires milling arm PN 62578 and counterweight arm PN 62527)
- Surface mount retrofit kit** PN 80046  
(for existing machines)

\*Air powered grinding head (2 variants)  
\*\*Pneumatic conditioning unit

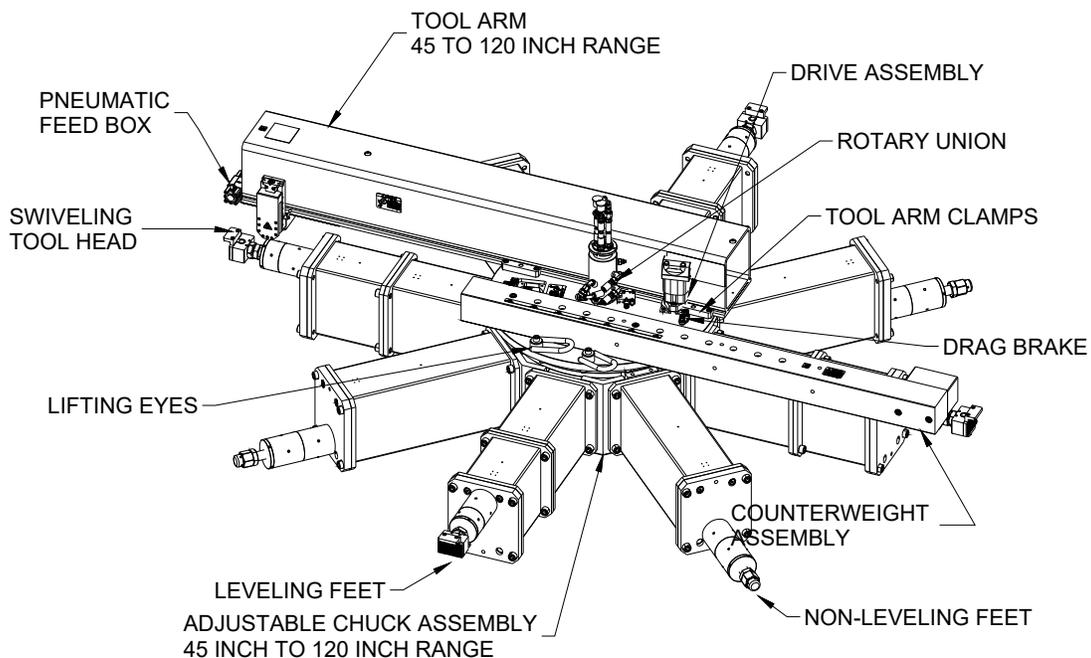
## Backfacing Attachment



## Machine Overview, Surface Mount Configuration



## Machine Overview, ID-Mount Configuration

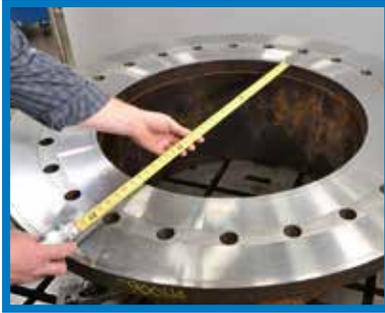


# SETUP AND OPERATION

## A Fast Eight-Step Process

This model is so fast and easy to set up that an experienced operator can usually mount the machine into the flange bore, align it, and start cutting in less than an hour. ID-mounting steps shown.

**1** Measure the bore diameter. This will be used to determine the leg length.



**5** Set machine onto flange using setup fingers. Lightly tighten leveling feet in the flange.



**2** Select the appropriate leg length and foot.



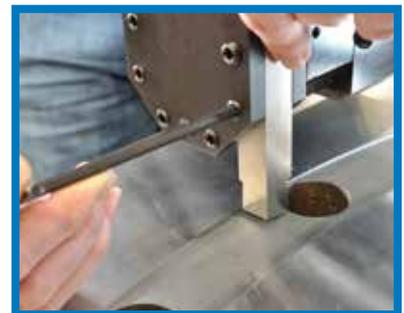
**6** Extend feet into flange. Indicate, level and tighten leveling feet and stationary feet.



**3** Install setup fingers.



**7** Install tool bit. Connect to power.



**4** Tighten legs.



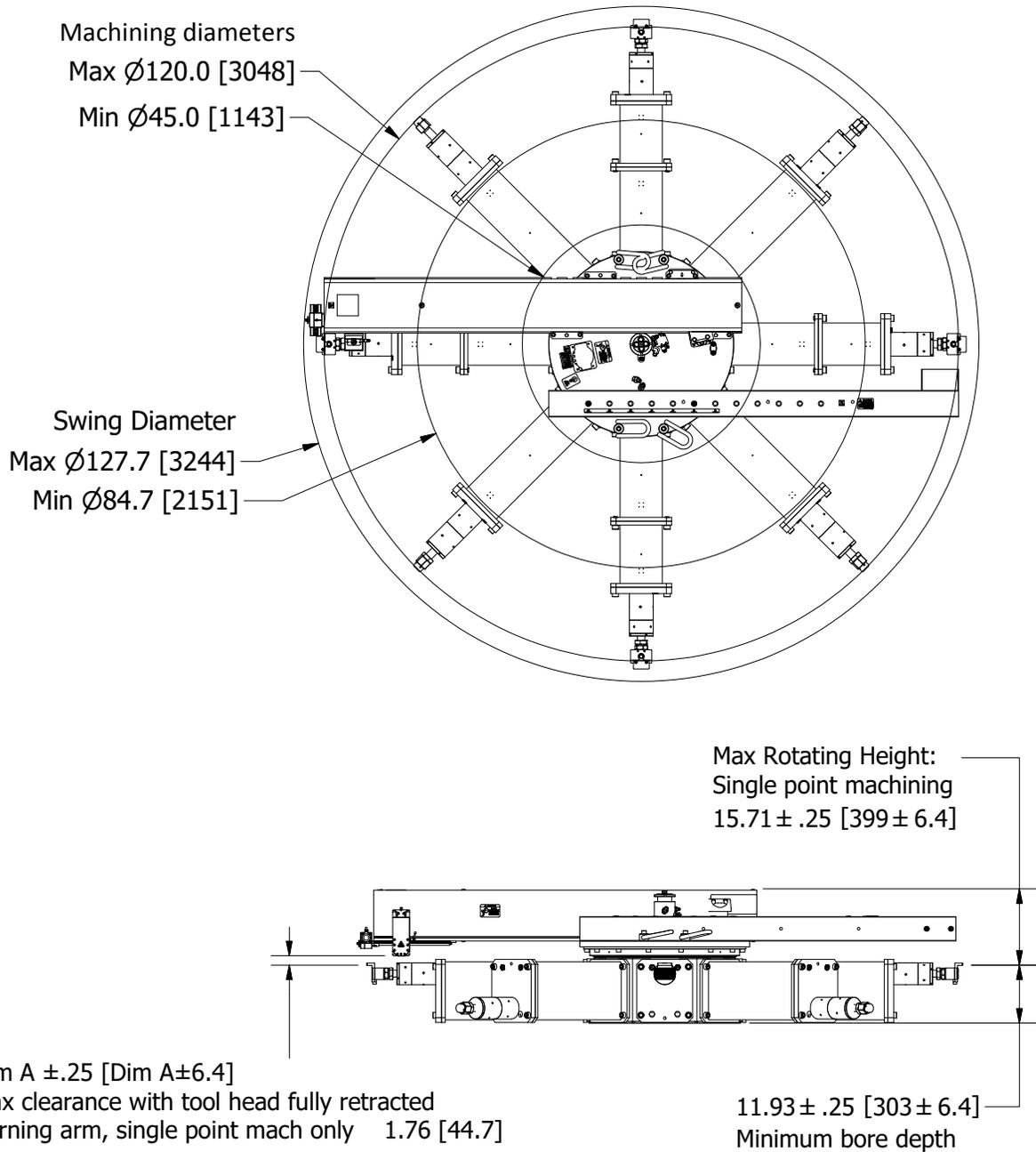
**8** You are ready to begin machining!



# OPERATIONAL DIMENSIONS

Dimensions in Inch (mm)

## ID Chuck Assembly, ID-Mount Configuration, Single-Point Machining

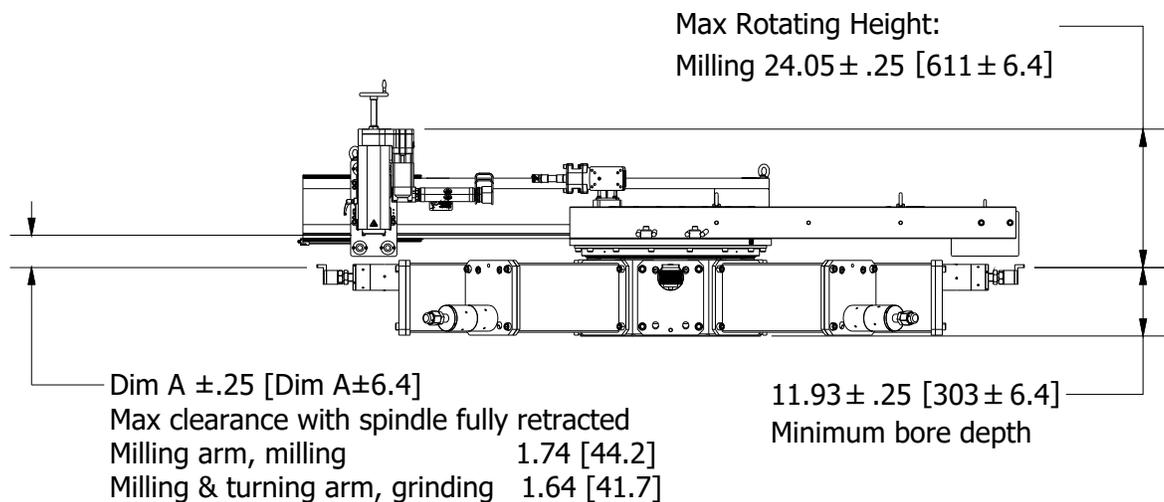
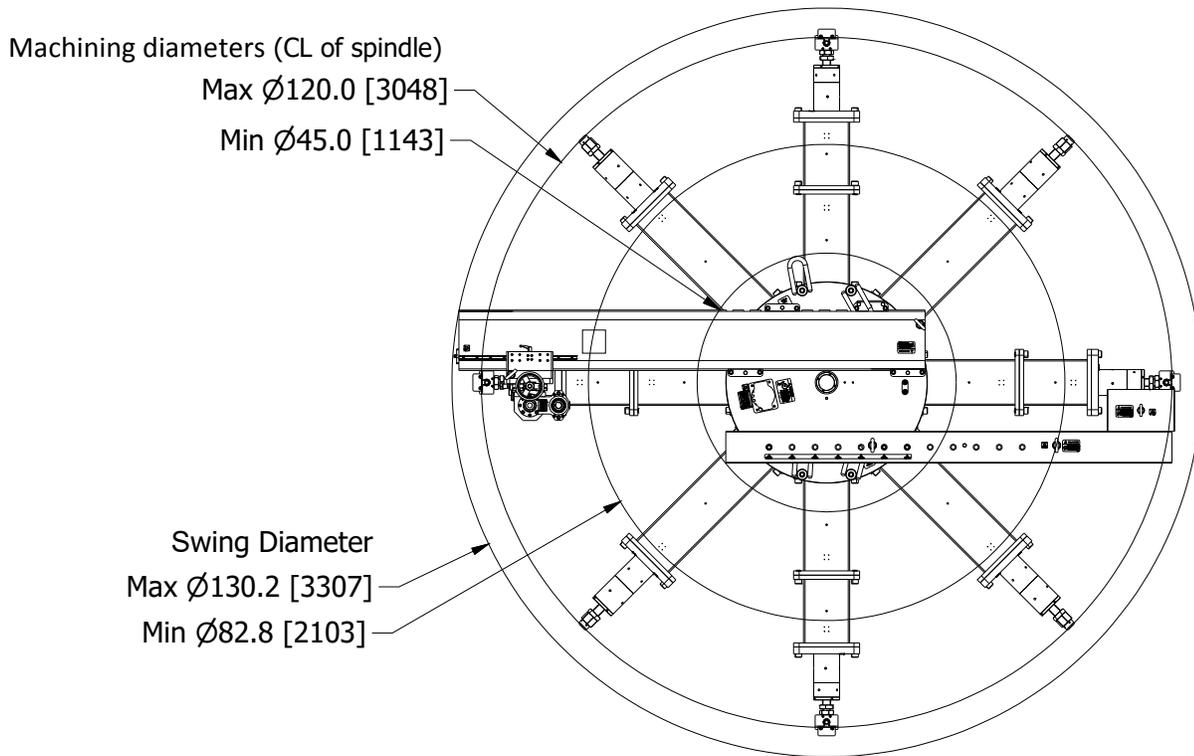


NOTE:  $\pm .25$  is travel of leveling foot

# OPERATIONAL DIMENSIONS

Dimensions in Inch (mm)

## ID Chuck Assembly, ID-Mount Configuration, Milling

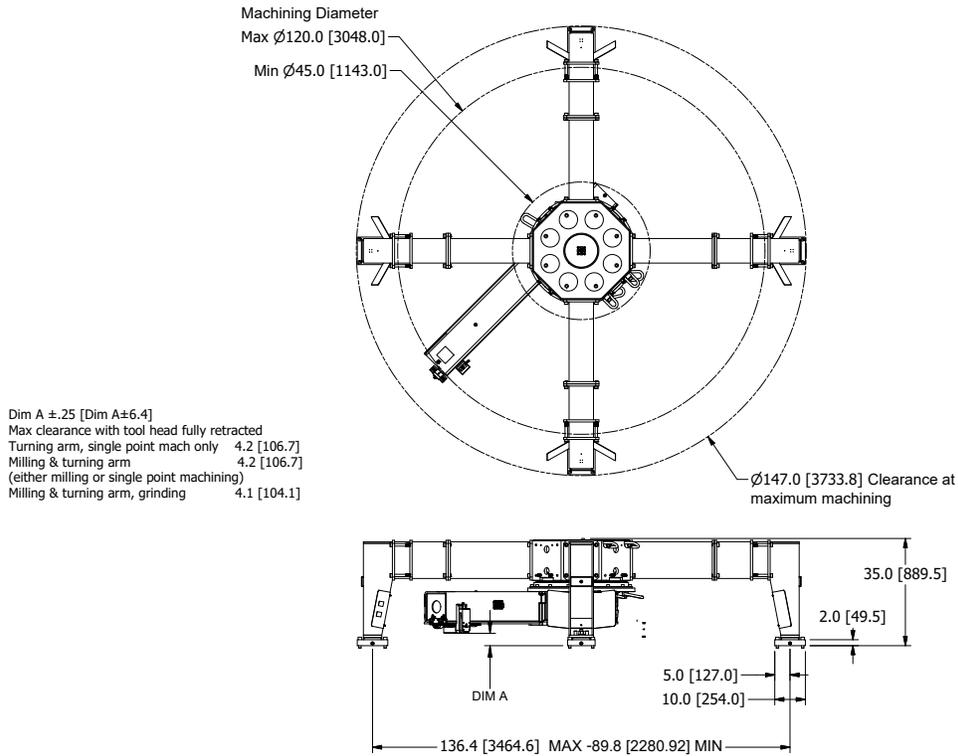


NOTE:  $\pm .25$  is travel of leveling foot

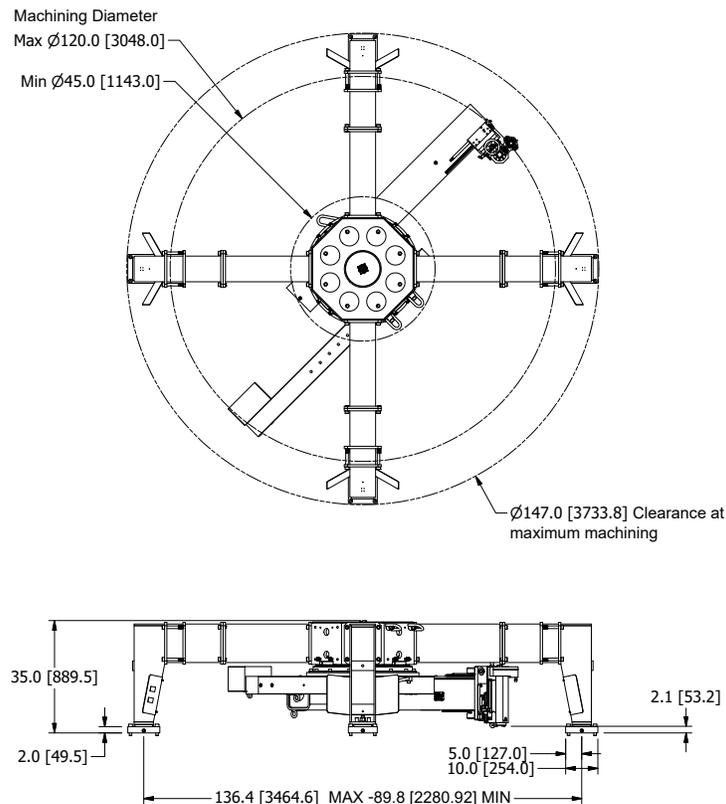
# OPERATIONAL DIMENSIONS

Dimensions in Inch (mm)

## OD Chuck Assembly, OD-Mount Configuration, Single-Point Machining



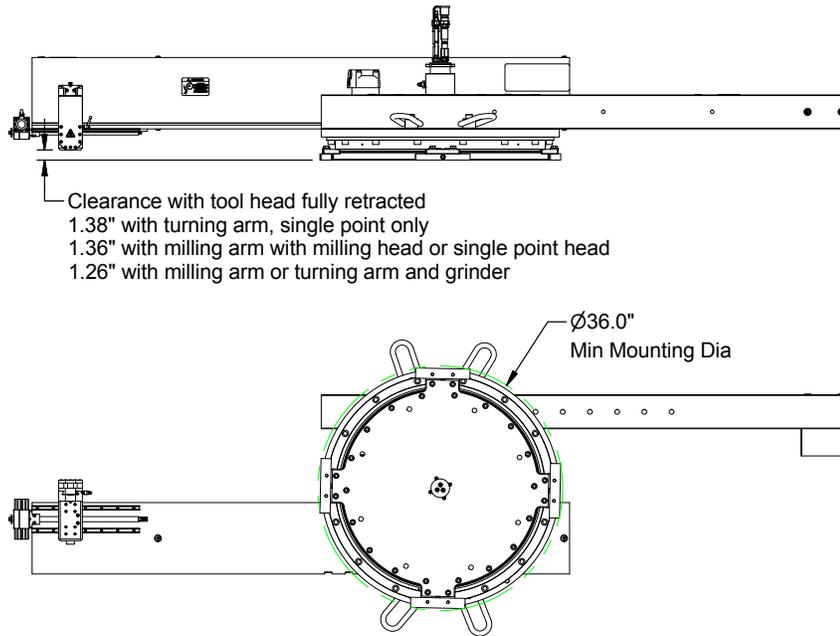
## OD Chuck Assembly, OD-Mount Configuration, Milling



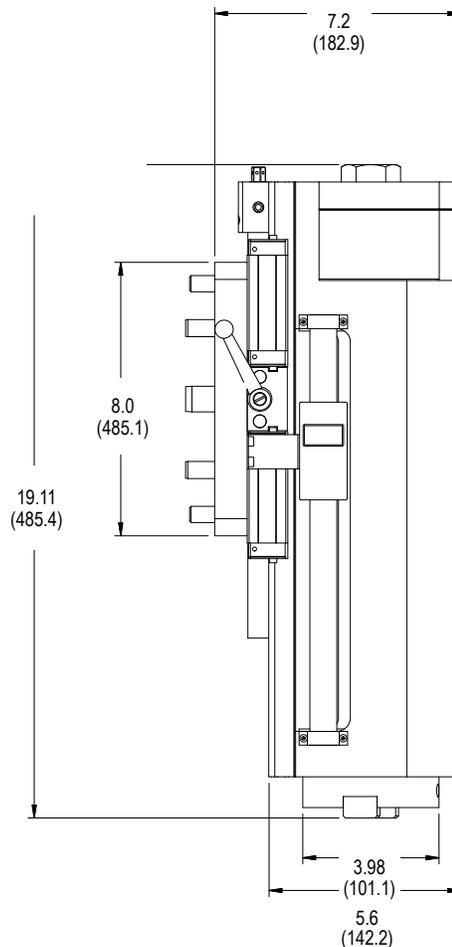
# OPERATIONAL DIMENSIONS

Dimensions in Inch (mm)

## Surface Mount Configuration, Milling



## Milling Head Assembly



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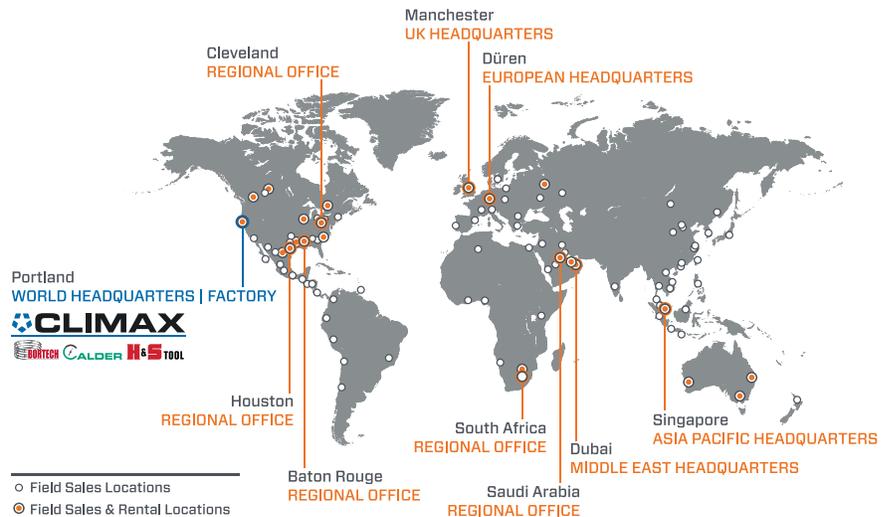
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