



# GRINDERS, TYPE-27 INSTRUCTION MANUAL

## 101 mm (4 in.) - 113 mm (4 1/2 in.)

### 12,000 RPM

## Important Safety Information

Please read, understand and follow all safety information contained in these instructions prior to the use of this tool.  
Retain these instructions for future reference.

## Intended Use










These pneumatic tools are intended for use in industrial locations, and used only by skilled, trained professionals in accordance with the instructions in this manual. These pneumatic tools are designed to be used with the appropriate size Type 27 Wheel for grinding metals. They should only be used for such grinding applications and within their marked capacity and ratings. Only accessories specifically recommended by 3M should be used with these tools. Use in any other manner or with other accessories could lead to unsafe operating conditions.

Do not operate tool in water or in an excessively wet application.


Do not use disc pads that have a Max RPM less than the tool Max RPM rating.


Tools shall be inspected periodically to verify that ratings, markings, and labels are legible. Contact 3M Company to obtain replacement labels.

### Summary of device labels containing safety information

Marking	Description
	 <b>WARNING:</b> READ AND UNDERSTAND INSTRUCTION MANUAL BEFORE OPERATING TOOL.
	 <b>WARNING:</b> ALWAYS WEAR APPROVED EYE PROTECTION
	 <b>WARNING:</b> ALWAYS WEAR APPROVED HEARING PROTECTION
	 <b>WARNING:</b> AVOID PROLONGED EXPOSURE TO VIBRATION
	Direction of Rotation
Prolonged vibration may cause injury	Vibration Safety Note
12,000 r/min	Maximum Rotational Speed
90 PSIG / 6.2 BAR MAX	Maximum Air Pressure
Use accessories rated at tool speed or higher	Accessories Speed Warning Note

## Explanation of Signal Word Consequences

 **WARNING:** Indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury and/or property damage.

 **CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and/or property damage.

**Read the Safety Data Sheets (SDS) before using any materials.**



Contact the suppliers of the workpiece materials and abrasive materials for copies of the SDS if one is not readily available.

### **WARNING**

Exposure to **DUST** generated from workpiece and/or abrasive materials can result in lung damage and/or other physical injury.

Use dust capture or local exhaust as stated in the SDS. Wear government-approved respiratory protection and eye and skin protection.

Failure to follow this warning can result in serious lung damage and/or physical injury.



## WARNING

### **To reduce the risks associated with impact from abrasive product or tool breakup, sharp edges, hazardous pressure, rupture, vibration and noise:**

- Read, understand and follow the safety information contained in these instructions prior to the use of this tool. Retain these instructions for future reference.
- Only personnel who are properly trained should be allowed to service this tool.
- Practice safety requirements. Work alert, have proper attire, and do not operate tools under the influence of alcohol or drugs.
- Operators and other personnel must always wear protection for eyes, ears, and respiratory protection when in the work area or while operating this product. Follow your employer's safety policy for PPE's and/or ANSI Z87.1 or local/national standards for eyewear and other personal protective equipment requirements.
- Wear leather apron or other protective apparel, taking into consideration the type of work being done.
- Never exceed marked maximum input pressure (90psi / .62Mpa / 6.2Bars).
- Proper eye protection must be worn at all times.
- Tool is not to be operated in the presence of bystanders.
- If you notice any abnormal noise or vibration when operating the product, immediately discontinue its use and inspect for worn or damaged abrasive product or accessories. Correct or replace the suspect component. If abnormal noise or vibration still exists, return the tool to 3M for repair or replacement. Refer to warranty instructions.
- Never operate this tool without all guards or safety features in place and in proper working order.
- Prior to use, ensure guard is oriented to protect the operator from flying fragments and is properly secured.
- Make sure the tool is disconnected from its air source before servicing, inspecting, maintaining, cleaning, and before changing abrasive product.
- Only use wheel retainers (flanges) and wheel arbors supplied by 3M.
- Never use this tool with Type 1 wheels or cut-off wheels.
- Prior to use, or if dropped or jammed, inspect wheel retainers and wheel arbors and abrasive product for possible chips, cracks or other damage, and insure the abrasive product is correctly secured. If damaged, or if safety labels cannot be read, replace with new abrasive product, wheel retainers, wheel arbors, and/or labels available from 3M.
- Never use a damaged grinder until it has been repaired.
- Never over-ride or disable the safety features of the start-stop control such that it is in the on position.
- Use only with mounting hardware recommended by 3M; check with 3M for mounting hardware requirements.
- If the tool is jammed, shut off the tool and ease it free. Ensure the abrasive product is correctly secured.
- Never allow this tool to be used by children or other untrained people.
- Do not leave an unattended tool connected to air source.

### **To reduce the risks associated with skin abrasion, burns, cutting & severing, impact or entrapment:**

- Never install grinding wheels in a grinder tool which is unguarded.
- Keep hands, hair, and clothing away from the cutting part of the tool.
- Wear suitable protective gloves while operating tool.
- Do not touch the rotating parts during operation for any reason.
- Do not force tool or use excessive force when using tool.

### **To reduce the risks associated with vibration:**

- If any physical hand/wrist discomfort is experienced, work should be stopped promptly to seek medical attention. Hand, wrist and arm injury may result from repetitive work, motion and overexposure to vibration.

### **To reduce the risks associated with loud noise:**

- Always wear hearing protection while operating this tool. Follow your employer's safety policy or local/national standards for personal protective equipment requirements

### **To reduce the risks associated with fire or explosion:**

- Do not operate the tool in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. The abrasives are able to create sparks when working material, resulting in the ignition of the flammable dust or fumes.
- Refer to MSDS of material being worked as to potential for creating fire or explosion hazard.

### **To reduce the risks associated with hazardous dust ingestion or eye/skin exposure:**

- Use appropriate respiratory and skin protection, or local exhaust as stated in the MSDS of the material being worked on.

### **To reduce the risks associated with hazardous voltage:**

- Do not allow this tool to come into contact with electrical power sources as the tool is not insulated against electrical shock.

## CAUTION!

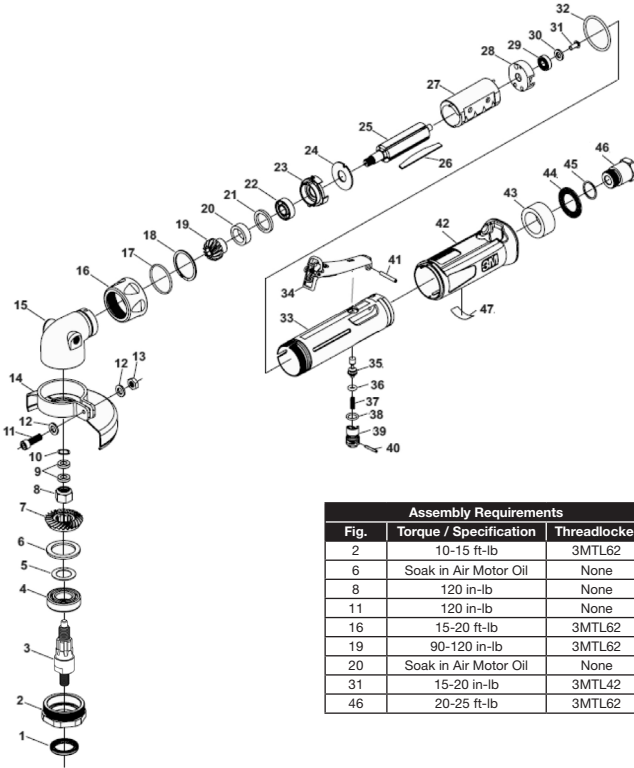
### **To reduce the risks associated with whipping or hazardous pressure/rupture:**

- Ensure supply hose is oil resistant and is properly rated for required working pressure.
- Do not use tools with loose or damaged air hoses or fittings.
- Be aware that incorrectly installed hoses and fittings might unexpectedly come loose at any time and create a whipping/impact hazard.

### **To reduce the risks associated with flying off of accessory parts:**

- Use care in attaching abrasive product and mounting hardware; following the instructions to ensure that they are securely attached to the tool before use.
- Never point this product in the direction of yourself or another person, or start tool unintentionally.
- Never over-tighten accessory fasteners.

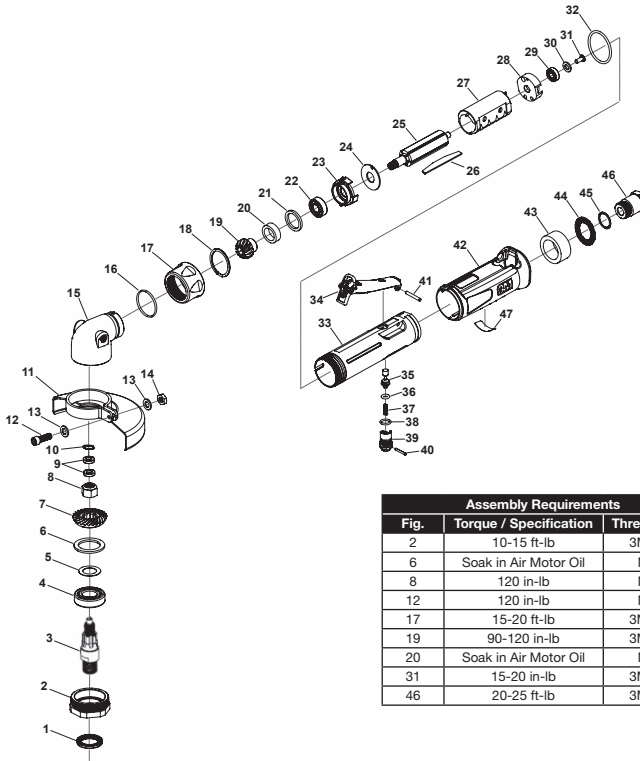
# PARTS LIST FOR PN 28403, 12000 RPM, 4" GRINDER, TYPE-27 (SERIES C)



Assembly Requirements		
Fig.	Torque / Specification	Threadlocker
2	10-15 ft-lb	3MTL62
6	Soak in Air Motor Oil	None
8	120 in-lb	None
11	120 in-lb	None
16	15-20 ft-lb	3MTL62
19	90-120 in-lb	3MTL62
20	Soak in Air Motor Oil	None
31	15-20 in-lb	3MTL42
46	20-25 ft-lb	3MTL62

Fig	3M PN	Description	Qty	Fig	3M PN	Description	Qty
1	87431	Grease Seal (21" x 29" x 4")	1	28	28981	Rear Endplate	1
2	87420	Bearing Retainer	1	29	06508	Ball Bearing (1/4" x 5/8" x 0.1961")	1
3	87432	3/8"-24 Spindle Shaft	1				
4	30367	Ball Bearing (17" x 35" x 10")	1	30	06567	Washer (0.251" x 0.468" x 0.063")	1
5	06648	Gear Spacer	1				
6	87419	Felt Washer (Output)	1	31	06568	Screw #8-32 x 3/8"	1
7	87421	Spiral Bevel Gear 12,000 RPM	1	32	06609	O-Ring (1.38" x 0.094")	1
8	87417	7/16"-20 Nylon Nut	1	33	28977	Steel Housing 1 HP	1
9	55144	Ball Bearing	2	34	06642	Lever Assembly	1
		0.500" x 0.25" x 0.125"		35	28980	Trigger Valve	1
10	87426	Wave Disc Spring (0.494" x 0.377" x 0.009")	1	36	28983	O-Ring	1
				37	06614	Spring	1
11	66767	Socket Cap Screw	1	38	06620	O-Ring	1
12	66766	Washer	2	39	06627	Air Regulator	1
13	55083	1/4"-20 Hex Nut	1	40	06616	Pin	1
14	87433	4" Type 27 Guard	1	41	87402	Roll Pin	1
15	87418	Angle Head	1	42	28978	Housing Cover 1 HP	1
16	87423	Clamp Nut	1	43	29006	Muffler	1
17	55079	O-Ring (1.19" x 0.063")	1	44	28982	Diffuser Screen	1
18	87424	Spiral Retaining Ring	1	45	29007	O-Ring	1
19	87422	Spiral Bevel Gear 12,000 RPM	1	46	28991	3/8" NPT Bushing	1
20	87429	Felt Washer (Input)	1	47	87126	Label	1
21	06652	Angle Head Spacer	1	Not shown	55082	Lower Wheel Flange	1
22	06510	Ball Bearing (3/8" x 7/8" x 9/32")	1	Not shown	55085	Upper Wheel Flange	1
				Not shown	55081	Spanner Wrench	1
23	28992	Front End Plate	1	Not shown	06524	5/8" Wrench	1
24	29004	Font Wear Plate	1				
25	06562	Rotor (5 Slot)	1				
26	28979	Vane Kevlar 1 HP (Set of 5)	1				
27	06563	Cylinder	1				

# PARTS LIST FOR PN 28405, 12000 RPM, 4 1/2" GRINDER, TYPE-27 (SERIES C)



Assembly Requirements		
Fig.	Torque / Specification	Threadlocker
2	10-15 ft-lb	3MTL62
6	Soak in Air Motor Oil	None
8	120 in-lb	None
12	120 in-lb	None
17	15-20 ft-lb	3MTL62
19	90-120 in-lb	3MTL62
20	Soak in Air Motor Oil	None
31	15-20 in-lb	3MTL42
46	20-25 ft-lb	3MTL62

Fig	3M PN	Description	Qty	Fig	3M PN	Description	Qty
1	87431	Grease Seal (21" x 29" x 4")	1	26	28979	Vane Kevlar 1 HP (Set of 5)	1
2	87420	Bearing Retainer	1	27	06563	Cylinder	1
3	87416	5/8" -11 Spindle Shaft	1	28	28981	Rear Endplate	1
4	30367	Ball Bearing (17" x 35" x 10")	1	29	06508	Ball Bearing	1
5	06648	Gear Spacer	1			(1/4" x 5/8" x 0.1961")	
6	87419	Felt Washer (Output)	1	30	06567	Washer	1
7	87421	Spiral Bevel Gear 12,000 RPM	1			(0.251" x 0.468" x 0.063")	
8	87417	7/16"-20 Nylon Nut	1	31	06568	Screw #8-32 x 3/8"	1
9	55144	Ball Bearing	2	32	06609	O-Ring (1.38" x 0.094")	1
		0.500" x 0.25" x 0.125"		33	28977	Steel Housing 1 HP	1
10	87426	Wave Disc Spring	1	34	06642	Lever Assembly	1
		(0.494" x 0.377" x 0.009")		35	28980	Trigger Valve	1
11	87437	4.5" Type 27 Grinder Guard	1	36	28983	O-Ring	1
12	66767	1/4"-20 x 3/4" Screw	1	37	06614	Spring	1
13	66766	Washer	2	38	06620	O-Ring (0.364" x 0.070")	1
14	55083	Hex Nut	1	39	06627	Air Regulator	1
15	87418	Angle Head	1	40	06616	Pin	1
16	55079	O-Ring (1.19" x 0.063")	1	41	87402	Roll Pin	1
17	87423	Clamp Nut	1	42	28978	Housing Cover 1 HP	1
18	87424	Spiral Retaining Ring	1	43	29006	Muffler	1
19	87422	Spiral Bevel Gear 12,000 RPM	1	44	28982	Diffuser Screen	1
20	87429	Felt Washer (Input)	1	45	29007	O-Ring	1
21	06652	Angle Head Spacer	1	46	28991	3/8" NPT Bushing	1
22	06510	Ball Bearing	1	47	87126	Label	1
		(3/8" x 7/8" x 9/32")		Not shown	06589	Wheel Flange	2
23	28992	Front End Plate	1	Not shown	55115	Spanner Wrench	1
24	29004	Font Wear Plate	1	Not shown	06524	5/8" Wrench	1
25	06562	Rotor (5 Slot)	1				

## Product Configuration/Specifications:

Model Number	Speed RPM	Spindle (in.)	Product Net WT. kg. (lb.)	Height mm (in.)	*Noise Level dBA Pressure (Power)	**Vibration Level m/s² (ft/s²)	**Uncertainty K m/s² (ft/s²)	Series Designation
28403	12,000	3/8-24 T-27	1.60 (3.53)	106 (4.25)	83.0 (94.6)	3.24 (10.63)	0.04 (0.13)	C
28405	12,000	5/8-11 T-27	1.71 (3.78)	106 (4.25)	83.7 (95.3)	6.61 (21.67)	0.26 (0.85)	C

\* Declared noise levels; measurements carried out in accordance with standard EN ISO 15744.

\*\* Declared vibration levels in accordance with EN ISO 20643 and EN ISO 28927.

**IMPORTANT NOTE:** The noise and vibration values stated in the table are from laboratory testing in conformity with stated codes and standards and are not sufficient risk evaluation for all exposure scenarios. The actual exposure values and amount of risk or harm experienced to an individual is unique to each situation and depends upon the surrounding environment, the way in which the individual works, the particular material being worked, work station design, as well as upon the exposure time and the physical condition of the user. 3M™ cannot be held responsible for the consequences of using declared values instead of actual exposure values for any individual risk assessment.

## Operating / Maintenance Instructions

### PRIOR TO THE OPERATION

The tool is intended to be operated as a hand held tool. It is always recommended that while using the tool, operators stand on a solid floor, in a secure position with a firm grip and footing. Be aware that the tool can develop a torque reaction. See the section "SAFETY PRECAUTIONS".

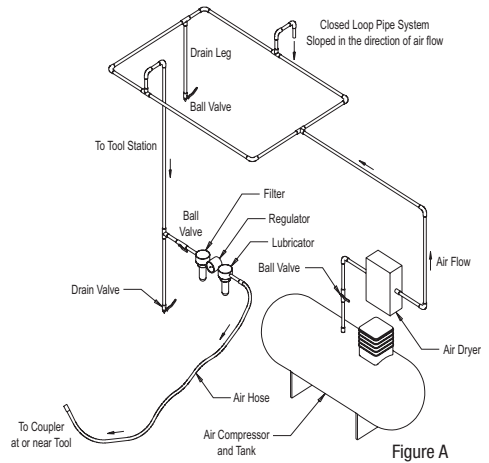
Use a clean lubricated air supply that will give a measured air pressure at the tool of 6.2 bar (90 psig) when the tool is running with the lever fully depressed. It is recommended to use an approved 10 mm (3/8 in) x 8 m (25 ft) maximum length airline. Connect the tool to the air supply as shown in Figure 1. Do not connect the tool to the airline system without an easily accessible air shut off valve. It is strongly recommended that an air filter, regulator and lubricator (FRL) be used as shown in Figure 1 as this will supply clean, lubricated air at the correct pressure to the tool. In any case appropriate air pressure regulators shall be used at all times while operating this tool where the supply pressure exceeds the marked maximum of the tool. Details of such equipment can be obtained for your tool distributor. If such equipment is not used, the tool should be manually lubricated. To manually lubricate the tool, disconnect the airline and put 2 to 3 drops of suitable pneumatic motor lubricating oil such as 3M™ Air Tool Lubricant PN 20451 (or equivalent 10 centistoke oil) into the air inlet of the tool. Reconnect tool to the air supply and run tool slowly for a few seconds to allow air to circulate the oil. If the tool is used frequently, lubricate it on a daily basis or lubricate it if the tool starts to slow or lose power. It is recommended that the air pressure at the tool be 6.2 bar (90 psig) while the tool is running so the maximum RPM is not exceeded. The tool can be run at lower pressures but should never be run higher than 6.2 bar (90 psig). If run at lower pressure the performance of the tool is reduced.

Recommended Airline Size - Minimum		Recommended Maximum Hose Length		Air Pressure		
10mm	3/8 in	8 meters	25 feet	Maximum Working Pressure	6.2 bar	90psig
				Recommended Minimum	NA	NA

For Series C grinders, the angle head and gears have been designed to last the life of the tool without periodic maintenance. When rebuilding or repairing the tool, lubricate angle head with Castrol Longtime PD 00 grease or equivalent lithium thickener, NCGI Grade 00 grease, 1 tsp approximate quantity.

## Safety Precautions

1. Read all instructions before using this tool. All operators must be fully trained in its use and aware of these safety rules.
2. The tool RPM should be checked on a regular basis (at shift change).
3. Make sure the tool is disconnected from the air supply. Select a suitable abrasive grinding wheel and secure it to the mounting shaft using the wheel retainer and wheel arbor supplied with the tool. Be careful to center the grinding wheel on the wheel retainer and or arbor before tightening the wheel retainer nut. Do not over tighten the wheel retainer or you will crack the wheel.
4. Always wear required safety equipment when using this tool.
5. Always remove the air supply to the tool before fitting, adjusting or removing the abrasive grinding wheel.
6. Always adopt a firm footing and grip and be aware of torque reaction developed by the tool.
7. Use only 3M approved spare parts.
8. Always ensure the material being worked is firmly fixed to avoid movement.
9. Check hose and fittings regularly for wear. Do not carry the tool by its hose; always be careful to prevent the tool from being started when carrying the tool with the air supply connected.
10. Dust can be highly combustible. Keep working area clean.
11. If tool is serviced or rebuilt check to ensure that the maximum tool RPM is not exceeded and that there is no excessive tool vibration.
12. Do not exceed maximum recommended air pressure. Use safety equipment as recommended.
13. Prior to installing any abrasive grinding wheel, always check that its marked maximum operating speed is equal or higher than the rated speed of this tool.
14. The tool is not electrically insulated. Do not use where there is a possibility of contact with live electricity, gas pipes, and/or water pipes.
15. Take care to avoid entanglement with the moving parts of the tool with clothing, ties, hair, cleaning rags or loose hanging objects. If entangled, stop air supply immediately to avoid contact with moving tool parts.
16. Keep hands clear of the spinning grinding wheel during use.
17. If the tool appears to malfunction, remove from use immediately and arrange for service and repair.
18. Do not allow the tool to free spin without taking precautions to protect any persons or objects from the rupture of the abrasive grinding wheel.
19. Immediately release the start handle in the event of any disruption of pressure; do not attempt to re-start until the disruption has been corrected.
20. When tool is not in use, store in a clean, dry environment free of debris and in a manner that ensures that the grinding wheel is not damaged.
21. Fixture workpiece such that the grinding cut slot is kept at a constant or increasing width during the operation.
22. Operate tool in a well lit work area.
23. Recycle or dispose of tool according to Local, State, and Federal regulations.
24. Whenever performing maintenance procedures, use care to avoid exposure to any hazardous substances deposited on the tool as a result of work processes. Also, refer to warnings related to dust exposure.
25. Ensure that the abrasive product is correctly mounted and tightened before use and run the tool at no-load speed for at least 1 min in a safe position; stop immediately if considerable vibration or other defects are detected and determine the cause of these defects.
26. Whenever universal twist couplings (claw couplings) are used, lock-pins shall be installed and whip check safety cables shall be used to safeguard against possible hose-to-tool and hose-to-hose connection failure.



## 3M™ Type 27 Grinding Wheels and Accessories

3M Type 27 Grinding Wheels and Accessories are designed specifically for use on the 3M Type 27 Grinders.

See 3M ASD Accessories to Optimize Performance catalog 61-5002-8098-9 and Engineered Metalworking Solutions catalog 61-5002-8097-1 for additional accessories.

## Related Products

Choose from full line of 3M™ quality abrasives and these complimentary accessories to optimize tool performance.

Tool Spindle Thread Size Adapters			
3M PN	UPC PN	Description	Size (in)
00009	22970	No. 9 Disc Holder Adapter	5/8-11 EXT 3/8-24 INT
00009	22971	No. 9 Disc Holder Adapter with M10 Thread	5/8-11 EXT M10-1.25 INT

Refer to ANSI B7.1-2000 Safety Requirements for Use, Care and Protection of Abrasive Wheels and ISO/EN 12413 Safety. Requirements for Bonded Abrasive Products for proper abrasive wheel applications.

## 3M™ Fibre Discs and Accessories

3M Fibre Discs and Accessories are designed specifically for use on the 3M Type 27 Grinders and Sanders.

Fibre Disc Mounting Accessories			
3M PN	UPC PN	Description	Size (in)
28442	28442	Disc Pad Hub For Short Shaft Tools	2 1/2 x 3/8-24 INT
28476	28476	Low Profile Disc Pad Hub	2 1/2 x 5/8-11 INT
28443	28443	Disc Pad Face Plate Ribbed, Extra Hard Red	4 1/2

## 3M™ Disc Pad Accessories

3M Disc Pad Accessories are designed specifically for use on the 3M Type 27 Grinders and Sanders.

Disc Pad Accessories			
3M PN	UPC PN	Description	Size (in)
02286	56479	Roloc™ Cool Running Disc Pad for 3/8-24 Spindle	4 x 3/8-24 INT
28474	28474	Roloc™ Disc Pad, Hard for 3/8-24 Spindle	4 x 3/8-24 INT
28475	28475	Roloc™ Disc Pad, Extra Hard for 3/8-24 Spindle	4 x 3/8-24 INT
28473	28473	Roloc™ Cool Running Disc Pad for 5/8-11 Spindle	4 x 5/8-11 INT
83489	83489	Roloc™ Disc Pad, Hard for 5/8-11 Spindle	4 x 5/8-11 INT
83980	83980	Roloc™ Disc Pad, Extra Hard for 5/8-11 Spindle	4 x 5/8-11 INT

## Type 27 Wheel Mounting Hardware and Usage

Type 27 Grinding Wheels are also known as Depressed Center Grinding Wheels. They have a dish shaped center to allow the lower mounting hardware or flange to be recessed into the wheel. This allows the wheel to be used in a nearly flat orientation when needed.

Model 28403 has a 3/8"-24 spindle to be used with Type 27 Grinding Wheels with 3/8" center holes (CH).

Model 28405 has a 5/8"-11 spindle and can use wheels with either 16 mm or 7/8" center holes (CH).

Model 28403 can accommodate an adapter to change the spindle to 5/8"-11 spindle to allow the use of wheels with either 16 mm or 7/8" center holes (CH).

Refer to ANSI B7.1-2000 Safety Requirements for Use, Care and Protection of Abrasive Wheels and ISO/EN 12413 Safety Requirements for Bonded Abrasive Products for proper abrasive wheel applications.

### MOUNTING 3/8" CENTER HOLE TYPE 27 WHEELS

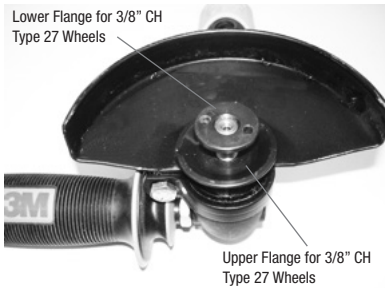


Figure 1

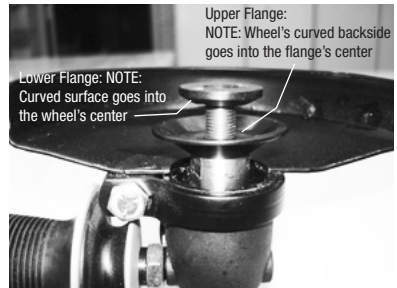


Figure 2



Figure 3a

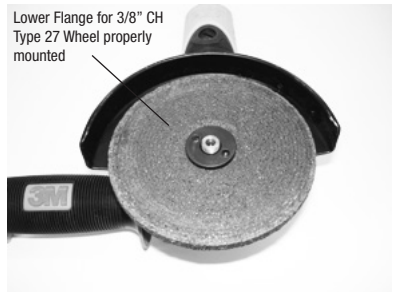


Figure 3b



**MOUNTING 7/8" CENTER HOLE TYPE 27 WHEELS**

Type 27 Wheels with 7/8" center holes (CH) may use flat flanges that have a 7/8" lip to center the wheel.

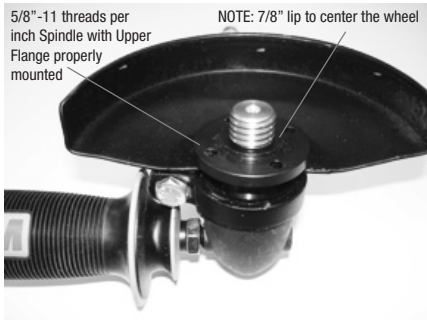


Figure 4

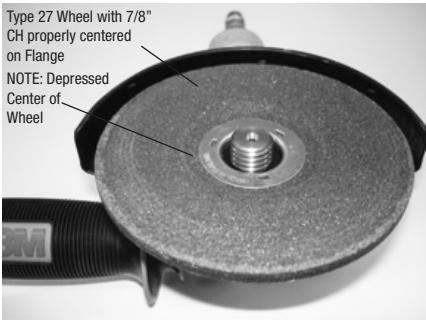


Figure 5

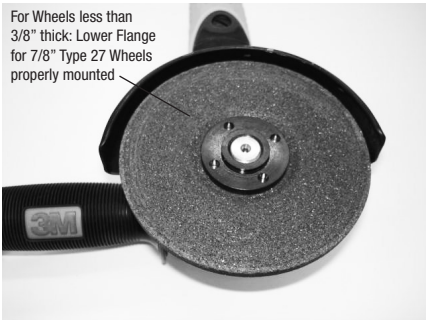


Figure 6

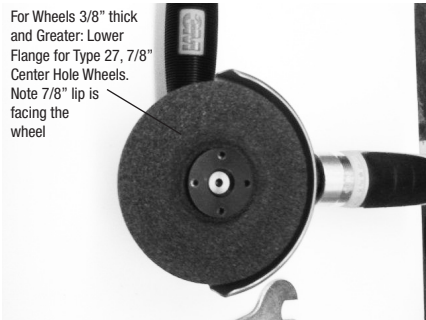


Figure 6A



Figure 6B

**DUAL SIZE FLANGES FOR 3/8-24 SPINDLE TOOLS**

Models 28403 and 28413 can take a Dual Size Flange Set to allow the use of wheels with either 16 mm or 7/8" center holes (CH).

NOTE: Both flanges must face the wheel with the same size lip inserted in the wheel's center hole.

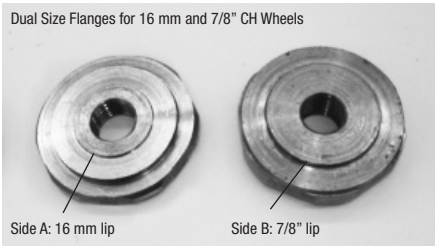


Figure 7

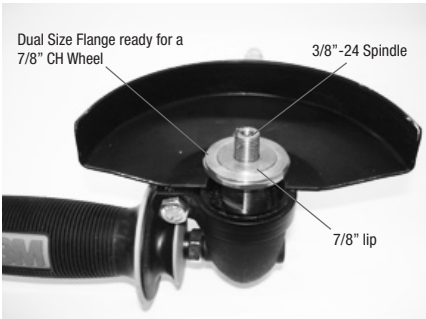


Figure 8



Figure 9

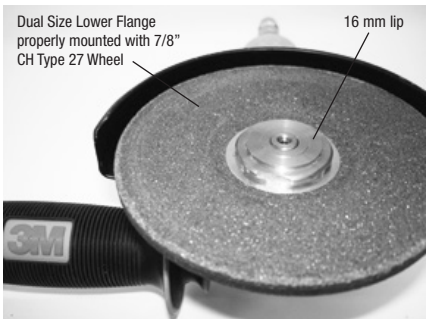


Figure 10

## 3M™ Fibre Disc Mounting Hardware and Usage

Fibre Discs are a non-bonded abrasive disc, (not a wheel) and may be mounted to Grinders for some similar metal working applications as Type 27 Wheels.

### FIBRE DISC MOUNTING HUBS AND DISC PLATES

The Hub attaches to the spindle of the tool. It provides a mounting base for the Disc Pad Face Plate.



Figure 11

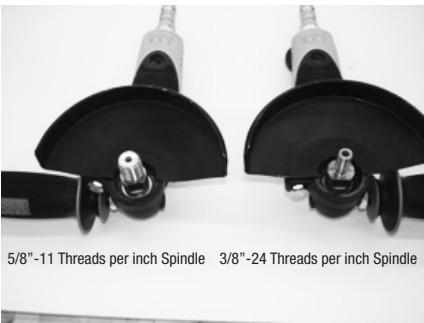


Figure 12



Figure 13

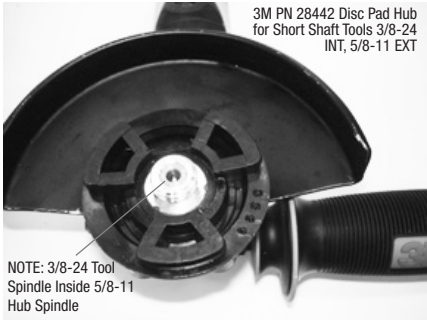


Figure 14

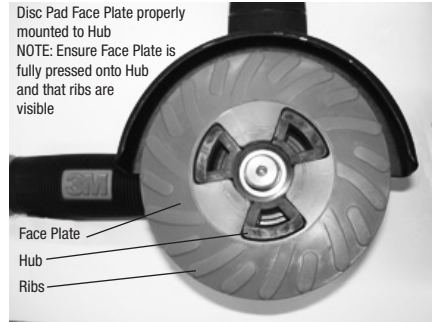


Figure 15

#### DISC RETAINER NUT AND TN QUICK CHANGE CENTER THREADED FIBRE DISCS

Fibre Discs can be held in place by a Disc Retainer Nut or by a pre-installed threaded center hub on the Fibre Disc itself (TN Quick Change System).



Figure 16



Figure 17

NOTE: Ensure TN Quick Change Disc or Disc Retainer Nut are fully tightened onto the 5/8-11 spindle.

NOTE: A Disc Retainer Nut is not required if a TN Quick Change disc is mounted.

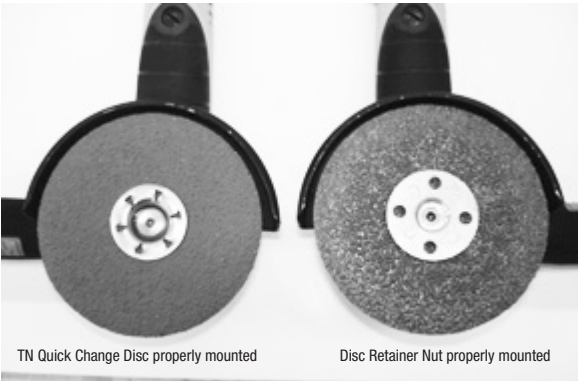


Figure 18

**Warranty and Limited Remedy:** 3M warrants this tool against defects in workmanship and materials under normal operating conditions for one (1) year from the date of purchase. 3M MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property. User must operate the tool in accordance with all applicable operating instructions, safety precautions, and other procedures stated in the operating manual to be entitled to warranty coverage. 3M shall have no obligation to repair or replace any tool or part that fails due to normal wear, inadequate or improper maintenance, inadequate cleaning, non-lubrication, improper operating environment, improper utilities, operator error or misuse, alteration or modification, mishandling, lack of reasonable care, or due to any accidental cause. If a tool or any part thereof is defective within this warranty period, your exclusive remedy and 3M's sole obligation will be, at 3M's option, to repair or replace the tool or refund the purchase price.

**Limitation of Liability:** Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

**Submitting a Warranty Claim:** Contact you dealer when submitting a warranty claim in accordance with the restrictions listed above. Please note that all warranty claims are subject to manufacturer's approval. Be sure to keep you sales receipt in a safe place. This must be submitted when filing a warranty claim, within 1 year from the date of purchase. For additional assistance call 1-800-362-3550 (choose option 3, then option 5).

**Product Repair after Warranty Has Expired:** Repair of 3M Abrasive Power tools that are not under warranty is available through 3M or a 3M Authorized Tool Repair Representative. Contact your 3M Abrasive Power Tool Distributor for details, or call 1-800-362-3550.

**For 3M Product Information Call:**  
800-3M HELPS (800-364-3577) toll free  
651-737-6501 direct dial

EC Declaration of Conformity



**Manufacturers Name:** 3M, Abrasive Systems Division  
**Manufacturers Address:** 3M Center, Building 223-6N-02  
St Paul, MN USA 55144

Does hereby declare under our sole responsibility that the machinery described below complies with those applicable essential health and safety requirements of the Machinery Directive 2006/42/EC; together with all amendments to date.

**Descriptions:** 3M™ Grinder 28403, T27, 4 inch, 3/8-24 EXT, 1 HP, 12,000 RPM  
3M™ Grinder 28405, T27, 4.5 inch, 5/8-11 EXT, 1 HP, 12,000 RPM

**Model Number:** 28403, 28405

**Serial Number Range:** DTYDDDS – Z###, where:  
DT = Manufacturing Location Code  
Y = Last Digit of Year of Production  
DDD = Sequential Day of the Year of Production  
S = The Shift During Which the Product was Produced  
Z = Series Designation  
#### = Four Sequential Numbers Starting Over at 0001 when 9999 is Reached

The following standards have either been referred to, or complied with, in full or in part as relevant:

EN ISO 12100:2010	Safety of machinery. General principles for design. Risk assessment and risk reduction
EN ISO 11148-7:2012	Hand-held non-electric power tools – Safety Requirements – Part 7: Grinders
EN ISO 28927-1:2009	Hand-held portable power tools - Test methods for evaluation of vibration emission - Part 1: Angle and vertical grinders
EN ISO 15744:2008	Hand-held non-electric power tools. Noise measurement code. Engineering method (grade 2)

**Full Name of responsible person.**

Betty Z. Mei **Position:** Technical Director

**Signature:** *Betty Z Mei* **Date:** *8/1/2017*  
St. Paul, Minnesota, USA

**Full Name and address of individual responsible to compile technical file within the Community:**

Ms. Anne Keese – Senior Engineer Product Steward, R&D Service, 3M Deutschland GmbH, Carl-Schurz-Strasse 1, D41453 Neuss, Germany