



# 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 grinding wheels that have a Max RPM less than the marked RPM rating on the tool.

### Summary of device labels containing safety information

Marking	Description
	<b>WARNING:</b> Refer to Instruction Manual
	Direction of Rotation
90psi / .62Mpa / 6.2Bars Max	Maximum Pneumatic Inlet Pressure
12,000 RPM	Maximum Rotational Speed
Use accessories rated at tool RPM or higher	Accessories Safety Note
Prolonged vibration may cause injury	Vibration Safety 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 Material Safety Data Sheets (MSDS) before using any materials.



Contact the suppliers of the workplace materials and abrasive materials for copies of the MSDS 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 MSDS. 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.

## WARNING

- 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**

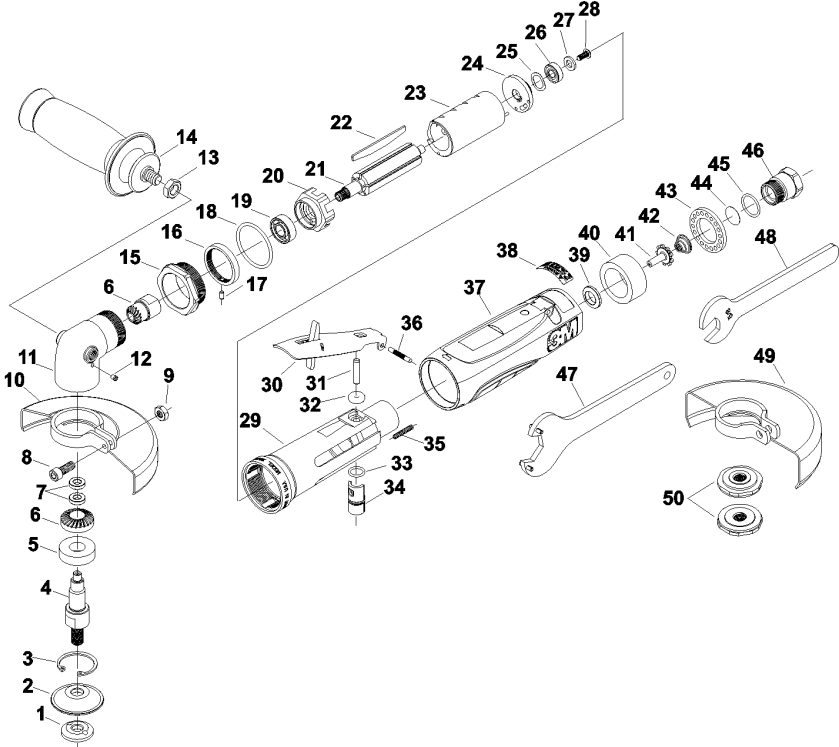


Fig. Number	3M P/N	Description	Qty	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1	55082	Retainer-Grinding Wheel	1	06638	Housing	1																			
2	55085	Wheel Flange	1	06642	Lever	1																			
3	55088	Retaining Ring	1	06558	Torr Pin, 3/16" x 7/8"	1																			
4	55101	Output Spindle 3/8-24 Thread	1	06543	O-Ring	1																			
5	55078	Ball Bearing	1	06511	O-Ring	1																			
6	55113	Gear Set	1	06536	Regulator	1																			
7	55114	Ball Bearing .500" x .25" x .125" (2)	2	06537	Screw, 6-32 x 3/4 Set Soc Hex	1																			
8	55076	Socket Head Hex Screw, 1/4-20	1	06538	Groove Pin, 1/8" x 7/8" Type E	1																			
9	55083	Hex Nut, 1/4-20	1	06539	Housing Cover	1																			
10	55109	4" Type 27 Guard	1	06540	Warning Label	1																			
11	55111	Angle Head	1	06541	Throttle Valve Seat	1																			
12	06523	Grease Fitting	1	06542	Muffler	1																			
13	06503	Jam Nut	1	06543	Throttle Valve	1																			
14	28402	Side Handle 3/8-16 EXT Thread, 3M PN28402	1	06544	Taper Spring	1																			
15	06653	Angle Head Clamp Nut	1	06545	Exhaust Deflector	1																			
17	06520	Pin, 1/8" x 1/4"	1	06546	Screen	1																			
18	06609	O-Ring	1	06608	O-Ring, 1/16" x 5/8" x 3/4"	1																			
19	06510	Ball Bearing 3/8" x 7/8" x 9/32"	1	55107	Bushing, 3/8" NPT	1																			
20	06639	Front End Plate	1	55081	Spanner Wrench	1																			
21	06562	Rotor	1	06524	5/8" Wrench	1																			
22	06643	Vane, Set of 5	1	55106	4.5" Guard (flat back)	1																			
23	06563	Cylinder	1	55100	Flange (2)	1																			
24	06560	Rear End Plate	1	NA	Commercially Available	1																			
25	06527	Wave Washer .440" x .618" x .008"	1																						
26	06508	Ball Bearing	1																						
27	06567	Washer .251" x .468" x .063"	1																						
28	06568	Screw #8-32 X 3/8 But Hd Cap	1																						

**PARTS LIST FOR PN 28405, 12000 RPM, 4 1/2" GRINDER, TYPE-27**

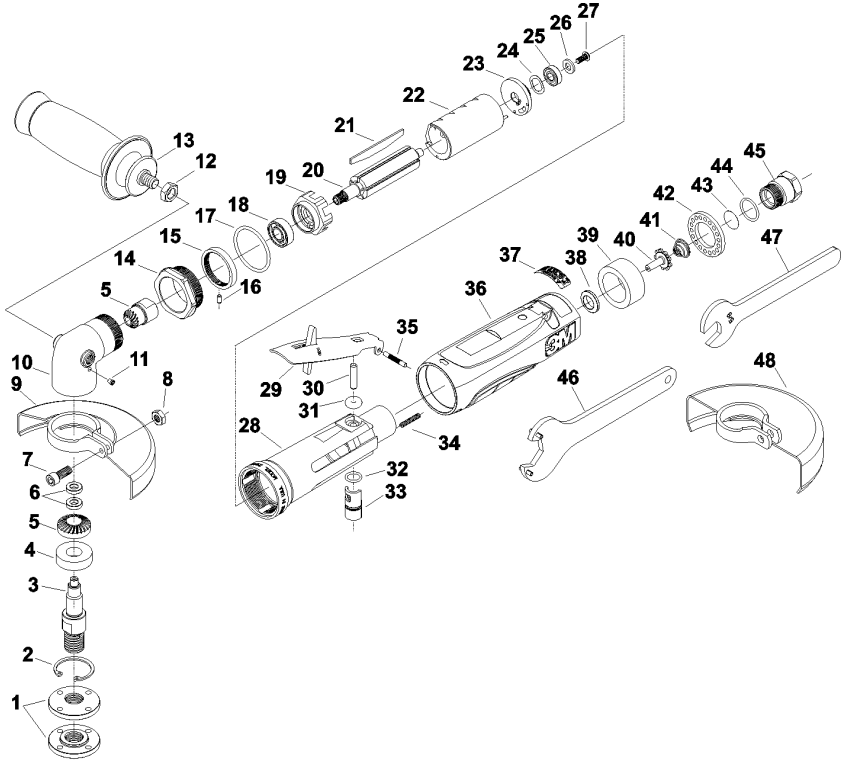


Fig. Number	3M P/N	Description	Qty				
1	06589	Wheel Arbor	2	26	06567	Washer .251" x .468" x .063"	1
2	55088	Retaining Ring	1	27	06568	Screw #8-32 x 3/8 But Hd Cap	1
3	55112	Output Spindle 5/8-11 Thread	1	28	06638	Housing	1
4	55078	Ball Bearing	1	29	06642	Lever	1
5	55113	Gear Set	1	30	06558	Torr Pin, 3/16" x 7/8"	1
6	55114	Ball Bearing .500" x .25" x .125" (2)	2	31	06543	O-Ring	1
7	55076	Socket Head Hex Screw, 1/4-20	1	32	06511	O-Ring	1
8	55083	Hex Nut, 1/4-20	1	33	06556	Regulator	1
9	55108	4-1/2" Type 27 Guard	1	34	06501	Screw, 6-32 x 3/4 Set Soc Hex	1
10	55111	Angle Head	1	35	06559	Groove Pin, 1/8" x 7/8" Type E	1
11	06523	Grease Fitting	1	36	06598	Housing Cover	1
12	06503	Jam Nut	1	37	06566	Warning Label	1
13	28402	Side Handle 3/8-16 EXT Thread, 3M PN28402	1	38	06552	Throttle Valve Seat	1
14	06653	Angle Head Clamp Nut	1	39	06557	Muffler	1
15	06655	Lock Ring	1	40	06553	Throttle Valve	1
16	06520	Pin, 1/8" x 1/4"	1	41	06554	Taper Spring	1
17	06609	O-Ring	1	42	55084	Exhaust Deflector	1
18	06510	Ball Bearing 3/8" x 7/8" x 9/32"	1	43	06555	Screen	1
19	06639	Front End Plate	1	44	06608	O-Ring, 1/16" x 5/8" x 3/4"	1
20	06562	Rotor	1	45	55107	Bushing, 3/8" NPT	1
21	06643	Vane, Set of 5	1	46	55115	Spanner Wrench	1
22	06563	Cylinder	1	47	06524	5/8" Wrench	1
23	06560	Rear End Plate	1	48	55106	4.5" Guard (flat back)	OPT
24	06527	Wave Washer .440" x .618" x .008"	1	NA	Commercially Available	Adapter 3/8" NPT - 1/4" NPT	1
25	06508	Ball Bearing	1				

**PARTS LIST FOR PN 28413, 12000 RPM, 4" GRINDER, TYPE-27 EXTENDED**

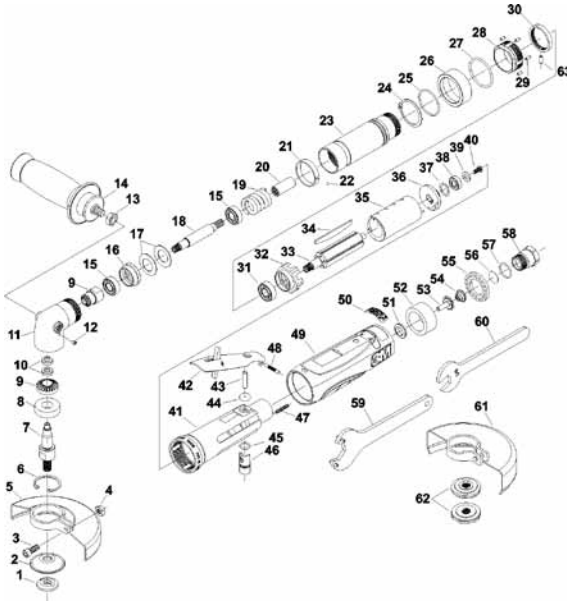


Fig. number	3M P/N	Description	Qty				
1	55082	Retainer-Grinding Wheel	1	35	06563	Cylinder	1
2	55085	Wheel Flange	1	36	06560	Rear End Plate	1
3	55076	Socket Head Hex Screw, 1/4-20	1	37	06527	Wave Washer .440" x .618" x .008"	1
4	55083	Hex Nut, 1/4-20	1				
5	55109	4" Type 27 Guard	1	38	06508	Ball Bearing	1
6	55088	Retaining Ring	1	39	06567	Washer .251" x .468" x .063"	1
7	55101	Output Spindle 3/8-24 Thread	1	40	06568	Screw #8-32 X 3/8 But Hd Cap	1
8	55078	Ball Bearing	1	41	55099	Housing	1
9	55113	Gear Set	1	42	06642	Lever	1
10	55114	Ball Bearing .500" x.25" x.125" (2)	2	43	06558	Torr Pin, 3/16" x 7/8"	1
11	55111	Angle Head	1	44	06543	O-Ring	1
12	06523	Grease Fitting	1	45	06511	O-Ring	1
13	06503	Jam Nut	1	46	06556	Regulator	1
14	28402	Side Handle 3/8-16 EXT Thread, 3M PN28402	1	47	06501	Screw, 6-32 x 3/4 Set Soc Hex	1
15	06510	Ball Bearing 3/8" x 7/8" x 9/32"	1	48	06559	Groove Pin, 1/8" x 7/8" Type E	1
16	55092	Bearing Holder	1	49	06598	Housing Cover	1
17	55110	Disc Spring (2)	2	50	06566	Warning Label	1
18	55093	Shaft	1	51	06552	Throttle Valve Seat	1
19	55097	Spring	1	52	06557	Muffler	1
20	55091	Coupler	1	53	06553	Throttle Valve	1
21	55095	Retainer	1	54	06554	Taper Spring	1
22	55077	Set Screw	1	55	55084	Exhaust Deflector	1
23	55096	Extension Housing	1	56	06555	Screen	1
24	55103	Retaining Ring	1	57	06608	O-Ring, 1/16" x 5/8" x 3/4"	1
25	55079	O-Ring	1	58	55098	LH Thread Bushing 3/8" NPT	1
26	55090	Cover	1	59	55081	Spanner Wrench	1
27	06609	O-Ring	1	60	06524	5/8" Wrench	1
28	55089	Locking Clamp Nut	1	61	55106	4.5" Guard (flat back)	OPT
29	06520	Pin, 1/8" x 1/4"	5	62	55100	Flange (2)	2
30	55218	Lock Ring with 6-32 Thread	1	63	55217	6-32 x 1/4" Socket Head Set Screw	1
31	06510	Ball Bearing 3/8" x 7/8" x 9/32"	1				
32	06639	Front End Plate	1				
33	06562	Rotor	1				
34	06643	Vane, Set of 5	1				

## PARTS LIST FOR PN 28414, 12000 RPM, 4 1/2" GRINDER, TYPE-27 EXTENDED

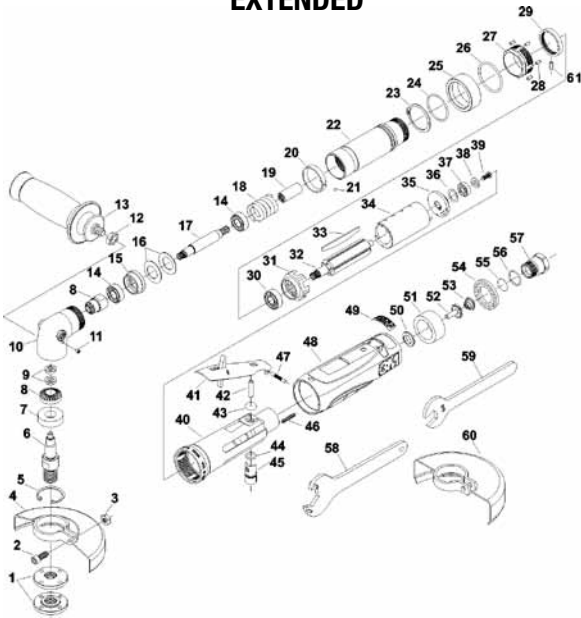


Fig. number	3M P/N	Description	Qty				
				33	06643	Vane, Set of 5	1
1	06589	Wheel Arbor	2	34	06563	Cylinder	1
2	55076	Socket Head Hex Screw, 1/4-20	1	35	06560	Rear End Plate	1
3	55083	Hex Nut, 1/4-20	1	36	06527	Wave Washer .440" x .618" x .008"	1
4	55108	4-1/2" Type 27 Guard	1	37	06508	Ball Bearing	1
5	55088	Retaining Ring	1	38	06567	Washer .251" x .468" x .063"	1
6	55112	Output Spindle 5/8-11 Thread	1	39	06568	Screw #8-32 x 3/8 But Hd Cap	1
7	55078	Ball Bearing	1	40	06638	Housing	1
8	55113	Gear Set	1	41	06642	Lever	1
9	55114	Ball Bearing .500" x .25" x .125" (2)	2	42	06558	Torr Pin, 3/16" x 7/8"	1
10	55111	Angle Head	1	43	06543	O-Ring	1
11	06523	Grease Fitting	1	44	06511	O-Ring	1
12	06503	Jam Nut	1	45	06556	Regulator	1
13	28402	Side Handle 3/8-16 EXT Thread, 3M PN28402	1	46	06501	Screw, 6-32 x 3/4 Set Soc Hex	1
14	06510	Ball Bearing 3/8" x 7/8" x 9/32"	1	47	06559	Groove Pin, 1/8" x 7/8" Type E	1
15	55092	Bearing Holder	1	48	06598	Housing Cover	1
16	55110	Disc Spring (2)	2	49	06566	Warning Label	1
17	55093	Shaft	1	50	06552	Throttle Valve Seat	1
18	55097	Spring	1	51	06557	Muffler	1
19	55091	Coupler	1	52	06553	Throttle Valve	1
20	55095	Retainer	1	53	06554	Taper Spring	1
21	55077	Set Screw	1	54	55084	Exhaust Deflector	1
22	55096	Extension Housing	1	55	06555	Screen	1
23	55103	Retaining Ring	1	56	06608	O-Ring, 1/16" x 5/8" x 3/4"	1
24	55079	O-Ring	1	57	55098	LH Thread Bushing 3/8" NPT	1
25	55090	Cover	1	58	55115	Spanner Wrench	1
26	06609	O-Ring	1	59	06524	5/8" Wrench	1
27	55089	Locking Clamp Nut	1	60	55106	4.5" Guard (flat back)	1
28	06520	Pin, 1/8" x 1/4"	5	61	55217	6-32 x 1/4" Socket Head Set Screw	1
29	55218	Lock Ring with 6-32 Thread	1				
30	06510	Ball Bearing 3/8" x 7/8" x 9/32"	1				
31	06639	Front End Plate	1				
32	06562	Rotor	1				

## Product Configuration/Specifications:

Model Number	Speed RPM	Spindle (in.)	Neck Type	Product Net WT. kg. (lb.)	Height mm (in.)	Length mm (in.)	*Noise Level dBA Pressure (Power)	**Vibration Level m/s <sup>2</sup> (ft/s <sup>2</sup> )	**Uncertainty K m/s <sup>2</sup>
28403	12,000	3/8-24 T-27	Short	1.21 (2.66)	114 (4.5)	216 (8.5)	86.4 (98.0)	3.1 (10.1)	0.03
28405	12,000	5/8-11 T-27	Short	1.29 (2.84)	119 (4.7)	216 (8.5)	84.9 (98.5)	7.1 (23.3)	0.12
28413	12,000	3/8-24 T-27	Extended	1.75 (3.85)	114 (4.5)	292 (11.5)	91.0 (102.6)	3.9 (12.8)	0.17
28414	12,000	5/8-11 T-27	Extended	1.83 (4.03)	119 (4.7)	292 (11.5)	86.0 (94.6)	5.7 (18.7)	0.05

\* 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 28927-1.

**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, Fuji Kosan FK-20, Mobil ALMO 525 into the hose end (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		
10 mm	3/8 in	8 meters	25 feet	Maximum Working Pressure	6.2 bar	90 psig
12.7 mm	1/2 in			Recommended Minimum	NA	NA

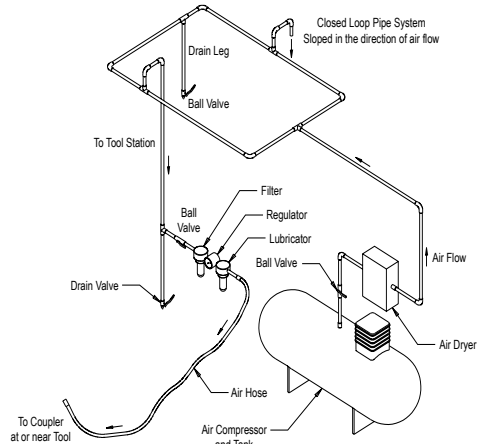
Lubricate the angle head every 6-8 working hours with premium grease with the following properties:

- High and low temperature performance
- Shear stable
- Anti-wear protection
- Low viscosity base flare for high speed application
- Very low coefficient of friction

Fuchs Renolit AX S2 or equal is recommended. Grease gun and grease available from your grease supplier.

## 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.



## 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.

Models 28403 and 28413 have 3/8"-24 threads per inch spindles. They can use Type 27 Grinding Wheels with 3/8" center holes (CH).

Models 28405 and 28414 have 5/8"-11 threads per inch spindles and can use wheels with either 16 mm or 7/8" center holes (CH).

Models 28403 and 28413 can accommodate an adapter to change the spindle to a 5/8"-11 threads per inch 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

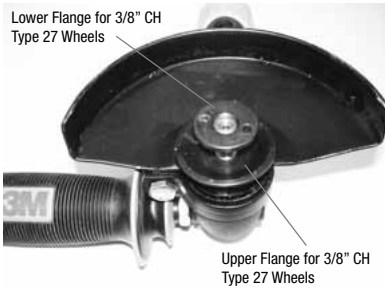


Figure 1

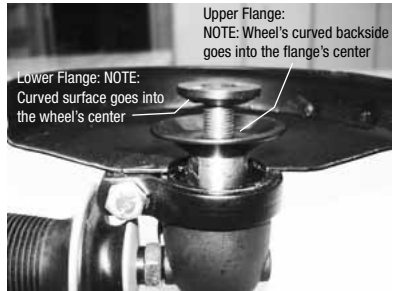


Figure 2



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.

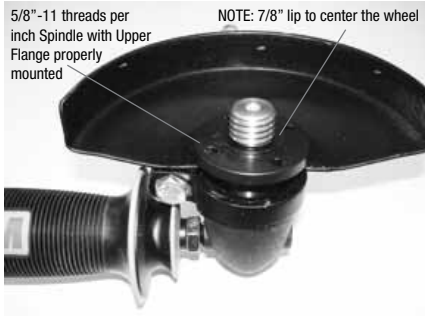


Figure 4

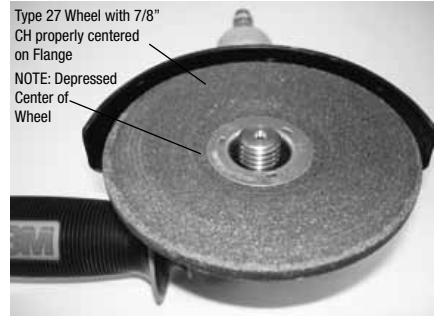


Figure 5

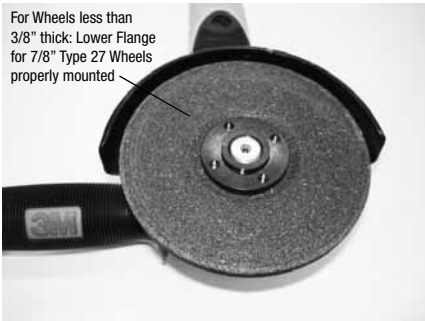


Figure 6

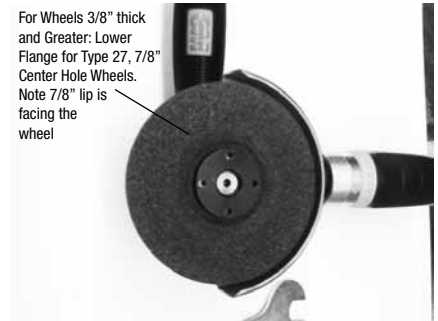


Figure 6A



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.

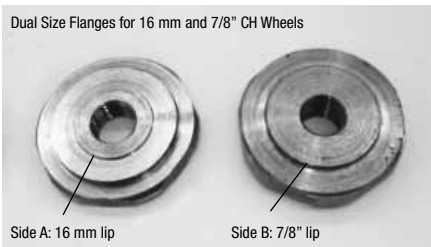


Figure 7



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

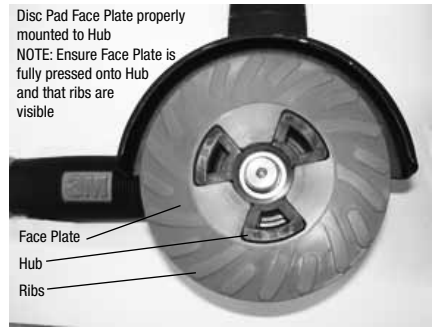


Figure 15

**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: Endure 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.

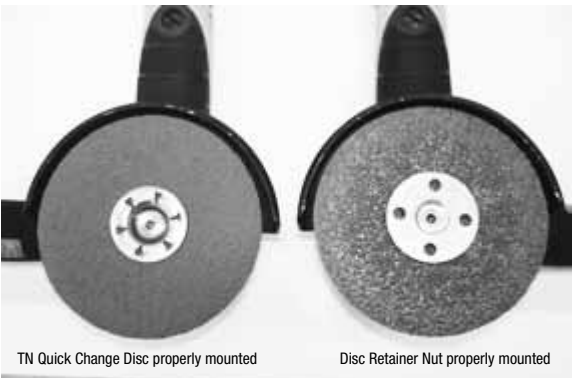


Figure 18


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EC Declaration of Conformity		CE
<b>Manufacturers Name:</b>	<b>3M</b> , Abrasive Systems Division	
<b>Manufacturers Address:</b>	3M Center, Building 223-6N-02 St Paul, MN USA 55144	
<b>Does hereby declare 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.</b>		
<b>Descriptions:</b>	-3M™ Right Angle 4" Type-27 Grinder, 12,000RPM, 1 HP, 3/8-24 Ext.Shaft, MOS 12,000 -3M™ Right Angle 4.8" Type-27 Grinder, 12,000RPM, 1 HP, 5/8-11, Ext.Shaft, MOS 12,000 -3M™ Est-Right Angle 4" Type-1 Cut-off, 18,000RPM, 1 HP, 3/8-24 Ext.Shaft, MOS 18,000 -3M™ Est-Right Angle 4" Type-27 Grinder, 12,000RPM, 1 HP, 3/8-24 Ext.Shaft, MOS 12,000 -3M™ Est-Right Angle 4.8" Type-27 Grinder, 12,000RPM, 1 HP, 5/8-11 Ext.Shaft, MOS 12,000	
<b>Model Numbers:</b>	28401, 28405, 28407, 28413, 28414	
<b>Serial Number Range:</b>	DE00011A0001 - DE10101A9999, where last 4 digits represent the sequential unit manufactured on the date specified in the first 3 numeric characters	
<b>The following standards have either been referred to, or complied with, in full or in part as relevant:</b>		
EN ISO 12100-1:2003 A1:2009	Safety of machinery. Basic concepts, general principles for design - Basic terminology and Technical principles	
EN ISO 12100-2:2003 A1:2009	Safety of machinery. Basic concepts, general principles for design - Basic terminology and Technical principles	
EN 792-7:2001 A1:2008	Hand-held non-electric power tools - Safety Requirements - Part 7: Grinders	
EN 981:1996 A1:2008	Safety of machinery. Safety requirements for fluid power systems and components - Pneumatics	
EN ISO 14121-1:2007	Safety of machinery. Risk assessment principles	
EN ISO 28927-1:2009	Hand-held portable power tools. Test methods for evaluation of vibration emission. Part 1. Axial and vertical grinders	
EN ISO 13744:2008	Hand-held non-electric power tools. Noise measurement code. Engineering method (grade 2)	
<b>Full Name of responsible person:</b>	Stefan A. Babrad	
<b>Position:</b>	Technical Director	
<b>Signature:</b>		
<b>Date:</b>	4/13/2008 St Paul, Minnesota, USA	
<b>Full Name and address of individual responsible to compile technical file within the Community:</b> Mr. Claus Geiger - Marketing Operations, Abras. Syst. Div., 3M Deutschland GmbH, Carl-Schurz-Strasse 1, D-41453 Neuss, Germany		

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34-8707-1833-4