



Die Grinder INSTRUCTIONS MANUAL

**8,000 RPM ¼ in (6 mm) Collet 1 HP, 12,000 RPM ¼ in (6 mm) Collet 1 HP,
18,000 RPM ¼ in (6 mm) Collet 1 HP, 20,000 RPM ¼ in (6 mm) Collet 1 HP**

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

This pneumatic tool is designed to be used with a disc pad and abrasive disc or other shaft mounted abrasive product for sanding metals, wood, stone, plastics and other materials. It should only be used for such sanding applications and within its marked capacity and ratings. Only accessories specifically recommended by 3M should be used with this tool. 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 or abrasive products that have a Max RPM less than the RPM rating marked on the tool.

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 workpiece materials and abrasive materials for copies of the MSDS if one is not readily available.

**WARNING**

Exposure to **BUST** generated from workplace 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, disc pad, 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 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 shall not 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 components (mounting hardware, abrasive product, etc). 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 safety features in place and in proper working order.
- Do not remove or disable safety feature of on-off control device.
- Make sure the tool is disconnected from its air source before servicing, inspecting, maintaining, cleaning, and before changing abrasive product.
- Only use abrasive disc pads and other accessories supplied by 3M.
- Prior to use, inspect abrasive product, disc pad, and other accessories for possible damage. If damaged, replace with new abrasive product and accessories available from 3M.

 **WARNING**

- Never over-ride the safety 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.
- Always ensure that shaft diameters match internal diameters of the collet inserts.
- Maximum operating speed of abrasive products or accessories must be reduced whenever the exposed length of shaft (overhang) is longer than corresponding 3M approved products.
- Always ensure that a minimum of 10mm shaft gripping length is observed.
- Never install and use router bits or cutting-off wheels in a die grinder tool (which is unguarded).
- Use only with abrasive products not requiring guards according to local, state and federal regulations.

To reduce the risk of all hazards 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 protection for eyes, ears, and respiratory protection 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.

To reduce the risk 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.

To reduce the risk 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 risk 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 risk associated with skin abrasion, burns, cuts, or entrapment:

- Keep hands, hair, and clothing away from the rotating 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 risk associated with whipping:

- 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.

To reduce the risk associated with fly off of abrasive product or parts:

- Use care in attaching abrasive product, disc pad, and mounting hardware; following the instructions to ensure that they are securely attached to the tool before use.

To reduce the risk associated with hazardous pressure-rupture:

- Be aware that incorrectly installed hoses and fittings might unexpectedly come loose at any time and create a whipping/impact hazard.

**PARTS LIST FOR PT# 20237 & 25126, 20000 RPM
and 20238 & 25127, 18000 RPM DIE GRINDERS**

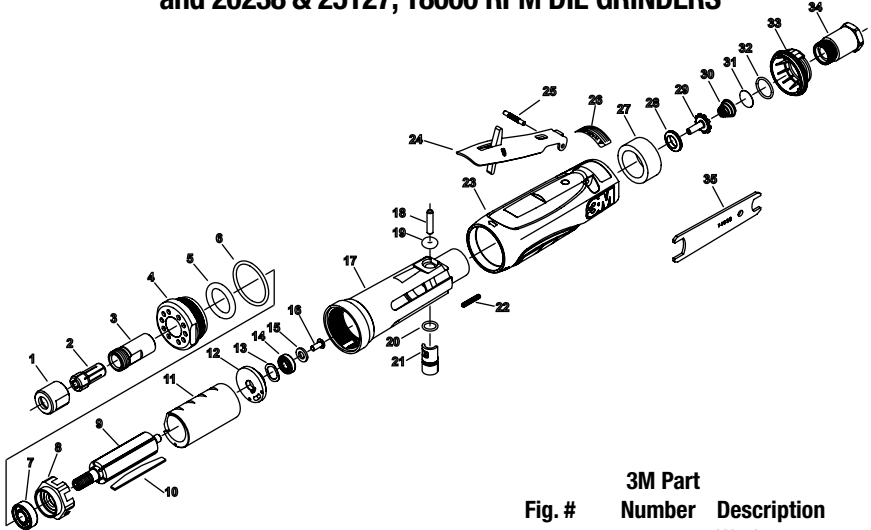


Fig. #	3M Part Number	Description
1	06572	Collet Nut
2	06545	Collet (3/8")
2	06546	Collet (8 mm)
2	06573	Collet (1/8")
2	06574	Collet (3/16")
2	06575	Collet (1/4")
2	06576	Collet (3 mm)
2	06577	Collet (6 mm)
3	06571	Collet Body
4	06565	Retainer
5	06579	O-Ring 7/8" x 1/4" x 3/16"
6	06609	O-Ring
7	06510	Ball Bearing 3/8" x 7/8" x 9/32"
8	06639	Front End Plate
9	06561	Rotor
10	06643	Vane, Set of 5
11	06601	Cylinder (20,000 RPM)
11	06564	Cylinder (18,000 RPM)
12	06560	Rear End Plate
13	06527	Wave Washer .440" x .618" x .008"
14	06508	Ball Bearing

Fig. #	3M Part Number	Description
15	06567	Washer .251" x .468" x .063"
16	06568	Screw #8-32 x 3/8" But Hd Cap
17	06638	Housing
18	06558	Torr Pin, 3/16" x 7/8"
19	06543	O-Ring
20	06511	O-Ring
21	06556	Regulator
22	06501	Screw, 6-32 x 3/4" Set Soc Hex
23	06598	Housing Cover
24	06642	Lever
25	06559	Groove Pin, 1/8" x 7/8" Type E
26	06566	Warning Label
27	06557	Muffer
28	06552	Throttle Valve Seat
29	06553	Throttle Valve
30	06554	Taper Spring
31	06555	Screen
32	06608	O-Ring, 1/16" x 5/8" x 3/4"
33	06604	Rotatable Exhaust Deflector
34	06605	Inlet Bushing
35	06569	9/16" x 3/4" Wrench (2)

Parts List

**PARTS LIST FOR PT# 20239 & 25128, 12000 RPM
and 20240 & 25129, 8000 RPM DIE GRINDERS**

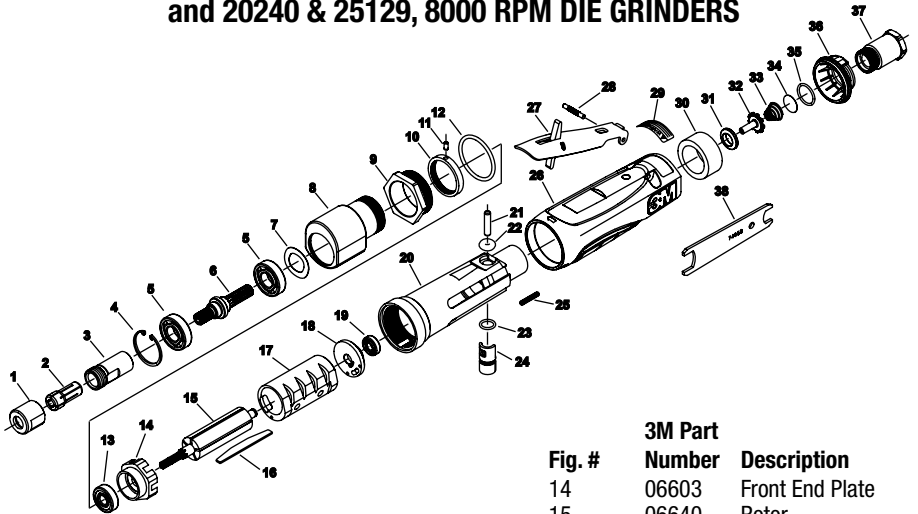


Fig. #	3M Part Number	Description	Fig. #	3M Part Number	Description
1	06572	Collet Nut	14	06603	Front End Plate
2	06545	Collet (3/8")	15	06640	Rotor
2	06546	Collet (8 mm)	16	06643	Vane, Set of 5
2	06573	Collet (1/8")	17	06602	Cylinder (12,000 RPM)
2	06574	Collet (3/16")	17	06600	Cylinder (8,000 RPM)
2	06575	Collet (1/4")	18	06560	Rear End Plate
2	06576	Collet (3 mm)	19	06508	Ball Bearing
2	06577	Collet (6 mm)	20	06638	Housing
3	06571	Collet Body	21	06558	Torr Pin, 3/16" x 7/8"
4	06518	Retaining Ring	22	06543	O-Ring
5	06507	Ball Bearing	23	06511	O-Ring
6	06587	12,000 RPM Grinder Output Shaft	24	06556	Regulator
6	06592	8,000 RPM Grinder Output Shaft	25	06501	Screw, 6-32 x 3/4" Set Soc Hex
7	06521	Wave Washer	26	06598	Housing Cover
8	06588	12,000 RPM Grinder Gear Box	27	06642	Lever
8	06593	8,000 RPM Grinder Gear Box	28	06559	Groove Pin, 1/8" x 7/8" Type E
9	06653	Angle Head Clamp Nut	29	06566	Warning Label
10	06655	Lock Ring	30	06557	Muffler
11	06520	Pin, 1/8" x 1/4"	31	06552	Throttle Valve Seat
12	06609	O-Ring	32	06553	Throttle Valve
13	06506	Ball Bearing 3/8" x 7/8" x 9/32"	33	06554	Taper Spring
			34	06555	Screen
			35	06608	O-Ring, 1/16" x 5/8" x 3/4"
			36	06604	Rotatable Exhaust Deflector
			37	06605	Inlet Bushing
			38	06569	9/16" x 3/4" Wrench (2)

Product Configuration/Specifications

Model Number	Collet	Speed RPM	Product Net Wt. kg. (lb.)	Height mm (in.)	Length mm (in.)	*Noise Level dBA Pressure (Power)	**Vibration Level m/s ² (ft/s ²)	***Uncertainty K m/s ²
20237	1/4"	20,000	0.77 (1.69)	76,2 (3)	196 (7.5)	83.5 (95.1)	< 2.5 (<8.2)	NA
25126	6 mm		0.77 (1.69)	76,2 (3)	196 (7.5)	83.5 (95.1)	< 2.5 (<8.2)	NA
20238	1/4"	18,000	0.77 (1.69)	76,2 (3)	196 (7.5)	83.5 (95.1)	< 2.5 (<8.2)	NA
25127	6 mm		0.77 (1.69)	76,2 (3)	196 (7.5)	83.5 (95.1)	< 2.5 (<8.2)	NA
20239	1/4"	12,000	0.93 (2.06)	81,2 (3.2)	254 (10)	83.5 (95.1)	3.62 (11.9)	1.81
25128	6 mm		0.93 (2.06)	81,2 (3.2)	254 (10)	83.5 (95.1)	3.62 (11.9)	1.81
20240	1/4"	8,000	0.93 (2.06)	81,2 (3.2)	254 (10)	83.5 (95.1)	3.62 (11.9)	1.81
25129	6 mm		0.93 (2.06)	81,2 (3.2)	254 (10)	83.5 (95.1)	3.62 (11.9)	1.81

* Declared noise levels; measurements carried out in accordance with standard EN ISO 15744:2002.

** Declared vibration levels in accordance with EN12096; measurements carried out in accordance with standard EN ISO 8662-13:1997.

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. Values measured in a particular work place may be higher than the declared values. 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 sander can develop a torque reaction. See the section "SAFETY PRECAUTIONS".

Ensure that all abrasive articles are mounted concentrically on the supporting disc pad.

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 or 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
				Recommended Minimum	NA	NA

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 and secure it to the disc pad or spindle. Be careful to center the abrasive on the disc pad.
4. Always wear required safety equipment when using this tool.
5. Always remove the air supply to the sander before fitting, adjusting or removing the abrasive or disc pad.
6. Always adopt a firm footing and grip and be aware of torque reaction developed by the sander.
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. Vacuum dust collection bag should be cleaned or replaced as needed. Cleaning or replacing of bag also assures optimum performance.
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 shaft mounted abrasive or sanding or grinding accessory, 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. This tool is not protected against hazards inherent in cutting operations, and no such cutting products should ever be attached.
16. 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.
17. Keep hands clear of the spinning pad or spindle during use.
18. If the tool appears to malfunction, remove from use immediately and arrange for service and repair.
19. Do not allow the tool to free spin without taking precautions to protect any persons or objects from the loss of the abrasive or pad ruptures.
20. 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.
21. When tool is not in use, store in a clean, dry environment free of debris.
22. Recycle or dispose of tool according to Local, State, and Federal regulations.

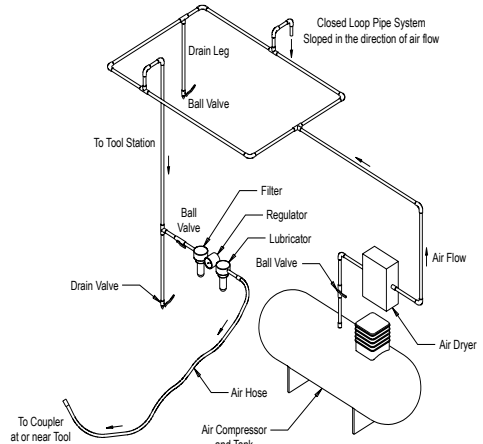


Figure 1

3M™ Die Grinder

3M™ Die Grinder accessories are designed for use on 3M Die Grinders. Constructed from premium, industrial-quality materials, their durability and precise construction are the ideal complement to the performance of the 3M Die Grinder. See Product Configuration/Specifications table for the correct replacement pad for a particular model.

See 3M ASD Accessory catalog 61-5002-8098-9 and Fantastic Finishes & More catalog 61-5002-8097-1 for additional disc pads and Accessories.

Removing and remounting shanks and shaft mounted abrasive products into collet chuck

1. Disconnect air line from tool.
2. Remove currently mounted shaft accessory, shank or abrasive product from collet chuck by using the two wrenches supplied with the tool. Use the wrench to secure the collet body while turning the collet nut counter clockwise.
3. After the existing product has been removed from the collet, inspect the collet insert to ensure that is free of debris and undamaged.
4. Fully insert the new shaft mounted accessory, shank or abrasive product into the collet.
5. Secure the collet body with the wrench and tighten the collet nut securely. Always use the correct sized collet with the matching shank (use $\frac{1}{4}$ in collet insert with $\frac{1}{4}$ in shafts or 6 mm collet insert with 6 mm shafts). An inadequately inserted shank could bend or break causing damage to the tool and work piece and possible injury to the operator or bystanders.

Product Use: All statements, technical information and recommendations contained in this document are based up on tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the 3M product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

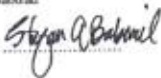
Warranty and Limited Remedy: 3M warrants this tool against defects in workmanship and materials under normal operating conditions for one (1) year from the date of purchase. 3M MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. User is responsible for determining whether the 3M tool is fit for a particular purpose and suitable for user's application. 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 where prohibited by law, 3M and seller will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

Submitting a Warranty Claim: Contact your 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 your sales receipt in a safe place. This must be submitted when filing a warranty claim, within 1 year from the date of purchase.

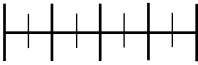
Product Repair after Warranty Has Expired
3M does not offer repair service for product out of warranty.

EC Declaration of Conformity		CE
Manufacturers Name:	3M, Abrasives Systems Division	
Manufacturers Address:	3M Center, Building 223-6N-02 St Paul, MN USA 55144	
Does hereby declare that the machinery described below complies with those applicable essential health and safety requirements of the Machinery Directive 98/37/EC; together with all amendments to date.		
Descriptions:	3M™ Die Grinder, 1hp (746w), MOS 20,000 rpm, straight shaft, ¼" collet 3M™ Die Grinder, 1hp (746w), MOS 18,000 rpm, straight shaft, ¼" collet 3M™ Die Grinder, 1hp (746w), MOS 12,000 rpm, straight shaft, ¼" collet 3M™ Die Grinder, 1hp (746w), MOS 8,000 rpm, straight shaft, ¼" collet 3M™ Die Grinder, 1hp (746w), MOS 20,000 rpm, straight shaft, 6mm collet 3M™ Die Grinder, 1hp (746w), MOS 18,000 rpm, straight shaft, 6mm collet 3M™ Die Grinder, 1hp (746w), MOS 12,000 rpm, straight shaft, 6mm collet 3M™ Die Grinder, 1hp (746w), MOS 8,000 rpm, straight shaft, 6mm collet	
Model Numbers:	20237, 20238, 20239, 20240, 25126, 25127, 25128, 25129	
The following standards have either been referred to, or complied with, in full or in part as relevant:		
EN ISO 12100-1:2003	Safety of machinery. Basic concepts, general principles for design – Basic terminology and Technical principles	
EN ISO 12100-2:2003	Hand-held non-electric power tools – Safety Requirements – Part 9: Die Grinders	
EN 792-9:2001	Safety of machinery. Safety requirements for fluid power systems and components – Pneumatics	
EN 983:1996	Safety of machinery. Risk assessment principles	
EN ISO 14121-1:2007	Hand-held portable power tools – Measurement of vibrations at the handle – Part 1: General	
EN ISO 28662-1:1992	Hand-held portable power tools – Measurement of vibrations at the handle – Part 13: Die Grinders	
EN ISO 8662-13:1997	Hand-held non-electric power tools. Noise measurement code. Engineering method (grade 2)	
EN ISO 15744:2002.		
Full Name of responsible person.		
Stefan A. Babirad	Position: Technical Director	
Signature: 	Date: 6/26/2008	

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St. Paul, MN 55144-1000
www.3M.com/abrasives

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34-8701-2620-7

Contact: Michelle Dumas
Creator: deZinnia
Spec # 34-8701-2620-7
Structure: SS-12395
Ink: Black
Date: 07/24/08

Scale:  1 Inch

Version 1