



## Inline Sander INSTRUCTIONAL MANUAL 1,600 RPM 1HP and 3,500 RPM 1HP

### 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 intended for use in industrial locations, and used only by skilled, trained professionals in accordance with the instructions in this manual. This pneumatic tool is designed to be used with abrasive products and accessories for finishing of metals, wood, stone, plastics and other materials. It should only be used for such finishing 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 abrasive products that have a Max RPM less than the RPM rating marked on the tool.

### Explanation of Signal Word Consequences

	<b>WARNING</b>	Indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury and/or property damage.
	<b>CAUTION</b>	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 **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 protective apparel, taking into consideration the type of work being done.
- Never exceed marked maximum input pressure (90 psi / .62 Mpa / 6.2 Bars).
- 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. 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.
- Never over-ride or disable the safety features of the start-stop control such that it is in the on position.
- Make sure the tool is disconnected from its air source before servicing, inspecting, maintaining, cleaning, and before changing abrasive product.
- Only use abrasive accessories and other accessories supplied by 3M.
- Prior to use, inspect abrasive product and other accessories for possible damage. If damaged, replace with new abrasive product and accessories available from 3M.

Original Instructions

## WARNING

- Only use accessories supplies or recommended by 3M.
- Use only with mounting hardware recommended by 3M; check with 3M for mounting hardware requirements.
- Always insure that mating accessory diameters and/or threads properly match that of tool.
- Use only with abrasive products not requiring guards according to local, state and federal regulations.
- 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 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 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 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 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 fly off of abrasive product 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 or free-spinning.
- Never point this product in the direction of yourself or another person, or start tool unintentionally.
- Never over-tighten accessory fasteners.

### **To reduce the risk associated with improperly inflated pneumatic wheel:**

- Always inflate the pneumatic wheel to sufficient pressure to properly retain the abrasive product.
- Do not over-inflate or under-inflate pneumatic wheel.
- Follow wheel manufacturer's instructions for inflation.

## PARTS LIST FOR PN 28338, 1,600 RPM Inline Sander

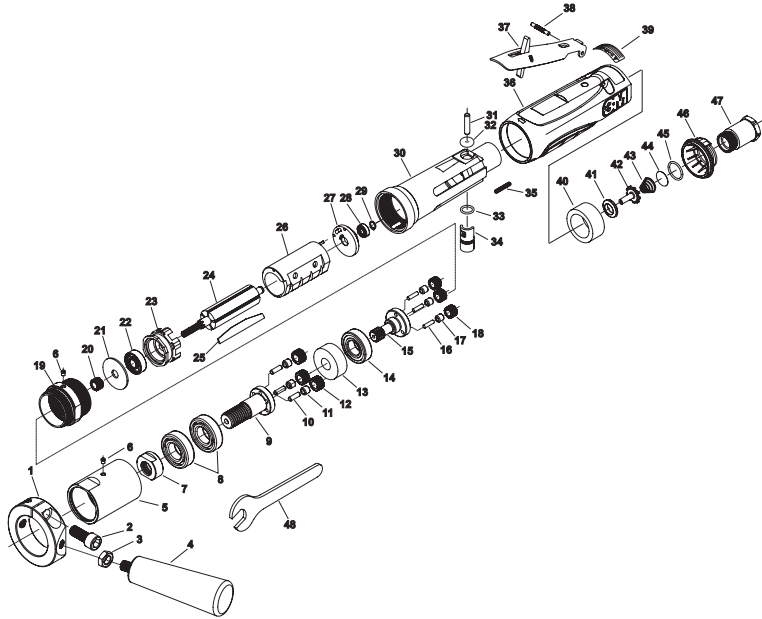


Fig.	3M PN	Description	Fig.	3M PN	Description
1	30380	Support Handle Ring	25	06643	Vane, Set of 5
2	30381	Screw, 3/8-16	26	06563	Cylinder
3	06503	Jam Nut	27	06560	Rear End Plate
4	06526	Handle	28	06508	Ball Bearing
5	30377	Double Reduction Sander Gear Case (Includes Figure 6)	29	30369	Retaining Ring
6	06523	Grease Fitting	30	06638	Housing
7	30378	Bearing Retainer	31	06558	Torr Pin, 3/16 in x 7/8 in
8	30367	Ball Bearing (2)	32	06543	O-Ring
9	30375	Output Spindle	33	06511	O-Ring
10	30370	Pin (3)	34	06556	Regulator
11	30366	Needle Bearing (3)	35	06501	Screw, 6-32 x 3/4 in Set Soc Hex
12	30431	Planet Gear	36	06598	Housing Cover
13	30379	Spacer	37	06642	Lever
14	30390	Ball Bearing	38	06559	Spacer Pin, 1/8 in x 7/8 in Type E
15	30428	Cantilevered Gear Carrier	39	06566	Warning Label
16	30370	Pin (3)	40	06557	Muffler
17	30366	Needle Bearing (3)	41	06552	Throttle Valve Seat
18	30431	Planet Gear	42	06553	Throttle Valve
19	30429	Gear Case (Includes Figure 6)	43	06554	Taper Spring
20	30432	Pinion Gear	44	06555	Screen
21	30427	Wear Plate	45	06608	O-Ring, 1/16 in x 5/8 in x 3/4 in
22	06506	Ball Bearing 3/8 in x 7/8 in x 9/32 in	46	06604	Rotatable Exhaust Deflector
23	30433	Front End Plate	47	06605	Inlet Bushing
24	06640	Rotor	48	30437	Wrench

## PARTS LIST FOR PN 28339, 3,500 RPM Inline Sander

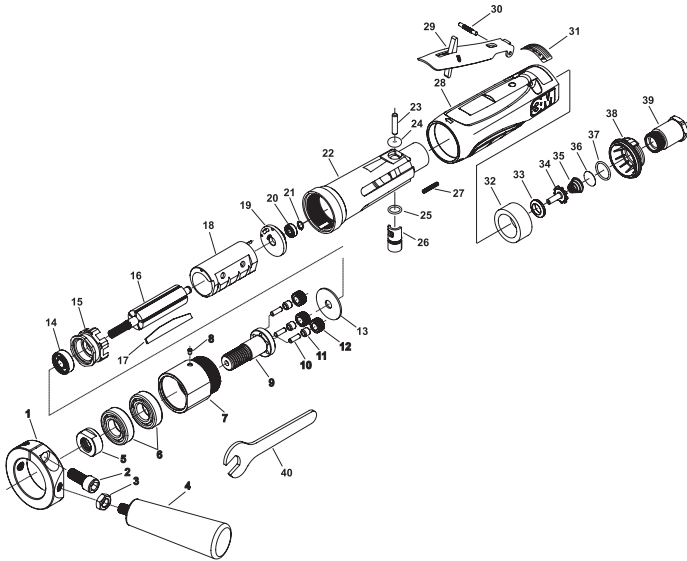


Fig.	3M PN	Description	Fig.	3M PN	Description
1	30380	Support Handle Ring	21	30369	Retaining Ring
2	30381	Screw, 3/8-16	22	06638	Housing
3	06503	Jam Nut	23	06558	Torr Pin, 3/16 in x 7/8 in
4	06526	Handle	24	06543	O-Ring
5	30378	Bearing Retainer	25	06511	O-Ring
6	30367	Ball Bearing (2)	26	06556	Regulator
7	30376	Single Reduction Sander Gear Case (Includes Figure 8)	27	06501	Screw, 6-32 x 3/4 in Set Soc Hex
8	06523	Grease Fitting	28	06598	Housing Cover
9	30375	Output Spindle	29	06642	Lever
10	30426	Pin (3)	30	06559	Groove Pin, 1/8 in x 7/8 in Type E
11	30388	Needle Bearing (3)	31	06566	Warning Label
12	30430	Planet Gear	32	06557	Muffler
13	30427	Wear Plate	33	06552	Throttle Valve Seat
14	06506	Ball Bearing 3/8 in x 7/8 in x 9/32 in	34	06553	Throttle Valve
15	30433	Front End Plate	35	06554	Taper Spring
16	06640	Rotor	36	06555	Screen
17	06643	Vane, Set of 5	37	06608	O-Ring, 1/16 in x 5/8 in x 3/4 in
18	06563	Cylinder	38	06604	Rotatable Exhaust Deflector
19	06560	Rear End Plate	39	06605	Inlet Bushing
20	06508	Ball Bearing	40	30437	Wrench

## Product Configuration / Specifications

Model Number	Spindle	Tool Speed (RPM)	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>
28338	5/8-11 threads/in	1600	1.51 (3.32)	85.72 (3.375)	250.82 (9.875)	82.9 (94.5)	< 2.5 (<8.20)	NA
28339	5/8-11 threads/in	3500	1.20 (2.64)	85.72 (3.375)	215.9 (8.50)	84.9 (96.5)	< 2.5 (<8.20)	NA

\* 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.

**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 sander 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 or a 12.7 mm (1/2 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	N/A	N/A

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 fluid 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 to ensure proper operating speed.
3. Make sure the tool is disconnected from the air supply. Select suitable abrasive, mounting hardware and accessories and secure them to the spindle. Be careful to center the abrasive & mounting hardware.
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 & mounting hardware.
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 is highly combustible.
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, wheel or mounting hardware, always check that their 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 grinding and cutting operations, which require a guard, and no such grinding and 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 abrasive & mounting hardware or spindle during use.
18. If the tool appears to malfunction, remove from use immediately and arrange for service and repair.
19. Immediately release the start handle in the event of any disruption of pressure; do not attempt to restart until the disruption has been corrected.
20. Do not allow the tool to free spin without taking precautions to protect any persons or objects from debris from rupturing abrasive & mounting hardware.
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.

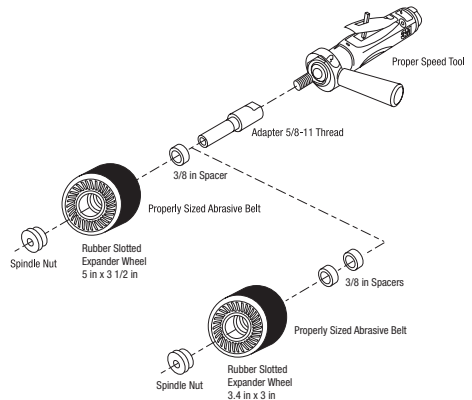
## 3M™ Inline Sander Accessories

3M™ Inline Sander accessories are designed for use on 3M Inline Sanders. Constructed from premium, industrial-quality materials, their durability and precise construction are the ideal complement to the performance of the 3M Inline Sander. See Product Configuration/Specifications table for mounting information for a particular model.

Accessory Description	Part Number
3M™ Rubber Slotted Expander Wheel, 5 in x 3 1/2 in x 5/8 Arbor Hole (for 3 1/2 in x 15 1/2 in belts)	28348
3M™ Rubber Slotted Expander Wheel, 3.4 in x 3 in x 5/8 Arbor Hole (for 3 in x 10 11/16 in belts)	28349
3M™ Wheel Adaptor Kit #3, 5/8-11 External	45038

See 3M ASD Accessory catalogs 61-5002-8098-9 and 61-5002-8097-1 for additional Accessories.

## 3M Inline Sander: Instructions for Mounting and Dismounting Hardware



1. Disconnect air line from tool.
2. If already mounted, remove spindle mounted accessories and/or abrasive product by using the wrenches supplied with the tool. Use the wrenches to hold the tool spindle while turning the spindle extension and/or mounting hardware counter clockwise.
3. Fully thread new spindle mounted accessories and/or abrasive product onto the spindle in a clockwise rotation.
4. Secure all spindle mounted accessories and/or abrasive product with the wrenches and tighten the spindle nut securely. Always use the correct sized spindle accessories with the matching thread pitch and diameter. An inadequately secured accessories and/or abrasive product could loosen, bend or break causing damage to the tool and work piece and possible injury to the operator or bystanders.
5. After the spindle accessories and/or abrasive product have been mounted, inspect them to ensure they are free of debris and undamaged.
6. Re-connect air line, position tool in a safe location, and test for any unusual noise or vibration which may be caused by damaged or improperly mounted accessory and/or abrasive product.

Note: During the above steps, ensure that all hardware and abrasive products are mounted concentrically on the supporting accessory.

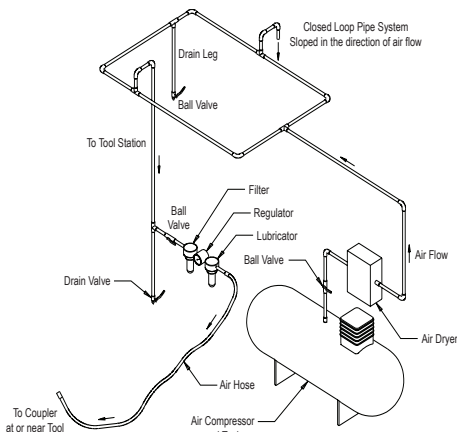


Figure 1

**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, nonlubrication, 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. For additional assistance call 1-800-362-3550.

**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.

## EC Declaration of Conformity



**Manufacturers Name:** 3M, Abrasive Systems Division  
**Manufacturers Address:** 3M Center, Building 223-6N-02  
 St. Paul, MN U.S.A. 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™ Inline Sander, 1,600 RPM, 1 HP, 5/8-11 Threaded Ext. Shaft  
 3M™ Inline Sander, 3,500 RPM, 1 HP, 5/8-11 Threaded Ext. Shaft

**Model Numbers:** 28338, 28339

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

EN ISO 12100-1:2003	Safety of machinery. Basic concepts, general principles for design –
EN ISO 12100-2:2003	Basic terminology and Technical principals
EN 792-8:2001	Hand-held non-electric power tools – Safety Requirements – Part 8: Sanders and Polishers
EN 983:1996	Safety of machinery. Safety requirements for fluid power systems and components - Pneumatics
EN ISO 14121-1:2007	Safety of machinery. Risk assesment principles
EN ISO 28662-1:1992	Hand-held portable power tools - Measurement of vibrations at the handle – Part 1: General
EN ISO 8662-8:1997	Hand-held portable power tools – Measurement of vibrations at the handle – Part 8: Polishers and rotary, orbital and random orbital sanders
EN ISO 15744:2002	Hand-held non-electric power tools. Noise measurement code. Engineering method (grade 2)

**Full Name of responsible person:**  
 Stefan A. Babirad

**Position:** Technical Director

**Signature:** *Stefan A. Babirad*

**Date:** 06/18/2009