



Precision Grinding



Purpose

Precision grinding, also known as die grinding, is performed with handheld tools to remove material from small areas, cavities, or other confined spaces. Typical operations include creating cavities in a die and removing excess material from narrow welds. Other precision tasks include deburring cast or cut pieces of any material, such as beveling and grinding grooves.



Tool Types

Die grinders are designed for precision work. These are ungeared, high-speed tools with a collet chuck, often referred to as collet grinders. Die grinders weigh about 1 kg and are relatively small and light compared to tools for rough grinding, with a limited output of up to 800W. They come in straight (short/extended) or angle (angle-head) versions, depending on the location of the area to be ground and the operator's preference.



Settings: Rotational Speeds

Speeds for precision grinding range from 20,000 to 100,000 rpm, depending on the material, shape of the burr, and workpiece. Finer, more precise operations require higher speeds and smaller burrs. The operation determines the size of the abrasive, which in turn determines the rotational speed. Choosing the right power level is crucial, balancing power requirements against increased weight. Handheld die grinders typically have a power rating of up to 800W.



Technique

Each time a "tooth" of the burr or an abrasive grain touches the workpiece, it removes a chip. The size of the chip depends on several factors: the size of the "tooth" or grain, the hardness of the materials, rotational speed, and feed force. The operator should avoid applying excessive force that could cause the bit to jam and the tool to stall. Keeping the surface area of the workpiece in contact with the abrasive as small as possible provides greater control over the tool and increases contact pressure, resulting in a higher material removal rate. Rough treatment can easily damage abrasives, particularly die grinding burrs. High burr consumption will negatively impact grinding economy.

Unmatched Power, Productivity, and Comfort in narrow and cramped spaces.

Description

Straight die grinders are engineered to deliver exceptional power for efficient material removal and high productivity. Their robust motors provide consistent, high-speed performance, making them ideal for demanding tasks.

Combined with ergonomic designs, the straight die grinders ensure user comfort and reduce fatigue, allowing for extended use without compromising on precision or quality. The ergonomic features, such as scatter dampening, comfortable grips and balanced weight distribution, enhance operator comfort and control, making even prolonged tasks more manageable. Besides, these features improve the quality and lifespan of carbide burrs. Perfect for a variety of applications, these straight die grinders are the go-to tools for achieving superior finishes quickly, effectively, and comfortably.

Features

- High speed (up to 46000RPM)
- Integrated speed controlled governor
- Compact and robust design
- Lightweight and easy-to-handle design
- Scatter dampening
- Lever equipped with the safety clutch

Benefits

- Optimal process speed for different applications
- High productivity
- Long-lasting performance and reliability
- Reduced risk of vibration related injuries
- Minimum sound levels



Straight Die Grinders



LSF12

Details



LSF17

Details



LSF19

Details



LSF29

Details





Model	Max free speed r/min	Max output kW	Collet size mm	Length mm	Weight kg	Air consumption at max output l/s	Air consumption at free speed l/s	Rec hose size mm	Air inlet thread BSP	Scatter damped	Ordering No.
LSF12 S200-1	20000	0.24	6	170	0.36	8.1	2.6	8	1/4	No	8423 1124 01
LSF12 S250-1	25000	0.292	6	170	0.36	8.5	3.4	8	1/4	No	8423 1124 02
LSF12 S310-1	31000	0.323	6	170	0.36	9.2	4.2	8	1/4	No	8423 1124 03
LSF12 S400-1	40000	0.358	6	170	0.36	9.8	7.0	8	1/4	No	8423 1124 04

Accessories

	8423 1124 01	8423 1124 02	8423 1124 03	8423 1124 04	Ordering No.
Included					
Open-end spanner (A/F 11mm)	✓	✓	✓	✓	4150 2226 14
Open-end spanner (17mm)	✓	✓	✓	✓	4150 2226 13
Collet (Ø5.55 to 6.35 mm - Ø1/4")	✓	✓	✓	✓	4150 2226 03
Optional					
Hose kit (Cablair 08; 8 mm (5/16"), L = 0.9 m (L = 3 ft))	✓	✓	✓	✓	4150 1689 80
Collet (Ø7/32")	✓	✓	✓	✓	4150 2226 49
Collet (Ø3mm - Ø1/8")	✓	✓	✓	✓	4150 2226 46
Collar	✓	✓	✓	✓	4150 2226 02
Collet holder	✓	✓	✓	✓	4150 2226 21
Collet nut	✓	✓	✓	✓	4150 2226 04
Productivity kit (MIDI-FRL-1/2-BSP EQ08-C10)	✓	✓	✓	✓	8202 0850 03
MULTIFLEX-1/4 cover	✓	✓	✓	✓	8202 1350 41
MULTIFLEX-1/4-NPT (For North America)	✓	✓	✓	✓	8202 1350 26
MULTIFLEX-1/4	✓	✓	✓	✓	8202 1350 20



Model	Max free speed r/min	Max output kW	Collet size mm	Length mm	Weight kg	Air consumption at max output l/s	Air consumption at free speed l/s	Rec hose size mm	Air inlet thread BSP in	Scatter damped	Ordering No.
LSF17 S300-1	30000	0.28	6	170	0.4	9	6	8	1/4	Yes	8423 1224 19

Accessories

	Ordering No.
Included	
Open-end spanner (A/F 14mm)	4080 0153 00
Collet (Ø6mm)	4150 0075 00
Optional	
Hose kit (Cablair 08; 8 mm (5/16"), L = 0.9 m (L = 3 ft))	4150 1689 80
Collet (Ø3mm)	4150 0081 00
Collet (Ø8mm - Ø5/16")	4150 0074 00
Collet (Ø1/4")	4150 0076 00
Collet (Ø3/16")	4150 0649 00
Collet (Ø1/8")	4150 0082 00
Collet (Ø5/32")	4150 0648 00
Collet nut	4150 0760 00
Productivity kit (MIDI-FRL-1/2-BSP EQ08-C10)	8202 0850 03
MULTIFLEX-1/4 cover	8202 1350 41
MULTIFLEX-1/4-NPT (For North America)	8202 1350 26
MULTIFLEX-1/4	8202 1350 20



Model	Max free speed r/min	Max output kW	Collet size mm	Length mm	Weight kg	Air consumption at max output l/s	Air consumption at free speed l/s	Rec hose size mm	Air inlet thread BSP in	Scatter damped	Ordering No.
LSF19 S200-1	20000	0.5	6	193	0.5	9.6	3.5	10	1/4	Yes	8423 1224 80
LSF19 S300-1	30000	0.5	6	193	0.5	11.3	6.6	10	1/4	Yes	8423 1224 81
LSF19 S460-1	46000	0.5	6	193	0.5	11.4	15	10	1/4	Yes	8423 1224 82
LSF19 S300-1R	30000	0.5	6	193	0.5	11.3	6.6	10	1/4	No	8423 1224 89

Accessories

	8423 1224 80	8423 1224 81	8423 1224 82	8423 1224 89	Ordering No.
Included					
Open-end spanner (A/F 14mm)	✓	✓	✓	✓	4080 0153 00
Hose (Soft type, Ø38, L = 1 m)	✓	✓	✓	✓	4150 1314 02
Collet (Ø6mm)	✓	✓	✓	✓	4150 0075 00
Optional					
Hose kit (Cablair 10; 10 mm, L = 0.7 m)	✓	✓	✓	✓	8202 1180 19
Collet (Ø3mm)	✓	✓	✓	✓	4150 0081 00
Collet (Ø8mm - Ø5/16")	✓	✓	✓	✓	4150 0074 00
Collet (Ø5mm)	✓	✓	✓	✓	4150 0075 01
Collet (Ø1/4")	✓	✓	✓	✓	4150 0076 00
Collet (Ø3/16")	✓	✓	✓	✓	4150 0649 00
Collet (Ø1/8")	✓	✓	✓	✓	4150 0082 00
Collet (Ø5/32")	✓	✓	✓	✓	4150 0648 00
Collet holder	✓	✓	✓	✓	4150 1262 00
Collet nut	✓	✓	✓	✓	4150 0760 00
Locking screw for drum (included in spot suction kit)	✓	✓	✓	✓	3780 5090 60
MULTIFLEX-1/4 cover	✓	✓	✓	✓	8202 1350 41
MULTIFLEX-1/4-NPT (For North America)	✓	✓	✓	✓	8202 1350 26

Accessories

	8423 1224 80	8423 1224 81	8423 1224 82	8423 1224 89	Ordering No.
Optional					
MULTIFLEX-1/4	✓	✓	✓	✓	8202 1350 20
Extension (Ø75mm - Ø3")	-	-	-	✓	4150 0674 00
Productivity kit (MIDI-FRL-1/2-BSP EQ08-C10)	✓	✓	✓	✓	8202 0850 03
For machining of plastic and fiberglass					
Spot suction kit burr (diamond burr not included)	✓	✓	✓	✓	3780 3015 22
Spot suction kit drum (diamond drum not incl). To be used with 6 mm collet	✓	✓	✓	✓	3780 4011 61
Diamond drum Ø27 mm	✓	✓	✓	✓	3780 5033 00
Diamond cylinder kit Ø 27mm	✓	✓	✓	✓	3780 5033 01
Shaft Ø 6 mm (included in spot suction kit)	✓	✓	✓	✓	3780 5090 30



Model	Max free speed r/min	Max output kW	Collet size mm	Length mm	Weight kg	Air consumption at max output l/s	Air consumption at free speed l/s	Rec hose size mm	Air inlet thread BSP	Scatter damped	Ordering No.
LSF29 S120	12000	0.7	6	213	0.8	17	4	13	3/8	Yes	8423 0127 00
LSF29 S150	15000	0.8	6	213	0.8	18	4	13	3/8	Yes	8423 0127 02
LSF29 S180	18000	0.9	6	213	0.8	20	6	13	3/8	Yes	8423 0127 05
LSF29 S250	25000	1.0	6	213	0.8	22	9	13	3/8	Yes	8423 0127 11
LSF29 S030	3000	0.8	6	257	1.2	20	6	13	3/8	No	8423 0127 18
LSF29 S070	7000	1.0	6	256	1.2	22	9	13	3/8	No	8423 0127 20
LSF29 S120-HD	12000	0.7	6	213	1.2	17	4	13	3/8	No	8423 0127 23
LSF29 S180-HD	18000	0.9	6	213	1.2	20	6	13	3/8	No	8423 0127 25
LSF29 S250-HD	25000	1.0	6	213	1.2	22	9	13	3/8	No	8423 0127 27

Accessories

	8423 0127 00	8423 0127 02	8423 0127 05	8423 0127 11	8423 0127 18	Ordering No.
Included						
Open-end spanner (A/F 14mm)	✓	✓	✓	✓	✓	4080 0153 00
Hose (Soft type, Ø38, L = 1 m)	✓	✓	✓	✓	✓	4150 1314 02
Collet (Ø1/4") (For North America)	✓	✓	✓	✓	✓	4150 0076 00
Collet (Ø6mm)	✓	✓	✓	✓	✓	4150 0075 00

	8423 0127 20	8423 0127 23	8423 0127 25	8423 0127 27	Ordering No.
Included					
Open-end spanner (A/F 14mm)	✓	✓	✓	✓	4080 0153 00
Hose (Soft type, Ø38, L = 1 m)	✓	-	-	-	4150 1314 02
Collet (Ø1/4") (For North America)	✓	✓	✓	✓	4150 0076 00
Collet (Ø6mm)	✓	✓	✓	✓	4150 0075 00

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Accessories

	8423 0127 00	8423 0127 02	8423 0127 05	8423 0127 11	8423 0127 18	Ordering No.
Optional						
Hose kit (Turbo 13; 13 mm (1/2"), L = 0.9m (L = 3 ft))	✓	✓	✓	✓	✓	4150 1618 81
Exhaust hose	✓	✓	✓	✓	✓	4150 1532 02
Collet compl. (Ø6mm - collet nut included)	✓	✓	✓	✓	✓	4150 0075 90
Collet (Ø3mm)	✓	✓	✓	✓	✓	4150 0081 00
Collet (Ø8mm - Ø5/16")	✓	✓	✓	✓	✓	4150 0074 00
Collet (Ø5mm)	✓	✓	✓	✓	✓	4150 0075 01
Collet (Ø3/16")	✓	✓	✓	✓	✓	4150 0649 00
Collet (Ø1/8")	✓	✓	✓	✓	✓	4150 0082 00
Collet (Ø5/32")	✓	✓	✓	✓	✓	4150 0648 00
Collet holder and collet nut	✓	✓	✓	✓	✓	4110 0844 90
Collet nut	✓	✓	✓	✓	✓	4150 0760 00
Cone wheel adapter (UNF 3/8)	✓	✓	✓	✓	✓	4150 2326 85
MULTIFLEX-3/8 cover	✓	✓	✓	✓	✓	8202 1350 42
MULTIFLEX-3/8-NPT (For North America)	✓	✓	✓	✓	✓	8202 1350 28
MULTIFLEX-3/8	✓	✓	✓	✓	✓	8202 1350 22
For machining of plastic and fiberglass						
Diamond drum Ø52 mm	✓	✓	✓	✓	✓	3780 5035 00
Diamond cylinder kit Ø 52mm	✓	✓	✓	✓	✓	3780 5035 01

	8423 0127 20	8423 0127 23	8423 0127 25	8423 0127 27	Ordering No.
Optional					
Hose kit (Turbo 13; 13 mm (1/2"), L = 0.9m (L = 3 ft))	✓	✓	✓	✓	4150 1618 81
Exhaust hose	✓	✓	✓	✓	4150 1532 02
Collet compl. (Ø6mm - collet nut included)	✓	✓	✓	✓	4150 0075 90
Collet (Ø3mm)	✓	✓	✓	✓	4150 0081 00
Collet (Ø8mm - Ø5/16")	✓	✓	✓	✓	4150 0074 00
Collet (Ø5mm)	✓	✓	✓	✓	4150 0075 01
Collet (Ø3/16")	✓	✓	✓	✓	4150 0649 00
Collet (Ø1/8")	✓	✓	✓	✓	4150 0082 00
Collet (Ø5/32")	✓	✓	✓	✓	4150 0648 00
Collet holder and collet nut	✓	✓	✓	✓	4110 0844 90
Collet nut	✓	✓	✓	✓	4150 0760 00
Cone wheel adapter (UNF 3/8)	✓	✓	✓	✓	4150 2326 85
MULTIFLEX-3/8 cover	✓	✓	✓	✓	8202 1350 42
MULTIFLEX-3/8-NPT (For North America)	✓	✓	✓	✓	8202 1350 28
MULTIFLEX-3/8	✓	✓	✓	✓	8202 1350 22
For machining of plastic and fiberglass					
Diamond drum Ø52 mm	✓	✓	✓	✓	3780 5035 00
Diamond cylinder kit Ø 52mm	✓	✓	✓	✓	3780 5035 01

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