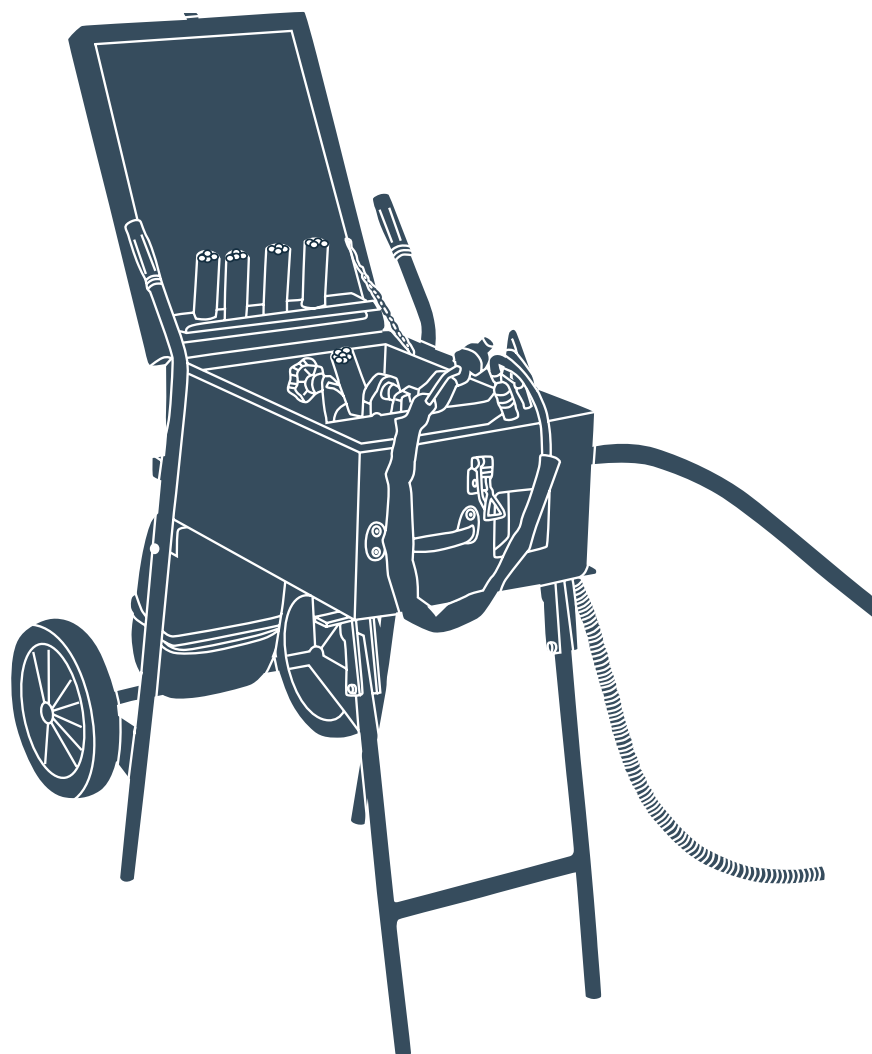


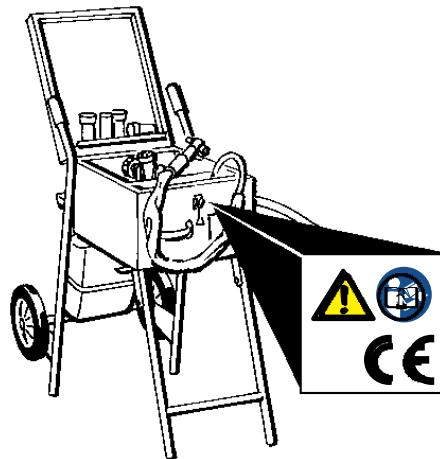
Grind Matic Manual B

Operator's instructions
Spare parts list



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It can be dangerous to use the grinding machine if the care and maintenance instructions are not followed carefully.



Before using the machine, read through these instructions carefully and keep them handy for future reference.

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Original instructions.

Safety instructions

- Before starting, read all instructions carefully.
- The instructions contain important sections on safety.
- Special attention must be paid to the safety information contained in frames and accompanied by a warning symbol (a triangle) and a signal word, as shown below.



DANGER

Indicates an immediate risk that **WILL** result in serious injury or death if the warning is not observed.



WARNING

Indicates hazards or hazardous procedures which **COULD** result in serious injury or death if the warning is not observed.



CAUTION

- Indicates hazards or hazardous procedures which **COULD** result in injury or damage to equipment if the caution is not observed.

• Use approved spare parts only. Any damage or malfunction caused by the use of parts not approved by Epiroc Drilling Tools is not covered by the Warranty or Product Liability.

The following general safety instructions must also be observed:

- Make sure that there are no other personnel close to the grinding machine while grinding is in progress.
- Always wear protective goggles, protective clothing, protective gloves and ear protectors during grinding. Any local regulations must also be observed.
- Wear an approved dust mask or arrange an effective dust extraction system. This is especially important when dry grinding indoors.
- The machine must not be used for any work other than that for which it is intended i.e. that which is described under the heading "Applications".
- The machine must not be modified without the permission of the manufacturer. Modifications not approved by Epiroc can incur the risk of serious injury to yourself and others.
- Before intervening in the air system or moving the machine, make sure there is no air pressure in the system. High pressure air can blow out with the risk of injury to the eyes and skin.
- Beware of the risk of fire and/or explosion that could be initiated by sparks from the grinding work.

Technical data

Air pressure, max	7 bar
Air consumption	1380 l/min
Speed of bit rotation	0–45 r/min
Idling speed of hand-held grinder	30.000 r/min
Coolant container	10 l
Weight of complete machine	55 kg
Max. bit skirt	diam. 90 mm
Threaded bits, Max. diam. Retrac, max diam. Tube drilling, max. diam.	127 mm* 127 mm* 152 mm*
Min. spacing between buttons	3,5 mm
Sound pressure level** when grinding	84,2 dB(A)
Vibration level*** when grinding	less than 2,5 m/s ²
Ordering No. Grind Matic Manual B	87001890
Manufacturer: Epiroc Drilling Tools AB, Fagersta, Sweden	

*Large clamping device necessary (accessory)

**Equivalent continuous A-weighted sound pressure level measured at operator's ear level during grinding. Possible spread due to measuring method and production variables, 3 dB(A).

***Measuring of vibration according to EN/ISO 8662.

Accessories delivered with machine

Description	Ordering No.
Grinding template (1 pc)	87005282
Centering fingers (5 pcs)	87004443
Allen key 4 mm (1 pc)	87002413
Open ended spanner 14 mm (2 pcs)	87003124
Protective goggles (1 st)	87001967
Operator's instructions and spare parts list	9866 0040 01a

General

The Grind Matic Manual B is a pneumatic grinding machine for button bits.

The machine is intended for grinding of spherical or ballistic buttons. Diamond coated grinding wheels are used.

Applications

The Grind Matic Manual B is intended for grinding of button bits only.

Technical description

The Grind Matic Manual B is mounted in a box fitted with wheels and handles. The machine is easy to set up for use. The box is lifted into position, the support legs folded down and the hoses for compressed air and water cooling attached.

The clamping device for button bits is mounted in the lower part of the box. It is powered by an air-driven angular gear.

The hand-held part of the Grind Matic Manual B consists of a straight pneumatic grinder adapted for use with Epiroc diamond-coated grinding wheels. There is a steel spring fitted into the profile of the grinding wheel. It functions as a centring device to facilitate grinding.

The air consumption of the machine is approx. 1380 l/min. Water cooling is effected from a separate tank, which is included in delivery.

General care instructions

- Keep the machine clean.
- Only use clean and dry compressed air.
- Always blow clean the compressed-air hose before connecting it to the machine.
- Check the water cooling regularly.
- Before moving the grinding machine, always blow out the hose before disconnect compressed-air hose.
- If the machine is not to be used for a long time, make sure that it is generously lubricated for storage.

Flush clean the machine regularly, ideally every day. This applies especially to the discharge section, since grinding debris has a tendency to harden with time and can become difficult to remove.

The ejector for water cooling should also be cleaned frequently. To do this, blow clean compressed air through the ejector.

Setting up for grinding



CAUTION

- Always follow the safety instructions in respect of the installation, operation and maintenance of the machine.
- Make sure that the compressed-air hose is connected safely to the machine. If it comes loose, it can whip around wildly with great risk of injury to personnel.
- Be careful not to get your hands or fingers trapped when folding up the machine stand.
- Before fitting or removing a grinding wheel, disconnect the compressed-air hose from the grinder.

The Grind Matic Manual B is equipped with wheels and handles to facilitate moving of the machine.

Before moving the machine, fold up and secure the support legs.

The support legs must be properly folded down before grinding is started. Make sure that the legs have a stable footing on a firm base.

Grinding



DANGER

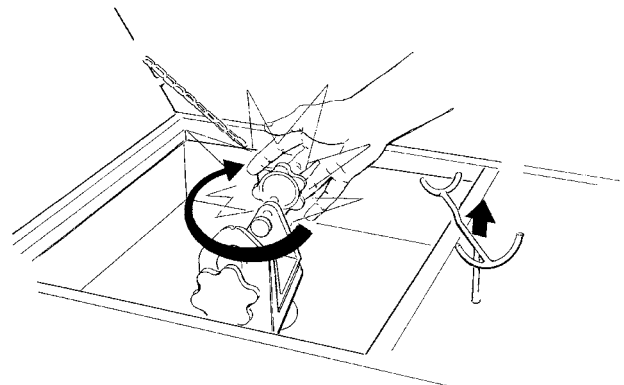
- Before grinding a drill bit, make sure there are no traces of explosive in the flushing holes of the drill bit. To clean out the flushing holes, use only a wooden rod, a piece of copper wire or flushing water.



WARNING

Never remove the grinding-guard from the machine.

- When working on or near the rotating bit-clamping device, beware of the risk of getting your hand or fingers trapped between the bit-clamping device and the wall of the box.



CAUTION

- The exhaust air from pneumatic grinders contains oil. To inhale oil mist is bad for your health. Be sure to adjust the lubricator to give the correct dosage of oil.
- Make sure that the grinding station or worksite is well ventilated.
- Always wear protective goggles, protective clothing, protective gloves, ear protectors and an approved dust mask when grinding. Any local regulations must also be observed.
- Before changing the grinding wheel, always vent and disconnect the compressed-air hose.
- Before removing the drill bit from the holder, always switch off the air supply to the table motor.
- Beware of the risk of fire and explosion that could be initiated by sparks from the grinding work.

General rules

Use grinding wheels of the right shape and size for the buttons that are to be ground.

The drill bit must be properly secured for grinding, so that it cannot move.

Good cooling is very important to the service life of the grinding wheel, and also to the grinding result. Poor cooling can result in heat stresses being "ground into" the cemented-carbide buttons, with button fracture as a result.

The service life of the grinding wheel falls dramatically if cooling is poor.

Pressing the grinding wheel too hard on to the cemented-carbide button will reduce the service life of the wheel. Both the grinding wheel and the cemented-carbide button can be damaged by excessive heat generation.

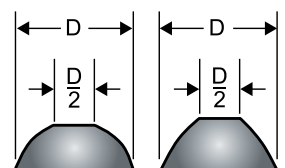
A new grinding wheel must always be "run in". Start grinding carefully and increase the feed pressure gradually. This will increase the service life of the grinding wheel substantially.

N.B. If anything other than original grinding wheels are used, Epiroc Drilling Tools will not accept liability for any faults or damage, or the consequences thereof.

Grinding hints

The rate of bit wear depends on the rock formation, and is highest in rocks with a high quartz content. A suitable grinding interval should be determined according to the rate of bit wear. It is more economical to regrind too early rather than to suffer poor penetration rates and risk damaging the drill bit through overdrilling. A few hints about the care of drill bits:

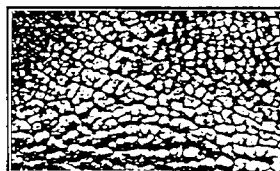
When to regrind



Button bits should be reground when the penetration rate drops, or if any of the cemented-carbide buttons are damaged (fractured buttons should be ground flat). It is both practical and economical to redress the buttons when the wear

flat reaches about 1/2 of the diameter of the button.

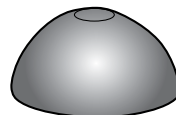
Look out for "snake skin"



If microscopic fatigue cracks – so-called "snake skin" – begin to appear on the cemented carbide buttons, the cracks must be ground away. In any event, bits should be reground after 300 metres of drilling at the most.

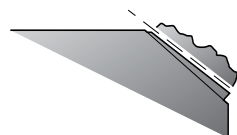
This should be done even if there are no visible signs of wear and the penetration rate continues to be good. If snake-skin is not removed, the cracks will deepen and ultimately result in button fracture.

Do not grind away too much cemented carbide



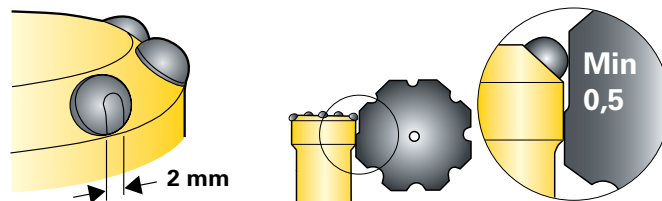
Do not grind too much on the top of the buttons. Let a few millimetres of the wear flat remain on top of the button.

Always grind broken buttons flat



A drill bit can remain in service as long as the gauge buttons maintain the diameter of the bit. Fractured buttons must always be ground flat to prevent chips of cemented carbide from damaging the other buttons.

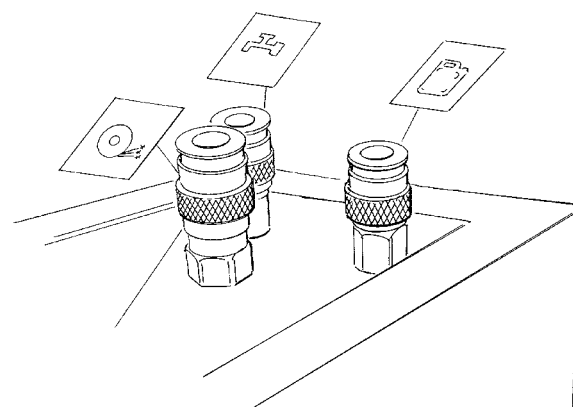
Avoid grinding the perimeter



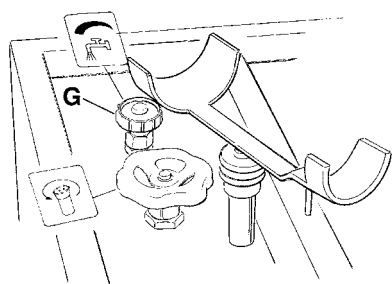
Gauge button anti-taper has to be removed by grinding, although excessive reduction of the bit diameter should be avoided. Leave about 2 mm of the wear flat.

If necessary, remove some of the bit-body steel below the gauge buttons, so that a clearance (taper) of 0,5 mm is maintained. If the flushing holes start to deform, open them up with the aid of a rotary burr or steel file.

Grinding instructions



Connect the air and water hoses. Make sure that the hoses are connected to the correct inlets.



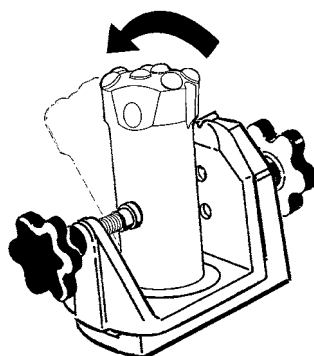
Cooling of the grinding wheel and drill bit is effected by means of water mist. The volume of water mist is adjustable by means of the wheel (G) and should be as generous as possible. Inadequate cooling will result in a sharp reduction in the service life of the diamond-coated

grinding wheel. It will also cause heat stresses to be "ground into" the cemented-carbide button, which can result in button fracture. In sub-zero temperatures, add industrial alcohol to the cooling water to prevent freezing.

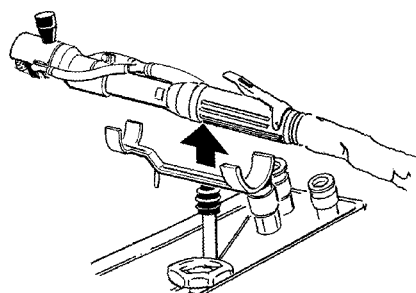


IMPORTANT

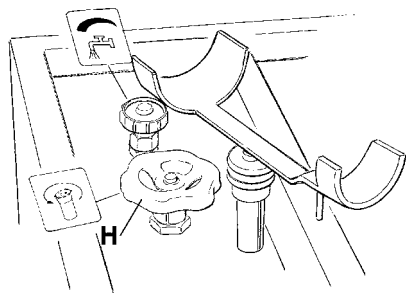
The cooling water must NOT be recirculated.



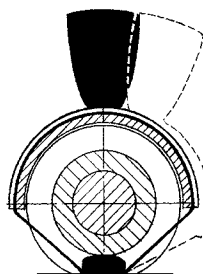
Before grinding, always check that there are no traces of explosive in the flushing holes of the drill bit. Clamp the drill bit securely in the holder. Use the right bit holder for the size and thread of the drill bit. To grind the gauge buttons, incline the holder to the correct angle so that the button is vertical during grinding.



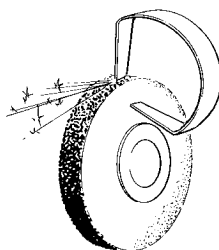
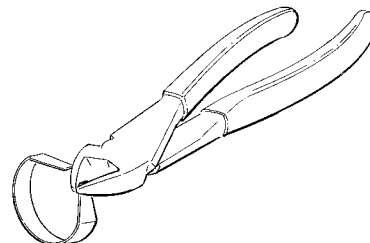
Start the rotation of the drill bit by lifting the hand-held grinder from its holder.



The rotation speed can be regulated by means of the wheel (H).

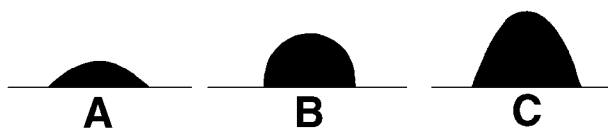
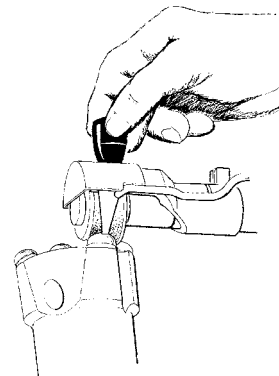


Locate the grinding wheel over the centre of the button to be ground. The gap between the centering fingers must be equal to, or slightly greater than the diameter of the button. Normally the grinder should be inclined to the side at the start of grinding and then righted upwards as the button begins to take on the finished ground shape.



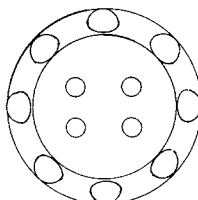
When determining a suitable gap between the centering fingers, the wear pattern on the drill bit should be taken into consideration. It is sometimes necessary to proceed through trial and error. The centering fingers can be adjusted by cutting with a pair of pincers, or by grinding them down.

Start the grinder. Let the drill bit rotate through a few revolutions as you grind the button. Inspect the grinding result. Note that correct grinding is very important to the function of the drill bit during drilling.



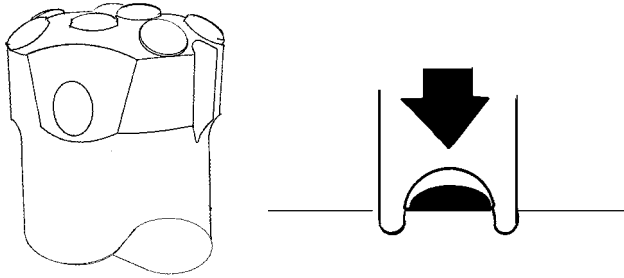
A = incorrect grinding result – too little protrusion
B = correct grinding result – spherical button
C = correct grinding result – ballistic button

Drill bits with two button sizes



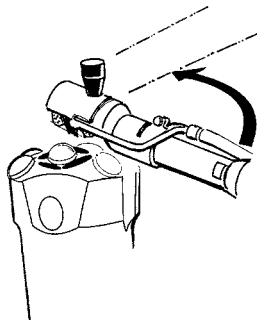
When grinding drill bits with two different button sizes, it can be more convenient to use two hand-held grinders (product code 87001913) with different grinding wheel dimensions.

Overdrilled bits



When a drill bit has been severely overdrilled, it can be difficult to get the centering fingers to guide the grinding wheel around the cemented-carbide buttons. In this case, stop the rotation of the drill bit and grind a few grooves into the body steel around the button. To do this, press the grinding wheel straight down over the button.

Repeat the above procedure a few times at different angles.



Start the rotation of the drill bit and grind the button to the correct shape.

Changing the grinding wheel

CAUTION

- Before changing the grinding wheel, always vent and disconnect the compressed-air hose to the grinder.

Fit the grinding wheel on to the grinding spindle.

N.B. The marking on the grinding wheel must face away from the grinder. Make sure that the spindle journal is clean and slightly oiled. This will make it easier to remove the grinding wheel.

Tightening torque when fitting grinding wheel: min. 5 Nm.

If the grinding wheel cannot be pulled off by hand, an extractor can be used.

N.B. Do not use excessive force on either the spindle or the grinding wheel.

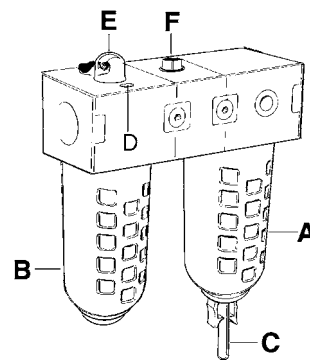
Maintenance



DANGER

- Before intervening in the air system, make sure that there is no pressure in the system. High pressure air can blow out with the risk of injury to the eyes and skin.

Lubrication



The pneumatic system has two air preparation units:

- The compressed-air filter (A)
- The oil-mist lubricator (B).

The air filter serves both to clean the air and to separate water from the air. Be sure to drain the filter bowl before it becomes full. To drain the filter bowl, squeeze the lugs at the base of the bowl together and drain through the hose (C).

The oil-mist lubricator supplies the air motors with the necessary lubrication.

Cleaning the air filter

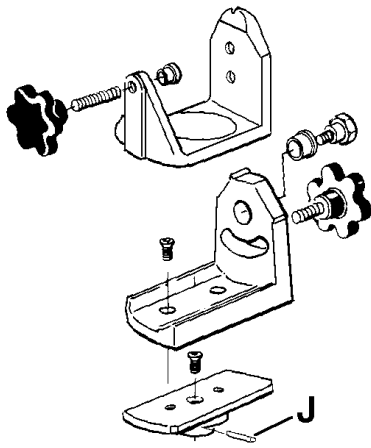
Unscrew the filter bowl and separator disc. Clean the filter in benzine or a similar agent. Blow the filter dry from the inside out. Fit back the filter and screw on the filterbowl.

The oil-mist lubricator must be filled with oil of a grade and quality suitable for compressed-air machines. See list of recommended lubricants.

Other maintenance

The ejector for water cooling must be cleaned regularly by blowing clean compressed air through it. To enable this to be done, the pneumatic part must be lifted up and the ejector removed.

If the machine is not going to be used for longer periods of time, pour a little oil into the compressed air hose, switch on the air briefly and let the oil enter the air motors. The machine must also be drained of water and cleaned before storage.



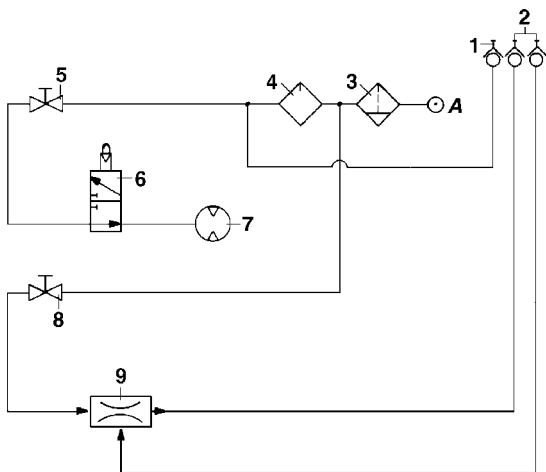
If the bit holder does not rotate on starting, check the shear-pin (J). If it is broken, fit a new shear-pin.

Change the centring fingers when they have become worn.

Recommended lubricants

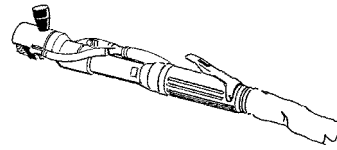
BP	Energol RD-E46
Mobil	Almo Oil 525
Shell	Torcula 68/32
Esso	Arox EP 68
Q8	Q8 Chopin 46
Texaco RD	Lube 32

Pneumatic circuit diagram



Item	Product No.	Description
A		Compressed air delivery
1	87001853	Quick coupling
2	87001854	Quick coupling
3, 4	87004770	Filter and oil-mist lubricator
5	87001270	Shut-off valve
6	87001851	Valve
7	87001920	Air motor
8	87127436	Shut-off valve
9	87001060	Ejector

Accessories



Hand-held grinder

Description	Product No.
One supplied with the machine, 30,000 r/min	87001913



Description	Product No.
Centering finger kit 5 pcs (for 87001913)	87004443

Grinding templates for button bits

Dimension, mm	Product No.
Spherical	
7 – 14.5	87005282
11 – 22	87005284
Ballistic	
7 – 14.5	87005283
11 – 22	87005285
Trubbnos	
6 – 12	87005287
12,1 – 19,1	87005288



Standard diamond-grain wheels

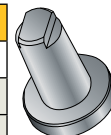
Dimension, mm	Product No.
Spherical	
7	87004554
8	87004555
9	87003969
10	87003970
11	87003971
12	87003972
13	87003973
14	87001025
15	87001384
16	87001027
18	87003964
19	87003966
Ballistic	
7	87004556
8	87004557
9	87003974
10	87003975
11	87003976
12	87003977
13	87003413
14	87003414
15	87003415
16	87003416
18	87003965
19	87003967
Trubbnos	
9	87004589
10	87004590
11	87004591
12	87004592
12,7	87004593
14,5	87004594
15,8	87004595
19,1	87004596



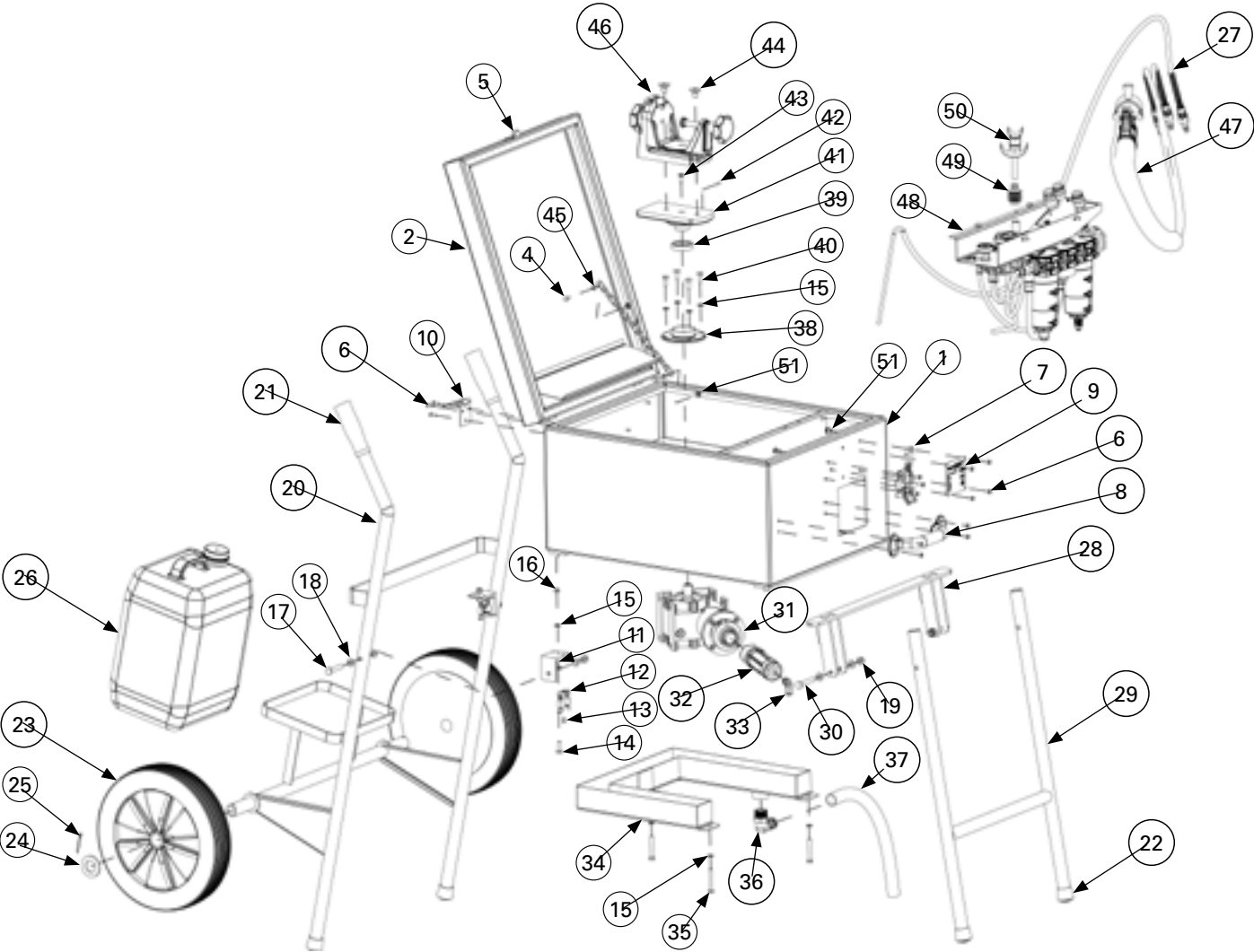
Bit holders

(For clamping device compl. 87000772 Manual B).

Bit thread	Product No.
Tophammer bits	
R25	87000792
R28	87000793
SR28	87003961
R32	87000794
SR32	87003963
R35	87003360
SR35	87003957
R38/T38	87000795
SR38	87003979
T45	87000796
T51	87000802
Tapered bits	
7° taper	87001044
12° taper	87001045
Tube bits	
ST58	87001726
ST68	87001573
Reaming bits	
64, 76, 89 mm ¹⁾	87000798
102, 127 mm ¹⁾	87000799
1) Centring pin for bit holders 87000798 and 87000799 for reamers	
Clamping device for regrinding Retrac bits 64–127 mm and TDS-bits 89–152 mm (ST58, ST68), without bit holder (to complete 87000772)	
	87001070
	87001930



Spare parts



Ref. No.	Product No.	Qty	Description	Specification
1	87001878	1	Box	
2	87001881	1	Lid	
3	87001907	1	Chain	L=260 mm
4	0147 1205 03	2	Screw	M5x12
5	87001903	1	Lid catch	
6	0129 3270 66	29	Pop rivet	4.8x10
7	87001902	1	Eccentric lock	
8	87001900	2	Handle	
9		1	Machine data plate	
10	87001904	2	Hinge	
11	87001836	2	Angle bracket	50x50x5
12	87001910	2	Holder	
13	0147 1168 00	2	Screw	M4x6
14	0147 1247 03	4	Screw	M6x20
15	0301 2321 00	15	Washer	6.4x12x1.6
16	5730 0151 17	4	Nut	M6M M6
17	0147 1329 03	2	Screw	M8x45
18	0301 2335 00	10	Washer	8.4x16x1.6
19	0291 1110 00	4	Nut	M8
20	87001828	1	Stand	Back legs
21	87001888	2	Handle	
22	87001889	4	Rubber ferrule	
23	87001891	2	Wheel	
24	87001869	2	Washer	BRB 25x44x4
25	0111 1284 00	2	Split pin	3.2x35
26	87001892	1	Plastic can	
27	87003052	1	Copper pipe assy.	For coolant
28	87001831	1	Box mount	
29	87001830	1	Front leg	
30	0147 1330 03	2	Screw	M8x50
31	87001919	1	Worm gear assy	
*32	87001920	1	Pneumatic motor	
33	87000849	1	Elbow	8-1/4

Ref. No.	Product No.	Qty	Description	Specification
34	87001882	1	Collection channel	
35	0147 1253 03	3	Screw	M6x45
36	87001912	1	Elbow	R3/4"
37	87001921	1	Outlet hose	
38	87001775	1	Cover plate	
39	87001868	1	Seal	
40	0147 1246 03	4	Screw	M6x16
41	87001774	1	Driver	
42	0101 1237 00	1	Spring pin	FRP 4x8
43	0216 1957 26	1	Screw	6x16
44	0216 1100 38	2	Screw	10x16
45	0301 2318 00	2	Washer	5.3x10x1
46	87000772	1	Clamping device	
*47	87001913	1	Hand-held grinder	
48	87001883	1	Pneumatic assy	
49	87000416	1	Bellows	
50	87001834	1	Handle holder	
51	87001908	4	Blind rivet nut	

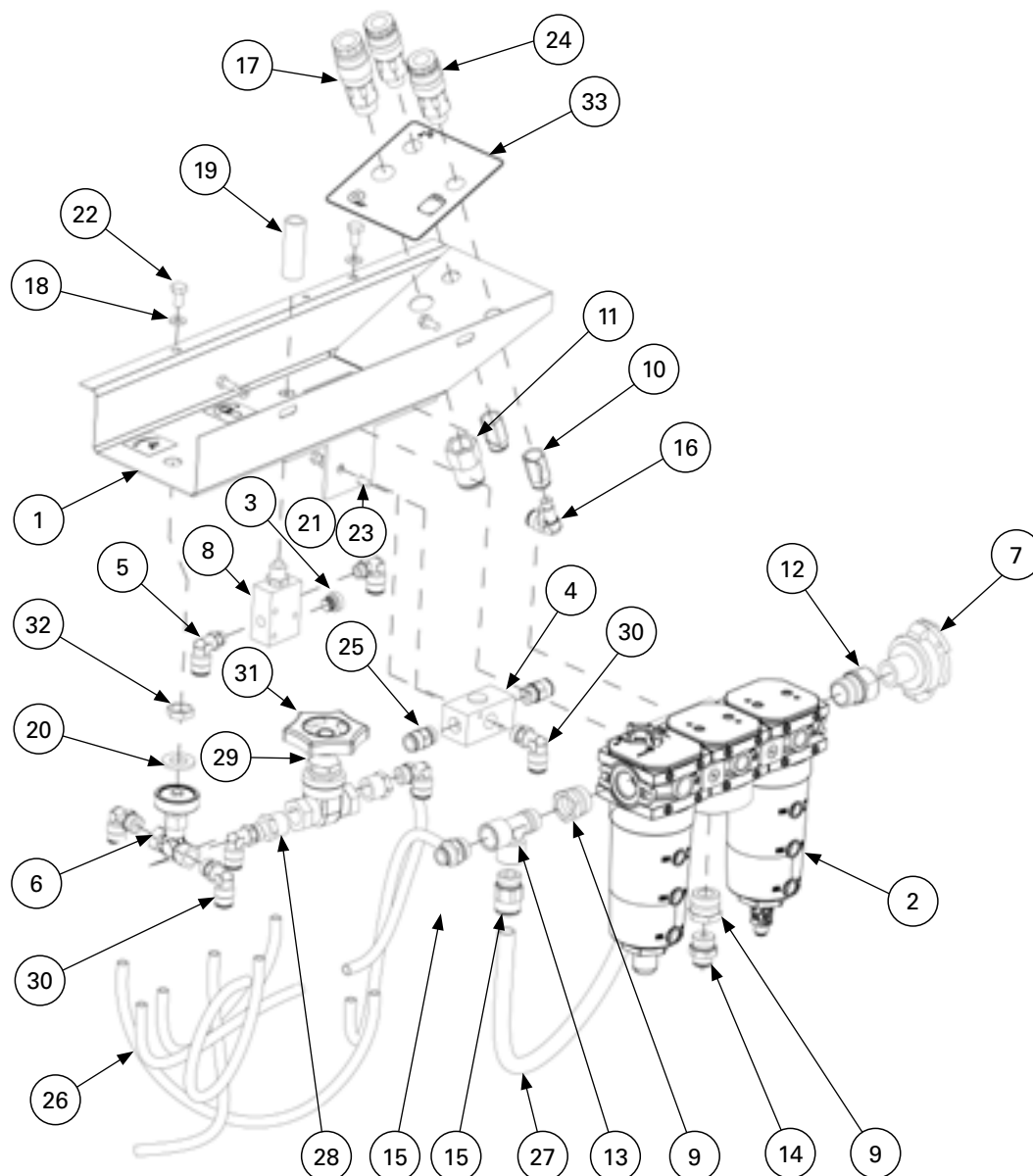
* If you need to order parts, please contact local Atlas Copco Tools AB. Item number can be found at the body part.

For detailed instructions, visit: <http://servaid.atlascopco.com>

When ordering spare parts, please state the model designation of the grinding machine, the part number and description of the desired part (not the Ref No.) and also the production number of the machine (see machine data plate, item No. 9).

Use approved spare parts only. Any damage or malfunction that can be attributed to the use of spare parts not approved by Epiroc is not covered by the company's warranty and will invalidate product liability.

Pneumatic assembly

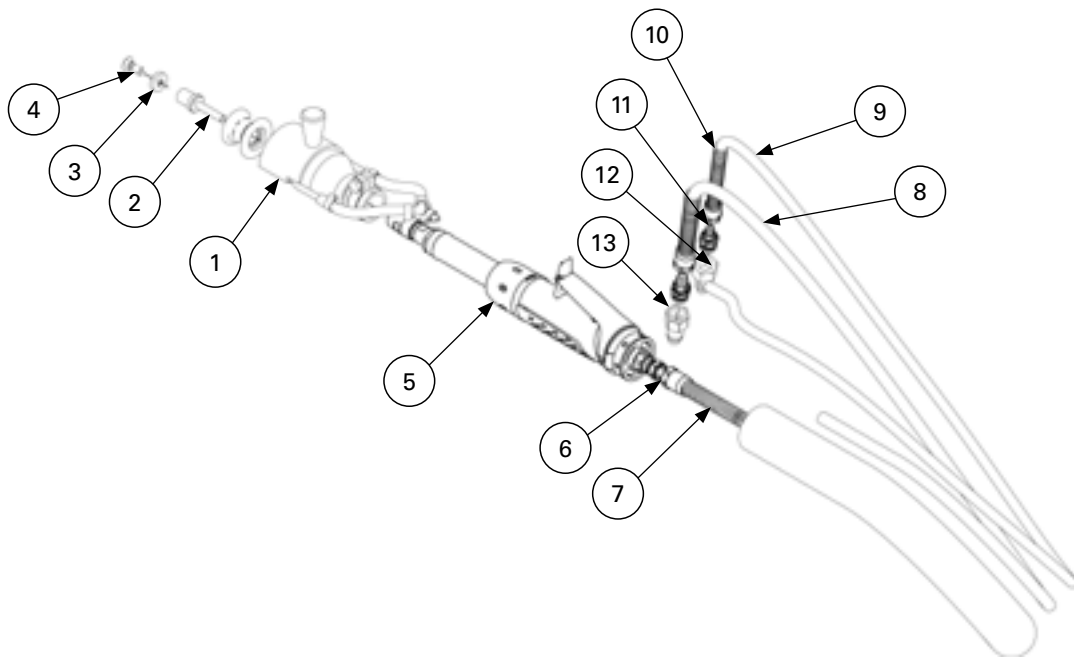


Ref. No.	Product No.	Qty	Description	Specification
1	87001880	1	Mounting plate	
*2	87004770	1	Filter assy	
3	87000536	1	Plug	1/8"
4	87001060	1	Ejector	AVAC 30-RR
5	87001061	2	Angled connector	8-1/8
6	87127436	1	Shut-off valve	1/4"
7	87129946	1	Claw coupling	1/2"
8	87001851	1	Valve	5501020003
9	87001852	2	Connection	1/2-3/8
10	87001856	2	Straight connector	8-1/4
11	87001866	1	Connection	12-3/8
12	87001922	1	Hexagon nipple	1/2-1/2
13	87002421	1	T-nipple	3/8
14	87002422	2	Connection	8-3/8
15	87002423	1	Connection	12-3/8
16	87003756	1	Joining angel	8-8

Ref. No.	Product No.	Qty	Description	Specification
17	87001853	1	Connection	8202 1302 44
18	0301 2321 00	4	Washer	6.4x12x1.6
19	87001840	1	Pipe	
20	0301 2358 00	1	Washer	13x24x2.5
21	0301 2318 00	4	Washer	5.3x10x1
22	0147 1244 03	4	Screw	M6x12
23	0147 1205 03	4	Screw	M5x12
24	87001854	2	Connection	8202 1300 38
25	87001855	2	Connection	8-1/4
26	87003765	1	Hose	8/6 PU
27	87004064	1	Hose	12/8 PU
28	87001850	2	Bushing	3/8-1/4
29	87001271	1	Nut	3/8"
30	87000849	5	Elbow	8-1/4
31	87001270	1	Shut-off valve	
32	87127504	1	Nut	1/4"
33	87001923	1	Decal	

*If you need to order parts, please contact local Atlas Copco Tools AB. Item number can be found at the body part. For detailed instructions, visit: <http://servaid.atlascopco.com> <http://servaid.atlascopco.com>

Hand-held grinder assembly

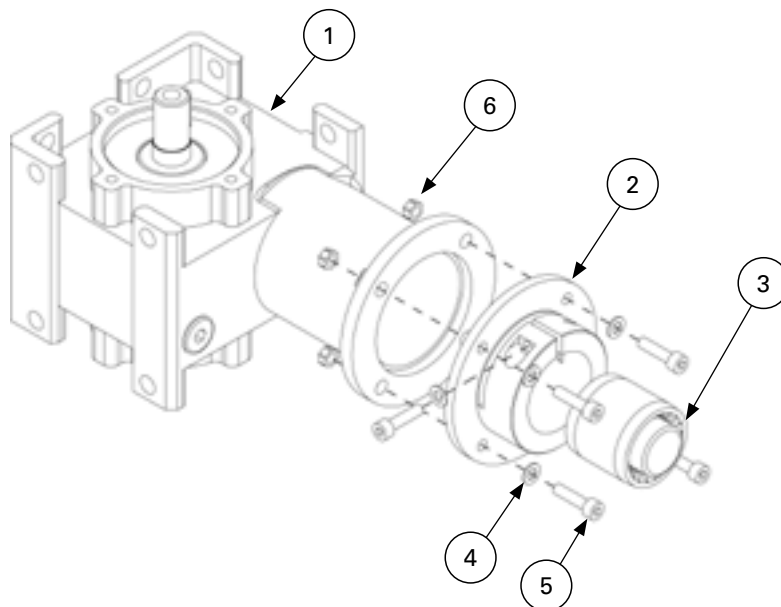


Ref. No.	Product No.	Qty	Description	Specification
1	87001915	1	Cooling unit	
2	87001841	1	Spindle	
3	87000787	1	Spacer	
4	0216 1957 26	1	Screw	6x16
*5	87001916	1	Hand-held grinder	
6	87002863	2	Connection	10/8-1/4
7	87002864	2	Holding spring	10/8

Ref. No.	Product No.	Qty	Description	Specification
8	87002888	1	Nylon tube	Dia 10
9	87002887	1	Nylon tube	8.5/6
10	87002867	1	Holding spring	8/6
11	87002866	1	Connection	8/6-1/4
12	87002868	1	Nipple	8202 1205 83
13	87002865	1	Nipple	8202 1202 86

* If you need to order parts, please contact Atlas Copco Tools AB:
<http://servaid.atlascopco.com>

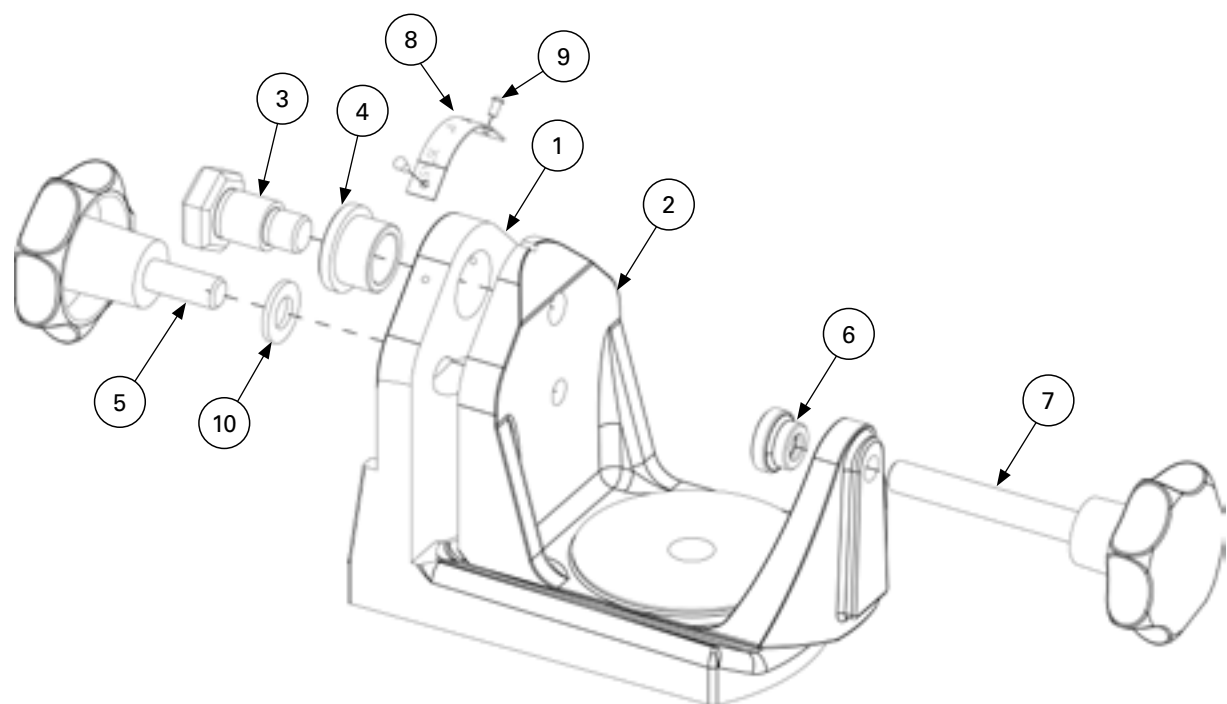
Worm gear assembly



Ref. No.	Product No.	Qty	Description	Specification
1	87001925	1	Worm gear	
2	87001826	1	Spacer	
3	87001926	1	Shaft coupling	

Ref. No.	Product No.	Qty	Description	Specification
4	0301 2318 00	5	Washer	5.3x10x1
5	0211 1208 03	5	Screw	M5x20
6	0261 1091 58	4	Nut	M6M 5

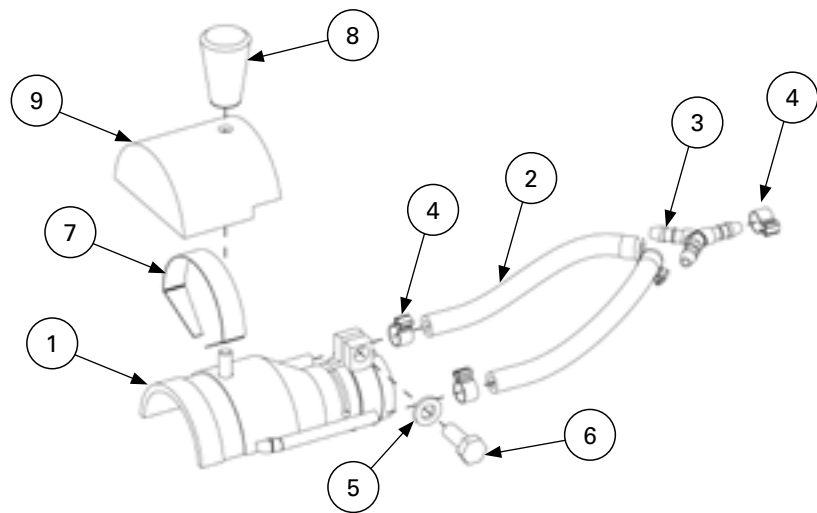
Clamping device



Ref. No.	Product No.	Qty	Description	Specification
1	87000773	1	Holder	
2	87000774	1	Bracket	
3	87000775	1	Screw	
4	87000127	1	Bushing	
5	87000920	1	Knob	

Ref. No.	Product No.	Qty	Description	Specification
6	87000922	1	Pressure plate	20-M10
7	87002698	1	Pressure screw	
8	87002681	1	Scale	
9	0244 4143 00	2	Drive screw	Dia 2.5x5
10	0301 2344 00	1	Washer	10.5x20x2

Cooling unit



Ref. No.	Product No.	Qty	Description	Specification
1	87004773	1	Hand guard	
2	87001995	1	Hose	PV6/4 L=2X80
3	87001994	1	Y-hose connection	
4	87001897	5	Hose clamp	
5	0301 2321 00	1	Washer	6.4x12x1.6

Ref. No.	Product No.	Qty	Description	Specification
6	0147 1246 03	1	Screw	M6x16
7	87004443	1	Centering finger	
8	87001914	1	Knob	
9	87004774	1	Protection	

Notes

[illegible]

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