

**ROLL GROOVE MACHINE OPERATION MANUAL
FOR MODEL: RG-1M,1-12INCH**



WARNING:

Read this Operator's Manual carefully before using this tool. Failure to understand and follow the contents of this manual may result in electrical shock, fire and/or serious personal injury.

GENERAL SAFETY REQUIREMENTS

Work Area Safety

- Keep work zone **clean and lighted**. Cluttered or dark areas may bring accidents.
- **Do not operate groover in explosive atmospheres**, such as in the presence of flammable liquids, gases, or dust. Groover creates sparks which may ignite the dust or fumes.
- **Keep children and irrelevant person away** while operating a groover.
- Keep floors dry and **free of slippery materials** such as oil.

Personal Safety

- **Stay alert** while operating a groover. Do not use a groover while fatigued or under the influence of drugs, alcohol, or medication. Inattention when using groover may result in serious personal injury.
- Use **personal protective equipment**. Always wear eye glasses.
- **Remove any adjusting rulers or wrench before using groover**. Tools left attached to a rotating part of the groover may result in personal injury.
- **Dress properly**. Do not wear loose clothing or jewelry. Keep hair, clothing, and gloves away from moving parts.

Tool Use and Care

- **Store idle tools away from children** and do not allow persons unfamiliar with the tool or these instructions to use the groover. Roll groover is dangerous in the hands of untrained users.
- **Maintain tools**. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the tool's operation. If damaged, have the tool repaired before use.
- Use only accessories that are recommended for RG-1M HD Combo Roll Groover.
- **Keep handles dry and clean**; free from oil and grease.

Service

- **Have the roll groover serviced only by a qualified repair person using identical replacement parts.**

Roll Groover Safety

- **Keep hands away from grooving rolls**. Do not wear loose fitting gloves.
- **Keep hands away from ends of pipe**. Burrs and sharp edges may catch and cut.
- **Properly support the pipe** to prevent the tipping of the pipe and equipment.
- **Always wear appropriate personal protective equipment** such as protection glasses, tight fitting leather gloves, steel toed footwear, and a hardhat.

- **Only use roll groover to groove pipe of recommended sizes and types according to this instruction.** Improper use or modification of the roll groover for other applications may increase the risk of injury.
- **When working overhead, all personnel should wear hard hats and be clear of the area below, to prevent serious injuries if groover, pipe or other objects fall.**

Roll Groover Safety When Driven By A Power Drive/Threading Machine

- **Safety rules of using a power drive/threading machine must comply the safety code from the factory of power drive/threading machine.**
- HD Combo Roll Groover can be driven by use a power drive equal or similar as RIDGID 300 Power Drive or the 300 Compact Threading Machine. Use of unapproved power sources will result in improper set up and could cause tipping or other issues.
- One person must control both the grooving process and the foot switch. Do not operate with more than one person. In case of entanglement, the operator must be in control of the foot switch.
- Only use power drives and threading machines with a rotational speed of **57 rpm or less**. Higher speed machines increase the risk of injury.
- Be sure the roll groover is **properly set up and secured** to the power drive/threading machine. **Be sure the machine, stand, groover and pipe are stable.**



DESCRIPTION, SPECIFICATIONS AND STANDARD EQUIPMENT DESCRIPTION

Heavy Duty Combo Roll Groover can form roll grooves in steel and aluminum pipe of **1" thru 8" diameter, schedule 10 and schedule 40**, and **10"~12" SCH 10**. It is also designed to groove 1¼" to 8" schedule 40 stainless steel pipe. The grooves are formed by mechanically advancing a grooving roller into the pipe which is supported by a knurl drive roller. The only adjustment necessary is for the depth of the groove. The unit is specifically designed to be used either in place or with the RIDGID Model 300 Power Drive (38 and 57 RPM Models) or Model 300 Compact Threading Machine with a Drive Bar Adapter (Item code #911015). The Combo Roll Groover is a portable machine intended for **light/medium volume work** on job site for fire and industrial pipes.



Specifications

Capacity	1" – 12" Schedule 10 and Schedule 40 Steel pipe with roll change (See Chart B for Wall Thickness)
Groove Diameter Lock device	Stop nut
Actuation	Feeding screw with ¾" Ratchet wrench
Operation Methods.....	Manual, or by RIDGID 300 Power Drive (38 and 57 RPM Model Only), or by RIDGID 300 Compact Threading Machine
Weight.....	approx. 40 lbs./ 18.5kgs
Groove specification.....	AWWA C606-06

Standard Equipment



GROOVING PROCESS

Pre-check before manual grooving

- A. Clean any oil, grease or dirt from the roll groover, including the carry handle, and the ratchet used to activate the roll groover.
- B. If the roll groover is installed on a power drive or threading machine, make sure that the machine is unplugged and that the power switch is in the OFF position. Make sure that the support arms are tight in the body of the roll groover.
- C. Inspect the roll groover for any broken, missing, misarranged or binding parts or any other condition that may prevent the safe and normal operation. Make sure that the groove roll and drive shaft turn freely.
- D. If the drive rollers are dirty, clean the knurls with a wire brush. Dirty knurls can cause pipe slippage and tracking issues during grooving.
- E. Inspect the groove roll and drive shaft for cracks, wear or other signs of damage. Damaged groove rolls and drive shafts can cause pipe slippage, poor quality grooves, or cause failure during use.
- F. Inspect the ratchet and extension for proper operation. Make sure that the ratchet operates smoothly and consistently in both directions. The ratchet should firmly lock into position. The ratchet should also lock securely into the extension and the extension should securely lock into the manual drive square at the back of the roll groover.
- G. Lubricate the roll groover per the maintenance instructions in this manual. Wipe any excess grease from the roll groover.

Pre-check before grooving powered by RIDGID 300

- A. Install the drive bar adapter onto the roll groover drive shaft. Align set screws with the flats on the roll groover drive shaft and firmly tighten.
- B. Place the support arms on the arms of the adapter bracket with the drive bar adapter in the chuck of the machine. Close and tighten the threading machine chuck onto the drive bar adapter. Make sure that the drive bar is centered in the chuck. Use repeated and forceful counterclockwise spins of the speed chuck hammer wheel to securely grip the drive bar.
- C. Check the power drive/threading machine to make sure that it is operating correctly:
 - Move the switch to the FOR (Forward) position. Press and release the foot switch. Confirm that the driveshaft rotates in a counter-clockwise direction as you face the front chuck. If the unit does not rotate in the correct direction or the foot switch does not control the machine operation, do not use the machine until it has been repaired.
 - Depress and hold the foot switch. Check the rotational speed of the unit. Inspect the moving parts for misalignment, binding, odd noises or any other unusual conditions. Release foot switch. If the rotational speed exceeds 57 rpm, do not use the unit for roll grooving. Higher speeds may increase the risk of injury. If unusual conditions are found, do not use the equipment until it has been repaired.
 - Move the switch to the REV (reverse) position. Press and release the foot switch. Confirm that the driveshaft rotates in a clockwise direction as you face the front of the chuck. If the unit does not rotate in the correct direction, do not use the machine until it has been repaired.

- Move the switch to the OFF position. Unplug the machine with DRY hands.

Pipe Preparation

These are generalized instruction only. Always follow grooved coupling manufacturer's specific recommendations for pipe end preparation. Failure to follow the grooved coupling manufacturer's recommendations may lead to an improper connection and cause leaks.

1. Cut pipe to proper length. Make sure pipe end is cut square and free of burrs. Cut off method and large burrs can affect the quality of the groove made and the tracking of the groove. Do not attempt to groove pipe that has been cut with a torch.
2. All internal/external weld bead, flash, or seams must be ground flush at least 2" back from the end of the pipe. Do not cut flats into gasket seat area, this could cause leaks.
3. Remove all scale, dirt, rust and other contaminants **at least 2"/50mm back** from the end of the pipe. Contaminants can clog the drive knurls and prevent proper driving and tracking of the pipe while grooving.
4. When use power drive to roll groove pipes, make sure to have appropriate support available for pipes to be grooved. Pipes equal or **over 36"/1.0meter** should be supported with **at least two pipe stands**. Failure to properly support the pipe may allow the pipe or the pipe and machine to tip and fall.

Roll grooving with a power drive/thread machine

1. Place the required pipe stands in front of the roll groover. For lengths supported by a single stand, the stand should be placed slightly more than half the length of the pipe from the roll groover cover plate. For lengths of pipe requiring more than one stand, the stands should be placed $\frac{1}{4}$ of the pipe length from the ends of the pipe. It may be appropriate to use more stands in some situations. Stand height should be adjusted so that the pipe can fit over the drive roller.
2. Make sure the groove roller and drive roller fits the size of the pipe intending to be roll grooved.
3. Make sure that the groove roller has been retracted enough to allow the pipe to be placed over the drive shaft. If needed, turn the feeding screw counter-clockwise to raise the groove roller.
4. Place the pipe end over the driveshaft and set the pipe down onto the pipe stands. Make sure the pipe is stable.
5. Adjust pipe and pipe stands so that the end of the pipe is touching the groover's cover plate, and the inside of the pipe contacts the top of the driveshaft. The centerline of the pipe and the centerline of the drive shaft should be parallel to another. One way to do this is to level both the pipe and the power drive/threading machine.
6. Plug the machine into the properly grounded outlet with DRY hands.
7. Turn the feeding screw clockwise to push down the groove roller in contact with the pipe top surface, and then turn the feeding screw for one quarter additional turn (each quarter turn for approx. 0.02"/0.5mm feeding). The stop nut may need to be loosened by turned counter-clockwise, to allow the groove roller to contact pipe. The pipe and roll groover should be secure to each other at this stage.
8. Start a test grooving by start the power drive/thread machine.

9. Make sure the pipe rotate at least one full circle.
10. Repeat steps 7-9 until required groove depth. (Refer to Table B “Groove Parameters”) Use groove tape to check groove diameter.
11. After a successful test grooving, manually screw the stop nut to touch the groover housing, then screw the setscrew nut in contact with stop nut. The roll groover is ready to operate on pipes in the same size.
12. Replace pipes and repeat steps 3-10 (except step 8) for more grooving process. Implement at least one groove diameter inspection after **every 5 grooves** are formed. If the groove is too shallow, the stop nut can be adjusted slightly counter-clockwise and the groove can go deeper. If the groove is too deep, another groove will need to be made. Proper groove diameter is important to insure connection performance. Out of specification grooves could cause joint failure.

Prevent spiral grooving

If the groove on pipe looks spiral or the pipe walks off from the groover, follow below instruction will solve the problem:

- Slightly offset the pipe and pipe stands approximately 1/2 degree (about 1" over at 10 feet/ 25mm over at 3.0meters from the roll groover) towards the operator. Proper alignment of the pipe and roll groover helps to insure proper tracking of the pipe while grooving.
- The Operator may need to apply slight force on the pipe while roll grooving, force direction to the operator's feet. The operator should wear a leather glove and cup his hand in the center of the pipe. **Always keep hand away from the grooving roll and the end of the pipe to prevent injuries.**

Manual roll grooving in place

1. Make sure that the pipe to be grooved is solidly mounted. The pipe must be able to withstand the weight of the roll groover (**min. 65 pounds loading**), and the force and torque required for grooving without moving.
2. Securely grasp the roll groover. **Do not lift with the ratchet.** Place the driveshaft into the pipe and make sure that the cover plate is tight to the end of the pipe. Tighten the feeding screw to bring the groove roller into contact with the outside of the pipe. Once the feeding screw is hand tight, use the ratchet to tighten the feeding screw an additional one quarter turn. (each quarter turn for approx. 0.02"/0.5mm feeding) Confirm that the roll groover is securely attached to the pipe and the cover plate is in touch with to the end of the pipe. If not, repeat procedure. Always make sure groover is secure when used in place to prevent it from falling. (refer to Figure A)
3. Start a test grooving by following steps 4-6.
4. Remove the ratchet from the feeding screw and extend the ratchet by pull back the lock ring if necessary. Plug in the ratchet on groove shaft and turn. (refer to Figure B)
5. Make sure the groover completes at least one full rotation around the pipe
6. Repeat steps 2, 4 & 5 until required groove depth. (refer to Chart B “Groove Parameters”) Use groove tape to check groove diameter after step 7.

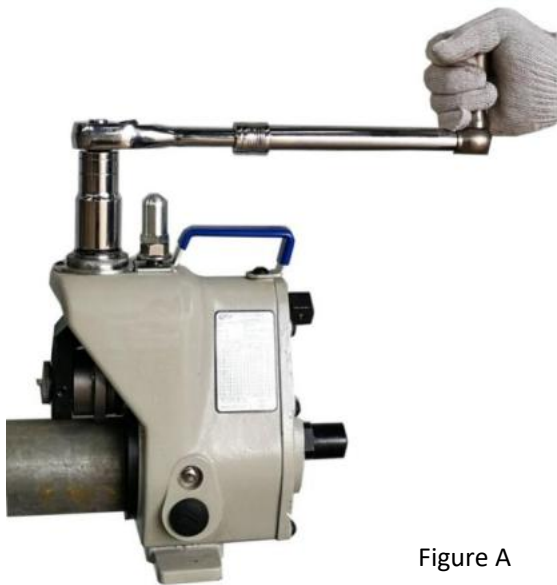


Figure A



Figure B

7. Move the ratchet to the feeding screw. Securely grasp the roll groover. Turn the feeding screw counter-clockwise and retract the groove roll so that the roll groover can be removed from the pipe. Do not drop the roll groover.
8. After a successful test grooving, manually screw the stop nut to touch the groover housing, then screw the setscrew nut in contact with stop nut. The roll groover is ready to operate on pipes in the same size.
9. Repeat steps 1,2,4,5 &7 for more grooving process. Implement at least one groove diameter inspection after **every 5 grooves** are formed. If the groove is too large, the groover can be adjusted and the groove made smaller. If the groove is too small, another groove will need to be made. Proper groove diameter is important to insure connection performance. Out of specification grooves could cause joint failure.

RG-1M HD Combo Roll Groover is designed to use a 3/16" (5mm) shearing pin on roll shaft to prevent machine damage under over-torque. Check through the operation and pipe wall thickness if the shearing pin breaks. Make sure the wall thickness is SCH40 or less.

MAINTENANCE INSTRUCTIONS

Lubrication

RG-1M HD Combo Roll Groover with good general purpose should lubrication periodically as below specified.

- 2 Grease nozzles are integrated on RG-1M groover. Grease nozzle of Drive Shaft lubrication located on the side of the groover housing. Another nozzle at the front-center of the groove shaft. Always add grease until a small amount is pushed out.
- **At least every 4 hours of operation**, lubricate the groove shaft and drop a small amount of grease in to the thread hole of the feeding screw.
- **Every month**, add grease to the drive shaft lubrication nozzle.
- The gear box of the RG-1M HD Combo Roll Groover is greased for life and does not require the addition of any grease unless the gear box is opened. See Inspection Section for other information on maintenance.

Cleaning

- Clean the driveshaft knurls with a wire brush on a daily basis or more often if needed.
- While changing the groove and drive roller, apply a light coat of grease to the shafts and shaft cavities after cleaning them with dry soft cotton cloth.

Changing Roller Sets

1.Changing Groove Roller (refer to figure C)

- A. Loose the setscrew on the side block with a 5/32" (4mm) hex wrench.
- B. Grasp the groove roller steady and draw out the groove shaft from the side block.
- C. Be aware of the plane bearing on the groove roller. The cover may drop. Check and lubricate the plane bearing if necessary.
- D. Reverse step A-C, install suitable groove roller as necessary. Tight the setscrew by hex wrench.

2.Changing Drive Roller (refer to figure D)

- A. For removing drive rollers for pipe size 1" thru 6", loose the flush bolt in the center of drive shaft at the front side with a 5/16"(8mm) hex wrench. Grasp the knurl drive roller and draw out.
- B. Reverse step A or B, install suitable drive roller as necessary.
- C. While removing, the knurl drive roller may rotate with the hex wrench, in this condition, hold the groove shaft with ratchet and loose the flush bolt.



Figure C



Figure D

Machine Storage

- Store the tool in a locked area that is out of reach of children and people unfamiliar with roll groover equipment. This tool can cause serious injury in the hands of untrained users.
- Store the tool in a locked area away from moisture and corrosion material. Apply a thin coat of anti-rust liquid on moving parts and shafts are strongly recommended.

Accessories

The following products have been designed to function with the RG-1M HD Combo Roll Groover. Other accessories suitable for use with other tools may be hazardous when used on the RG-2M HD Combo Roll Groover. To reduce the risk of serious injury, only use accessories specifically designed and recommended for use with the RG-1M HD Combo Roll Groover, such as those listed in the Chart A.

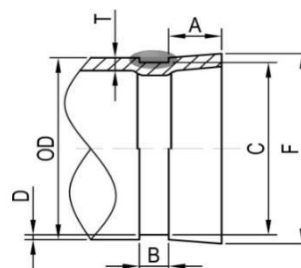
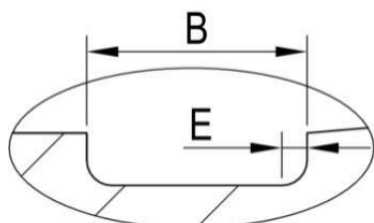
Chart A – Accessories of HD Combo Roll Groover

Accss.	Description	Part No.	Accss.	Description	Part No.
Groove Rollers	1" ~ 6"	#912016	Ratchet	w/ 3/4" hex sckt	#915045
	8" ~ 12"	#912015	Drive roll bolt	/	#915004
Drive Roller	1"	#911011	Shearing pins	3/16" (5mm)	#915025
	1 1/4" ~ 1 1/2"	#911010	Drive Bar Adapter	/	#911015
	2" ~ 6"	#911009			
	8" ~ 12"	#911008	User manual	English	#996001
Support arm	2 pcs	#911016	HDPT tool box	/	#998034
			Groove meter	1" ~ 24"	#998087

Service and Repair

The "Maintenance Instructions" will take care of most of the service needs of this machine. Any problems not addressed by this section should only be handled by an authorized service technician. Tool should be taken to a Independent Authorized Service Center or returned to the factory. When servicing this machine, only identical replacement parts should be used. Use of other parts may create a risk of serious injury. If you have any questions regarding the service or repair of this machine, please contact us directly

Chart B - Roll Grooving Parameters



Nom. Pipe Size	Pipe O.D.			Gasket Seat	Groove Width	Groove Diameter		Groove Depth	Allow. Flare Dia.
	Basic	Tolerance		A	B	Basic	Tol.	D(ref.)	F(max)
in. mm	in. mm	+in. + mm	-in. -mm	±0.03in. ±0.76mm	±0.03in. ±0.76mm	in. mm	in. mm	in. mm	in. mm
1"	1.325	0.013	0.027	0.625	0.281	1.535	-0.015	0.063	1.36
25	33.7	0.33	0.68	15.88	7.14	38.99	-0.38	1.60	34.5
1½"	1.660	0.016	0.024	0.625	0.281	1.775	-0.015	0.063	1.77
32	42.4	0.41	0.60	15.88	7.14	45.09	-0.38	1.60	45.0
1½"	1.900	0.019	0.020	0.625	0.281	2.12	-0.015	0.063	2.01
40	48.3	0.48	0.52	15.885	7.14	53.85	-0.38	1.60	51.1
2"	2.375	0.024	0.024	0.625	0.344	2.250	-0.015	0.063	2.48
50	60.3	0.61	0.61	15.88	8.74	57.15	-0.38	1.60	63.0
2½"	2.875	0.029	0.029	0.625	0.344	2.720	-0.018	0.078	2.98
65	73.0	0.74	0.74	15.88	8.74	69.09	-0.46	1.98	75.7
3OD	3.000	0.030	0.030	0.625	0.344	2.845	-0.018	0.078	3.10
65	76.1	0.76	0.76	15.88	8.74	72.26	-0.46	1.98	78.7
3"	3.500	0.035	0.031	0.625	0.344	3.344	-0.018	0.078	3.60
80	88.9	0.89	0.79	15.88	8.74	84.94	-0.46	1.98	91.4
3½"	4.000	0.040	0.031	0.625	0.344	3.834	-0.020	0.083	4.10
90	101.6	1.02	0.79	15.88	8.74	97.38	-0.51	2.11	104.1
4"	4.500	0.045	0.031	0.625	0.344	4.334	-0.020	0.083	4.60
100	114.3	1.14	0.79	15.88	8.74	110.08	-0.51	2.11	116.8
4½OD	5.000	0.050	0.031	0.625	0.344	4.834	-0.020	0.083	5.10
120	127.0	1.27	0.79	15.88	8.74	122.78	-0.51	2.11	129.5
5½OD	5.500	0.056	0.031	0.625	0.344	5.334	-0.020	0.083	5.60
125	139.7	1.42	0.79	15.88	8.74	135.48	-0.51	2.11	142.2
5"	5.563	0.056	0.031	0.625	0.344	5.395	-0.022	0.084	5.66
125	141.3	1.42	0.79	15.88	8.74	137.03	-0.56	2.13	143.8
6½OD	6.500	0.063	0.031	0.625	0.344	6.330	-0.022	0.085	6.60
150	165.1	1.60	0.79	15.88	8.74	160.78	-0.56	2.16	167.6
6"	6.625	0.063	0.031	0.625	0.344	6.455	-0.022	0.085	6.73
150	168.3	1.60	0.79	15.88	8.74	163.96	-0.56	2.16	170.9
8OD	8.000	0.063	0.031	0.750	0.469	7.816	-0.025	0.092	8.17
200	203.2	1.60	0.79	19.05	11.91	198.53	-0.64	2.34	207.5
8"	8.625	0.063	0.031	0.750	0.469	8.441	-0.025	0.092	8.80
200	219.1	1.60	0.79	19.05	11.91	214.40	-0.64	2.34	223.5
10OD	10.000	0.063	0.031	0.750	0.469	9.812	-0.027	0.094	10.17
250	254.0	1.60	0.79	19.05	11.91	249.23	-0.69	2.39	258.3
10"	10.750	0.063	0.031	0.750	0.469	10.562	-0.027	0.094	10.92
250	273.0	1.60	0.79	19.05	11.91	268.28	-0.69	2.39	277.4
12OD	12.000	0.063	0.031	0.750	0.469	11.781	-0.030	0.109	12.17
300	304.8	1.60	0.79	19.05	11.91	299.24	-0.76	2.77	309.1
12"	12.750	0.063	0.031	0.750	0.469	12.531	-0.030	0.109	12.92
300	323.9	1.60	0.79	19.05	11.91	318.29	-0.76	2.77	328.2