

The tools of innovation.

## **OPERATOR'S MANUAL**

## **BEVELING MACHINE**

## **ABM-29**



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### **1. GENERAL INFORMATION**

### 1.1. Application

The ABM-29 is a beveling machine designed to bevel plates and pipes made of carbon steel, alloy steel, stainless steel, or aluminum alloys. It bevels plates and pipes in angle range of 20-45°. The maximum bevel width is 1 9/64" (29 mm). The machine may bevel from above and from below.

The carriage allows for transport and supporting the machine, as well as working with moving machine and stationary workpiece.

### 1.2. Technical data

Voltage	3~ 400 V + PE, 50 Hz	3~ 480 V + PE, 60 Hz	
Power	3 kW		
Rotational speed	4 rpm	5 rpm	
Feed speed	5.5 ft/min (1.7 m/min)	6.5 ft/min (2 m/min)	
Bevel angle (ß, Fig. 1)	20-45°		
Maximum bevel width ( <i>b</i> , Fig. 1)	1 9/64" (29 mm)		
Workpiece thickness	(11/32-1 9/16 (1 61/64")*) 9-40 (50)* mm		
Minimum plate width	2 5/31" (55 mm)		
Minimum inner pipe diameter	6" (150 mm)		
Protection level	IP 44		
Protection class	I		
Required ambient temperature	32-104°F (0-40°C)		
Weight	1191 lbs (540 kg)		

\* For 50 mm the minimum bevel width is 10 mm





	Maximum bevel width/height per one pass							
	Carbon steel							
	$R_{\rm m} \leq 39$	92 MPa	–490 MPa	<i>R</i> <sub>m</sub> = 490–588 MPa				
β	<b>B</b> [mm]	<b>h</b> [mm]	<b>B</b> [mm]	<b>h</b> [mm]	<b>B</b> [mm]	<b>h</b> [mm]		
20°	20	19	16	15	13	12.5		
25°	20	18	16	14.5	13	12		
30°	20	17.5	16	14	13	11		
35°	20	16.5	16	13	13	10.5		
37.5°	20	16	16	12.5	13	10		
45°	20	14	16	11.5	13	9		
other	20	<b>B</b> x cos β	16	<b>B</b> x cos β	13	<b>B</b> x cos β		
	Stainless/alloy steel							
	$R_{\rm m} \leq 49$	90 MPa	<i>R</i> <sub>m</sub> = 490-	–588 MPa	<i>R</i> <sub>m</sub> = 588–686 MPa			
20°	9.5	9	8	8 7.5		6.5		
25°	9.5	8.5	8	7.5	7	6.5		
30°	9.5	8	8	7	7	6		
35°	9.5	8	8	6.5	7	6		
37.5°	9.5	7.5	8	6.5	7	5.5		
45°	9.5	6.5	8	5.5	7	5		
other	9.5	<b>B</b> x cos β	8	<b>B</b> x cos β				



	Maximum bevel width/height per one pass							
	Carbon steel							
	$R_{\rm m} \leq 39$	92 MPa	<i>R</i> <sub>m</sub> = 392-	–490 MPa	<i>R</i> <sub>m</sub> = 490–588 MPa			
ß	В	B h B h		В	h			
			[inch]	[inch]		[inch]		
20°	25/32	3/4	5/8	19/32	33/64	31/64		
25°	25/32	45/64	5/8	37/64	33/64	15/32		
30°	25/32	11/16	5/8	35/64	33/64	7/16		
35°	25/32	21/32	5/8	33/64	33/64	13/32		
37,5°	25/32	5/8	5/8	31/64	33/64	25/64		
45°	25/32	35/64	5/8	29/64	33/64	23/64		
other	25/32	$\mathbf{B} \propto \cos \beta$	5/8	$\mathbf{B} \propto \cos \beta$	33/64	<b>B</b> x cos $\beta$		
	Stainless/alloy steel							
	$R_{\rm m} \leq 49$	90 MPa	<i>R</i> <sub>m</sub> = 490-	–588 MPa	<i>R</i> <sub>m</sub> = 588–686 MPa			
20°	3/8	23/64	5/16	5/16 19/64		1/4		
25°	3/8	21/64	5/16	19/64	9/32	1/4		
30°	3/8	5/16	5/16	9/32	9/32	15/64		
35°	3/8	5/16	5/16	1/4	9/32	15/64		
37,5°	3/8	19/64	5/16	1/4	9/32	7/32		
45°	3/8	1/4	5/16	7/32	9/32	13/64		
other	3/8	B x cos β						

Fig. 1. Bevel dimensions; maximum bevel width/height per one pass depending on angle and material type and hardness



## 1.3. Equipment included



1	Beveling machine	1 unit
2	Transport box	1 unit
3	Flat wrench 32-36 mm	1 unit
4	Flat wrench 30-32 mm	1 unit
5	Flat wrench 24-27 mm	1 unit
6	Torque adjustment tool	1 unit
7	14 mm hex wrench	1 unit
8	8 mm hex wrench	1 unit
9	6 mm hex wrench	1 unit
10	4 mm hex wrench	1 unit
_	Operator's Manual	1 unit





### 1.4. Dimensions







### 1.5. Design



### 2. SAFETY PRECAUTIONS

- 1. Before use, read this Operator's Manual and complete a training in occupational health and safety.
- 2. Use only in applications specified in this Operator's Manual.
- 3. Make sure that the machine has all parts and they are genuine and not damaged.
- 4. Make sure that the specifications of the power source are the same as those specified on the rating plate.
- 5. The machine must be connected to the power source by the qualified electrician only.
- 6. Do not pull the cable. This may cause damage and electric shock.
- 7. Put the machine on a surface that ensures stability. An incorrectly prepared surface may lead to damage, incorrect machine work, and injuries to persons nearby.
- 8. Keep untrained persons away from the machine.
- 9. Before each use, ensure the correct condition of the machine, power source, supply cable, plug, and tools.
- 10. Before each use, make sure that no part is cracked or loose. Make sure to maintain correct conditions that can have an effect on the operation of the machine.
- 11. Keep the machine dry. Do not expose the machine to rain, snow, or frost.
- 12. Keep the work area well lit, clean, and free of obstacles.
- 13. Make sure that the tool is correctly attached with use of washer and screw. Remove wrenches from the work area before you connect the machine to the power source.
- 14. Do not use tools which are dull or damaged.
- 15. When the tool is dull or damaged, replace it with the new one, specified in the operator's manual.
- 16. Do not make bevels or machine materials of parameters differ from those specified in the technical data.
- 17. Do not use near flammable materials or in explosive environments.
- 18. Use eye protection, gloves, and protective clothing. Do not use loose clothing.
- 19. Do not touch chips, moving parts, or hot elements. Do not let anything to be caught in moving parts. Some machine part become hot during operation.
- 20. After use, clean the machine and the tool with a dry cotton cloth and no chemical agents. Do not remove chips with bare hands.

- 21. Maintain the machine and install/remove parts and tools only after you unplug the machine from the power source.
- 22. Repair only in a service center appointed by the seller.
- 23. If the machine falls, is wet, or has any damage, stop the work and immediately send the machine to the service center for check and repair.
- 24. Do not leave the machine unattended when it operates.
- 25. If you are not going to use the machine for an extended period, put anti-corrosion material on the steel parts.

### 3. SYMBOLS

Before using the machine, familiarize yourself with the following symbols:



Read the Operator's Manual

Warning against moving machine rollers

Warning against sharp elements

## 4. STARTUP AND OPERATION

### 4.1. Installing the reducer handwheel

The machine is delivered with dismantled handwheel of orientation change reducer. To install, put the handwheel (1) on the reducer shaft (2) and fix with the Allen screw (3).





### 4.2. Beveling angle adjustment

Use 24 mm flat wrench to loosen screws (1) on both sides of the machine (8 pcs.). Turn the knob (2) to set the required bevel angle on the scale (3). Tighten screws (1) after adjustment.



#### **4.3. Preparation for machining the plates**

Use 14 mm hex wrench to loosen screws (1). Turn knob (2) to set the value corresponding to the plate thickness and bevel angle (see section 4.3) on the scale (3), then tighten the screws. Then put plate on the support roller (4) and use knob (5) to move the pressure rollers towards the plate.



### 4.4. Setting the parameters



To obtain the default bevel width (20 mm), align the line of required angle (1) with the line of plate thickness (2). To obtain the intermediate angle (e.g.  $25^{\circ}$ ), the line corresponding to the plate thickness should be positioned between the lines of values of 20° and 30°.

To obtain other bevel dimensions, use the table below.

#### Example:

We want to obtain the bevel width B of 15 mm for the angle of 45°. Look at the table and find the cell at the intersection of 45° column and 15 mm row. Its value is 11.0. It is the bevel height. As the bevel height for the default width (20 mm) is 14.5 mm, it is required to lower the support rollers by 3.5 mm (14.5 mm – 11.0 mm = 3.5 mm), using the scale (3) and turning the workpiece thickness adjustment knob. One knob turn moves the rollers by 7/64" (3 mm).



	h [mm]						
β	<b>20°</b>	25°	30°	35°	37.5°	<b>40°</b>	<b>45°</b>
B [mm]							
1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2	2.0	2.0	2.0	2.0	2.0	2.0	1.5
3	3.0	3.0	3.0	2.5	2.5	2.5	2.5
4	4.0	4.0	3.5	3.5	3.5	3.5	3.0
5	5.0	5.0	4.5	4.5	4.0	4.0	4.0
6	6.0	5.5	5.5	5.0	5.0	5.0	4.5
7	7.0	6.5	6.5	6.0	6.0	5.5	5.0
8	8.0	7.5	7.0	7.0	6.5	6.5	6.0
9	8.5	8.5	8.0	7.5	7.5	7.0	6.5
10	9.5	9.5	9.0	8.5	8.0	8.0	7.5
11	10.5	10.0	10.0	9.5	9.0	8.5	8.0
12	11.5	11.0	10.5	10.0	10.0	9.5	8.5
13	12.5	12.0	11.5	11.0	10.5	10.0	9.5
14	13.5	13.0	12.5	11.5	11.5	11.0	10.0
15	14.5	14.0	13.0	12.5	12.0	11.5	11.0
16	15.5	15.0	14.0	13.5	13.0	12.5	11.5
17	16.0	15.5	15.0	14.0	13.5	13.5	12.5
18	17.0	16.5	16.0	15.0	14.5	14.0	13.0
19	18.0	17.5	16.5	16.0	15.5	15.0	13.5
20	19.0	18.5	17.5	16.5	16.0	15.5	14.5
21	20.0	19.5	18.5	17.5	17.0	16.5	15.0
22	21.0	20.0	19.5	18.5	17.5	17.0	16.0
23	22.0	21.0	20.0	19.0	18.5	18.0	16.5
24	23.0	22.0	21.0	20.0	19.5	18.5	17.0
25	23.5	23.0	22.0	20.5	20.0	19.5	18.0
26	24.5	24.0	23.0	21.5	21.0	20.0	18.5
27	25.5	24.5	23.5	22.5	21.5	21.0	19.5
28	26.5	25.5	24.5	23.0	22.5	21.5	20.0
29	27.5	26.5	25.5	24.0	23.0	22.5	21.0
30	28.5	27.5	26.0	25.0	24.0	23.0	21.5



	h [inch]							
β	<b>20°</b>	25°	<b>30°</b>	35°	37.5°	<b>40°</b>	45°	
B [inch]								
3/64	3/64	3/64	3/64	3/64	3/64	3/64	3/64	
5/64	5/64	5/64	5/64	5/64	5/64	5/64	1/16	
1/8	1/8	1/8	1/8	3/32	3/32	3/32	3/32	
5/32	5/32	5/32	9/64	9/64	9/64	9/64	1/8	
13/64	13/64	13/64	11/64	11/64	5/32	5/32	5/32	
15/64	15/64	7/32	7/32	13/64	13/64	13/64	11/64	
9/32	9/32	1/4	1/4	15/64	15/64	7/32	13/64	
5/16	5/16	19/64	9/32	9/32	1/4	1/4	15/64	
23/64	21/64	21/64	5/16	19/64	19/64	9/32	1/4	
25/64	3/8	3/8	23/64	21/64	5/16	5/16	19/64	
7/16	13/32	25/64	25/64	3/8	23/64	21/64	5/16	
15/32	29/64	7/16	13/32	25/64	25/64	3/8	21/64	
33/64	31/64	15/32	29/64	7/16	13/32	25/64	3/8	
35/64	17/32	33/64	31/64	29/64	29/64	7/16	25/64	
19/32	37/64	35/64	33/64	31/64	15/32	29/64	7/16	
5/8	39/64	19/32	35/64	17/32	33/64	31/64	29/64	
43/64	5/8	39/64	19/32	35/64	17/32	17/32	31/64	
45/64	43/64	21/32	5/8	19/32	37/64	35/64	33/64	
3/4	45/64	11/16	21/32	5/8	39/64	19/32	17/32	
25/32	3/4	47/64	11/16	21/32	5/8	39/64	37/64	
53/64	25/32	49/64	47/64	11/16	43/64	21/32	19/32	
55/64	53/64	25/32	49/64	47/64	11/16	43/64	5/8	
29/32	55/64	53/64	25/32	3/4	47/64	45/64	21/32	
15/16	29/32	55/64	53/64	25/32	49/64	47/64	43/64	
63/64	59/64	29/32	55/64	13/16	25/32	49/64	45/64	
11/32	31/32	15/16	29/32	27/32	53/64	25/32	47/64	
11/16	1	31/32	59/64	57/64	27/32	53/64	49/64	
17/64	13/64	1	31/32	29/32	57/64	27/32	25/32	
19/64	15/64	13/64	1	15/16	29/32	57/64	53/64	
13/16	11/8	15/64	11/32	63/64	15/16	29/32	27/32	



### 4.5. Machine height adjustment

The machine height may be adjusted in order to fit to the position of the workpiece. To lift the machine, insert lever (1) in the pump holder (2) and move it up and down. To lower the machine, turn the lever (3) and indicated by the arrow, then back to the initial position.





### 4.6. Stationary and moving work

The machine allows for beveling the large stationary workpieces by moving along the machined edge. To do this, remove four carriage locks (*1*). After placing the edge of workpiece in the machine it will move on the carriage wheels.







top bevel

bottom bevel

### 4.7. Beveling from below

The machine allows for beveling the workpiece from below. To do this, the machine must be rotated.

To rotate the machine, remove the rotation lock (1). Then turn the handwheel (2) an any direction. When rotating is finished, replace the lock (1) to stabilize the machine position.



### 4.8. Operation

Remove any chips from the previous beveling from the machine, e.g. with use of compressed air.

Adjust the machine height, beveling angle, plate thickness, and bevel parameters according to sections 4.2 - 4.4.

Introduce the plate edge into the machine and lower the pressure rollers until they touch the plate.

Check the tool rotation direction setting on the control panel.

Check if the upper air vent valve is opened.

Check if the emergency switch is unlocked.

Start the machine and move the plate towards the tool. After the plate becomes caught by the tool, it will move by itself.



Before work make sure that the upper air vent valve is opened. Working with closed air vent valve will cause the pressure rise which may lead to the gearbox damage.

Make sure that the machine is positioned as below to perform beveling in the indicated directions. The machine must move along the sheet.







When the machine becomes jammed during work, change the rotation direction, move the machine back, remove (e.g. by cutting off) the protruding fragment which might cause machine stop during remachining, then restore normal operation.

For the operator's safety (crushing hazard) the edge of workpiece must be located at least 4 ft (1200 mm) from the wall or obstacle.



### 4.9. Pipe beveling

The machine allows for beveling the pipes edges in full range of bevel angles.

The minimum inner diameter of the pipe must be higher than the roller diameter so the roller remains in the pipe during beveling. The maximum pipe diameter is not specified. Remove the support rollers (1) and (2) before machining.



Insert the pipe from the front, tilting it slightly to place the tool on the pipe edge. In case of bevels exceeding 37/64" (15 mm) make the initial bevel manually in order to facilitate the machining start by the tool.

### 4.10. Tool replacement

Unplug the machine from the power source. Remove the transparent cover (1) by removing screws (2) on both sides of the machine and sliding the cover up. Move the support rollers assembly (3) to the lowest position. Lift the pressure rollers (4) to make the tool fixing screw accessible. Undo the screw with 14 mm hex wrench (5). Then lower the pressure rollers and remove the tool.

Perform assembly in the opposite sequence. In order to facilitate the assembly use the wooden or plastic hammer.





### **5. MAINTENANCE**

After approx. 50 hours of operation unscrew six Allen screws (1) and remove the bottom pressing assembly. Clean and lubricate the assembly movement surface. After lubrication reinstall the assembly.





### 6. DECLARATION OF CONFORMITY

## EC Declaration of Conformity

We

PROMOTECH Sp. z o.o. ul. Elewatorska 23/1 15-620 Białystok, Poland

declare with full responsibility that product:

#### ABM-29 Beveling machine

which the declaration applies to is in accordance with the following standard(s) placed below:

- EN ISO 12100: 2010,
- EN 62841-1: 2015,
- EN 55014-1: 2017,

and satisfies safety regulations of guidelines: 2014/30/EU, 2006/42/EC, 2011/65/EU

The person authorised to compile the technical file:

Artur Zawadzki, ul. Elewatorska 23/1 15-620 Białystok

audit

Białystok, 2024-08-12

Chairman Artur Zawadzki



### 7. WARRANTY CARD

#### WARRANTY CARD No.....

..... in the name of Manufacturer warrants the ABM-29 Beveling Machine to be free of defects in material and workmanship under normal use for a period of 12 months from the date of sale. This warranty does not cover cutters as well as damage or wear that arise from misuse, accident, tempering, or any other causes not related to defects in workmanship or material.

Serial number .....

Date of sale .....

Signature and stamp of the seller .....

0.01 / 30 August 2024

WE RESERVE THE RIGHT TO MAKE CHANGES IN THIS MANUAL WITHOUT NOTICE