
**APV BAKER INC.
Tilt Bowl Dough Mixer**

GENERAL SPECIFICATIONS - TBX MIXER

For bakeries who want to automate their mixing room, APV Baker has designed the new TBX range of mixers with over and reverse tilt. The mixer has been designed around the well proven 900 series mixer to take advantage of excellent mix characteristics provided by that bowl shape and to add the benefit of automatic discharge.

CONTROL

A PLC based control package designed to allow the mixer to be used either as a standard mixer or as part of an integrated system under the command of a plant controller.

AUTOMATION

Automatic mode allows the mixer to be driven by a remote control system. The mixer will:

- Accept downloaded times.
- Discharge automatically when the mix is complete.
- Provide a "ready to load" signal to the ingredient feed system when the bowl has been discharged and returned to the upright position.

*Bulletin #5018
Rev. 3/1/94...DES*

FEATURES

- Proven bowl and agitator derived from over 2000 of our mixers in use throughout the industry.
- The outside surfaces of the mixer are completely clad in sanitary stainless steel and the majority of the seams are welded not bolted to ensure greater sanitation and eliminate the chance of small parts falling into the product.
- Great care has been taken in the design, to make the mixer easy to maintain and clean, with new, more effective shaft seals, the elimination of hydraulics, and the proper containment of all the lubricating oil.
- Manual mode allows for normal mixer operation with multiple timers for high and low speed, the high speed timer also permits the addition of salt part of the way through the mix.
- Pushbutton operation of stop, start, jog, and tilt. The pushbuttons are spaced to make sure that two-handed operation is required so that the operator is forced to adopt safe practices.

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CONSTRUCTION

Mixer Base Frame: Welded steel plate painted with epoxy and clad with stainless steel on exposed exterior surfaces.

Mixer Bowl: The shell and ends are welded to form the complete mixing bowl. The inner surfaces of the bowl are stainless steel, and all corners are rounded and ground smooth. The shell and ends are jacketed for a working pressure of 120 psi and insulated with foam. A digital thermometer indicates the temperature of the dough. An optional drain valve is available to facilitate washing.

Shell: Stainless steel inner plate jacketed with a series of stainless steel plates. Jacket plates are formed and welded to the shell in a "shingle" type construction.

Bowl Ends: Stainless steel inner plates jacketed with stainless steel and welded to the shell.

Covers: #4 finish stainless steel covers seal the bowl insulation.

Bowl Canopy: Heavy rolled stainless steel plate with reinforcing bars welded to front and rear edges. The canopy is bolted and pinned to supports on the vertical walls of the main frame.

Flour Opening: 12" diameter with butterfly gate pneumatically operated.

Agitator Shaft Seals: Double lip type face seals provided for each side of bowl are designed for ease of disassembly and cleaning.

AGITATOR

- Three roll bar agitator with 300 series SS arms, and solid rollers mounted on a 300 series SS agitator shaft.
- Arm pairs equipped with large diameter outer solid roller bars and small diameter stationary inner bars.
- Roller bars mounted in adjustable bushings.

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DRIVE

- Two speed motor and helical gear reducer drive agitator through poly chain belt drive.
- Nominal agitator speed: See page 8.

TIMERS

- Two digital preset timers; one for slow mixture, the other for salt addition and total time.

MODE SELECTOR SWITCHES

- Selector switch for auto or manual operation.

AUTOMATIC OPERATION OF AGITATOR (SLOW/FAST)

- Slow and high speed time adjustable up to 99 minutes.
- Automatic stop.

MANUAL OPERATION OF AGITATOR

- Manual pushbutton control for "Fast", "Slow", "Safety", and "Stop".

CONTROLS AND SAFETIES

- Agitator and bowl tilt controlled from pushbutton station at right front or right rear of mixer. Remote station is also available.
- Pushbutton agitator control: "Fast", "Slow", "Safety", and "Stop".
- Pushbutton bowl tilt control: "Up", "Down", "Stop", and "Safety".

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TILT BOWL DOUGH MIXER
GENERAL SPECIFICATIONS

SPACE REQUIREMENTS	TBX-13	TBX-16	TBX-20	TBX-25	TBX-30
MIN. OVERALL HEIGHT(NO LEGS)	92 1/2	92 1/2	93.0	93.0	93.0
OVERALL HEIGHT USING 32" TRD	102 3/16	102 3/16	102 11/16	102 11/16	
WIDTH FOR AGIT. MT'D. REDUCER					
WIDTH FOR FLOOR MT'D. REDUCER	118 1/2	121 1/2	127 1/2	134 7/8	
MAX. DEPTH	85 1/2	85 1/2	86"	91 1/2	87 1/2
MAX. BOWL DISCHARGE ANGLE	128°	128°	128°	128°	128°
MAX. BOWL CHARGING ANGLE	38°	38°	38°	38°	38°
TRD RECESS-DEPTH FROM FRDNT	23 3/8	23 3/8	23 3/8	23 3/8	23 3/8
AGIT. Q TO BUMPER FACE	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
AGITATOR SPEED R.P.M.	78/39	74/37	71/35.5	63/31.5	
WEIGHT & FLOOR LOADING (864 SQ.IN.)					
NET EMPTY WEIGHT (LBS.)	17,000	19,000	22,000	25,000	31,000
SHIPPING WEIGHT (LBS.)	18,000	20,000	23,000	26,000	32,000
STATIC LOAD (NET+DOUGH) (PSI)	22	24	28	32	40
MAX.IMPACT(KENETIC ENERGY) (FT-LBS)	600	900	1200	1400	1600
CAPACITIES STAND. BOWL @ 65 #/CUFT.DOUGH					
GROSS BOWL VOLUME (CUFT.)	49	57	67	78 1/2	
ASBE VOLUME (CUFT.)	34	43	55	67	
MAX.FINAL DOUGH (LBS.) OVER 62% WATER ABSORPTION	1300	1600	2000	2500	3000
MAX.SPONGE @ SEE PAGE 8; @ 52% WATER ABSORPTION	780	960	1200	1500	1800
MIN.DOUGH @ 1/2 NOM. (LBS.)	650	800	1000	1250	1500
BOWL DIMENSIONS					
BOWL INSIDE RADIUS (INS.)	18 1/2	20.0	21 1/2	23.0	
BOWL INSIDE WIDTH (INS.)	50.0	53.0	58.0	62 3/8	
BOWL JACKETED AREA (SQ.FT.)	39	42	48	51	
BOWL JACKET VOLUME					

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POWER REQUIREMENTS	TBX-13	TBX-16	TBX-20	TBX-25	TBX-30
AGITATOR DRIVE (HP)	60/30	75/37.5	100/50	125/62.5	150/75
BOWL TILT DRIVE (HP)	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
STAND. POWER REQ'D. (KVA)	60	76	95	124	150
CIRCUIT BREAKER SIZE (AMP)	125	150	200	250	300
FLOUR GATE	AIR @ 100 PSI	AIR @ 100 PSI	AIR @ 100 PSI	AIR @ 100 PSI	AIR @ 100 PSI
BOWL DRIVE BRAKE	AIR @ 100 PSI	AIR @ 100 PSI	AIR @ 100 PSI	AIR @ 100 PSI	AIR @ 100 PSI
REFRIG. REQ'D. R-22 @ 10 DEGEVAP. 115 DEG.COND.					
COMPRESSOR CAPACITY (TONS)	18	21	26	30	36
COMPRESSOR DISPLACEMENT (CFM) MINIMUM	84	100	120	140	160
APPROX. COMPRESSOR HP	40	40	50	50	60
MIN. RECEIVER CAP. UP TO 100' LINE (LBS)	100	135	170	170	190
COOLING SURFACE AREA (SQ.FT.)	39	42	48	51	
REFRIG. CONNS. - R-22					
INLET TUBE OD (37 JIC)	3/4	1	1	1	1
OUTLET TUBE OD (37° JIC)	1 1/2	2	2	2	2
RECOM. LIQUID LINE OD	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8
RECOM. SUCTION LINE OD	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8
BOWL INLET FOR LIQUID COOLING (NPT)	1 1/2	1 1/2	2	2	
BOWL OUTLET FOR LIQUID COOLING (NPT)	1 1/2	1 1/2	2	2	
NOTES					

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CONTROLS

PUSH BUTTON CONTROL PANEL -----	NEMA 4
THREE POSITION SELECTOR SWITCH	
TIME -----	MIX TO PRESET TIME
ENERGY -----	MIX TO PRESET ENERGY INPUT
MANUAL -----	MIX TO PROPER CONSISTANCY
BOWL ROTATION PUSH BUTTONS -----	BOWL TILT - FRONT/REAR BOWL UP (FRONT & REAR PUSH BUTTON) BOWL DOWN (FRONT & REAR PUSH BUTTON)
AGITATOR PUSH BUTTONS -----	SLOW (FRONT & REAR PUSH BUTTON) FAST STOP
FLOUR GATE -----	OPEN CLOSE
REFRIGERATION -----	START OFF-DN (SELECTOR SWITCH)
PRODUCT CHANGE DEVICE -----	INTERFACE MODULE / MESSAGE DISPLAY
EMERGENCY STOP PUSH BUTTON -----	SHUTS ALL CONTROL POWER OFF TO MIXER. (FR. & REAR)
SAFETY PUSH BUTTON -----	DURING SAFETY CONDITION, TWO HAND OPERATION REQ'D.
PROCESSOR -----	SLC 500

MISCELLANEOUS

JACKET (INCLUDING ENDS) -----	'FOAM IN PLACE' INSULATION
MAX. JACKET PRESSURE -----	120 PSI
AIR REQUIREMENTS -----	AIR SEALS (5-10 PSI @ .5 SCFM) FLOUR GATE (MAX. 120 PSI @ __SCFM) BRAKE (100 PSI @ __SCFM) OPTIONAL SPONGE DOOR (100 PSI @ __SCFM)
AGITATOR -----	STAINLESS STEEL, THREE ARM DESIGN
AGITATOR SHAFT -----	SOLID STAINLESS STEEL
AGITATOR SPEEDS -----	SEE PAGE 8 FOR HIGH
MIXER BOWL ASSEMBLY -----	STAINLESS STEEL CONSTRUCTION
BOWL DRAIN -----	COVER PLATE STANDARD
INGREDIENT INLETS -----	(3) 3.0" SANITARY FITTINGS
BREATHING PORT -----	2 1/2 NPT
MINOR INGREDIENT OPENING -----	REAR/FRONT TILT STANDARD
FLOUR OPENING -----	12" DIA. INSIDE
FINISH -----	STAINLESS STEEL CLADDING W/PAINTED FOOT SUPPORTS (STN.STL.OPTIONAL)
ELECTRICAL CHARACTERISTICS -----	POWER CONTROL PANEL 480 V/60 HZ/3 PH DRIVE MOTOR-AGITATOR 460 V/60 HZ/3 PH TILT MOTOR-BOWL 460 V/60 HZ/3 PH CONTROL 120 V/60 HZ/3 PH
STANDARD REFRIGERATION -----	PIPING TO TOP OF MIXER LIQUID LINE SOLENOID VALVE LIQUID LINE STRAINER RELIEF VALVE EXPANSION VALVE SIGHT GLASS

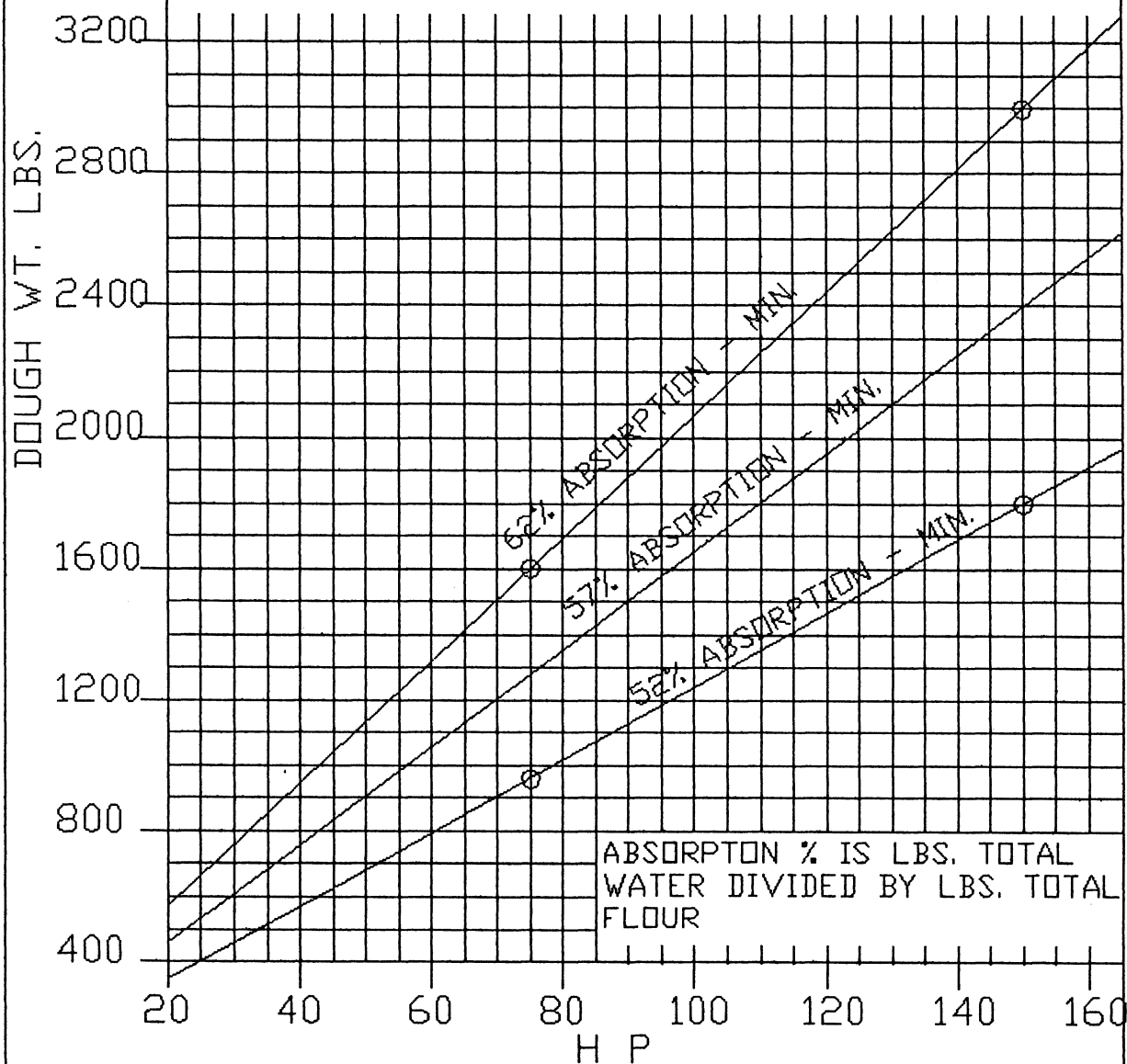
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TBX MIXERS STANDARD SPEEDS

2" AGITATOR CLEARANCE
 #13 = 78 RPM AGITATOR
 #16 = 74 RPM
 #20 = 71 RPM
 #25 = 63 RPM
 #30 =

TO USE THIS CHART

1. DRAW HORIZONTAL LINE FROM DOUGH WEIGHT TO INTERSECTION W/ABSORPTION LINE
2. DRAW VERTICAL LINE FROM INTERSECTION ON ABSORPTION LINE TO HP.



TBX MIXERS OPTIONAL HIGH SPEEDS

2" AGITATOR CLEARANCE

#13 = 88 RPM AGITATOR

#16 = 84 RPM "

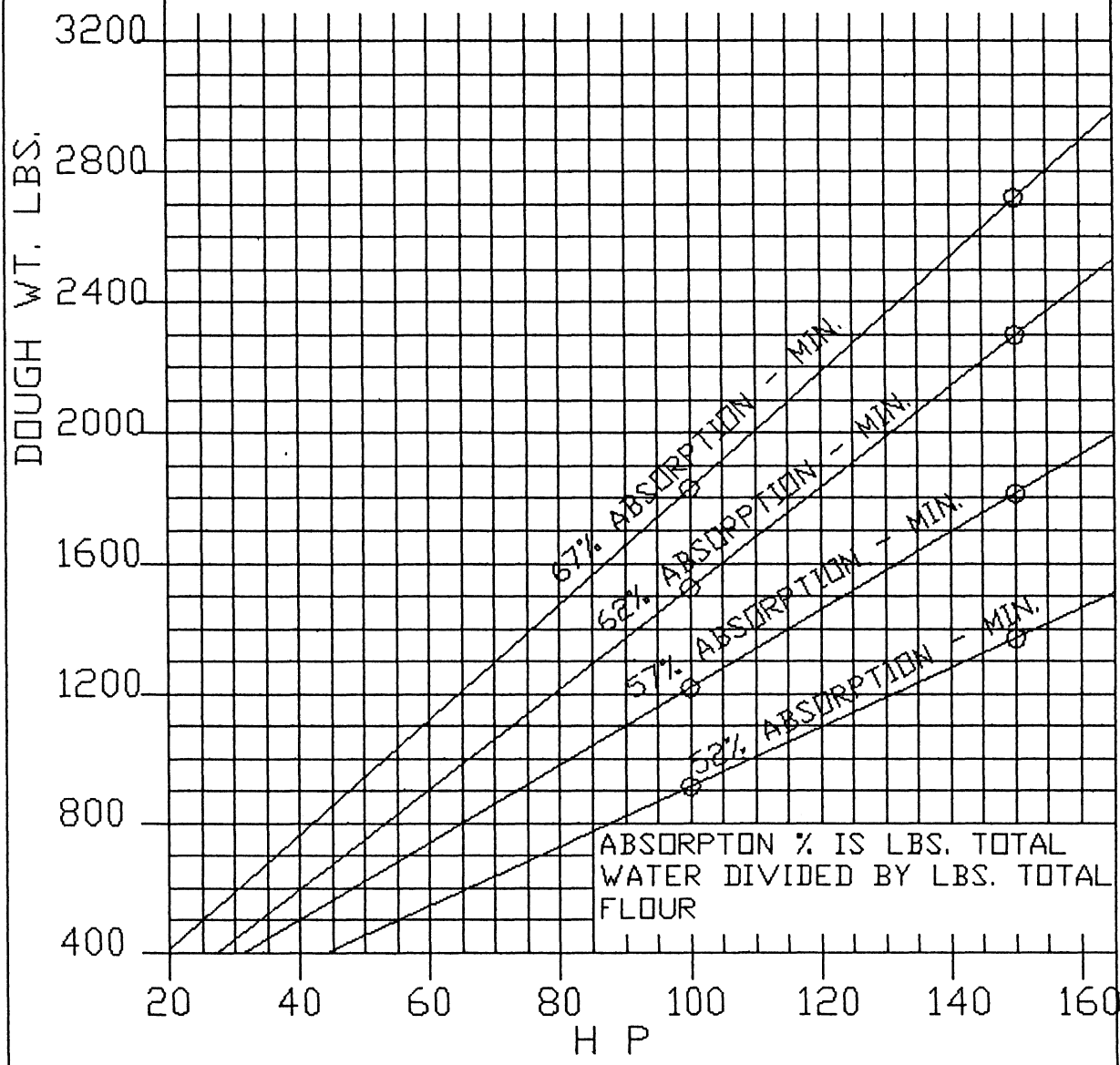
#20 = 80 RPM "

#25 = 72 RPM "

#30 =

TO USE THIS CHART

1. DRAW HORIZONTAL LINE FROM DOUGH WEIGHT TO INTERSECTION W/ABSORPTION LINE
2. DRAW VERTICAL LINE FROM INTERSECTION ON ABSORPTION LINE TO HP.



TBX MIXERS OPTIONAL LOW SPEEDS

2" AGITATOR CLEARANCE
 #13 = 44 RPM AGITATOR
 #16 = 42 RPM
 #20 = 40 RPM
 #25 = 36 RPM
 #30 =

TO USE THIS CHART

1. DRAW HORIZONTAL LINE FROM DOUGH WEIGHT TO INTERSECTION W/ABSORPTION LINE
2. DRAW VERTICAL LINE FROM INTERSECTION ON ABSORPTION LINE TO HP.

