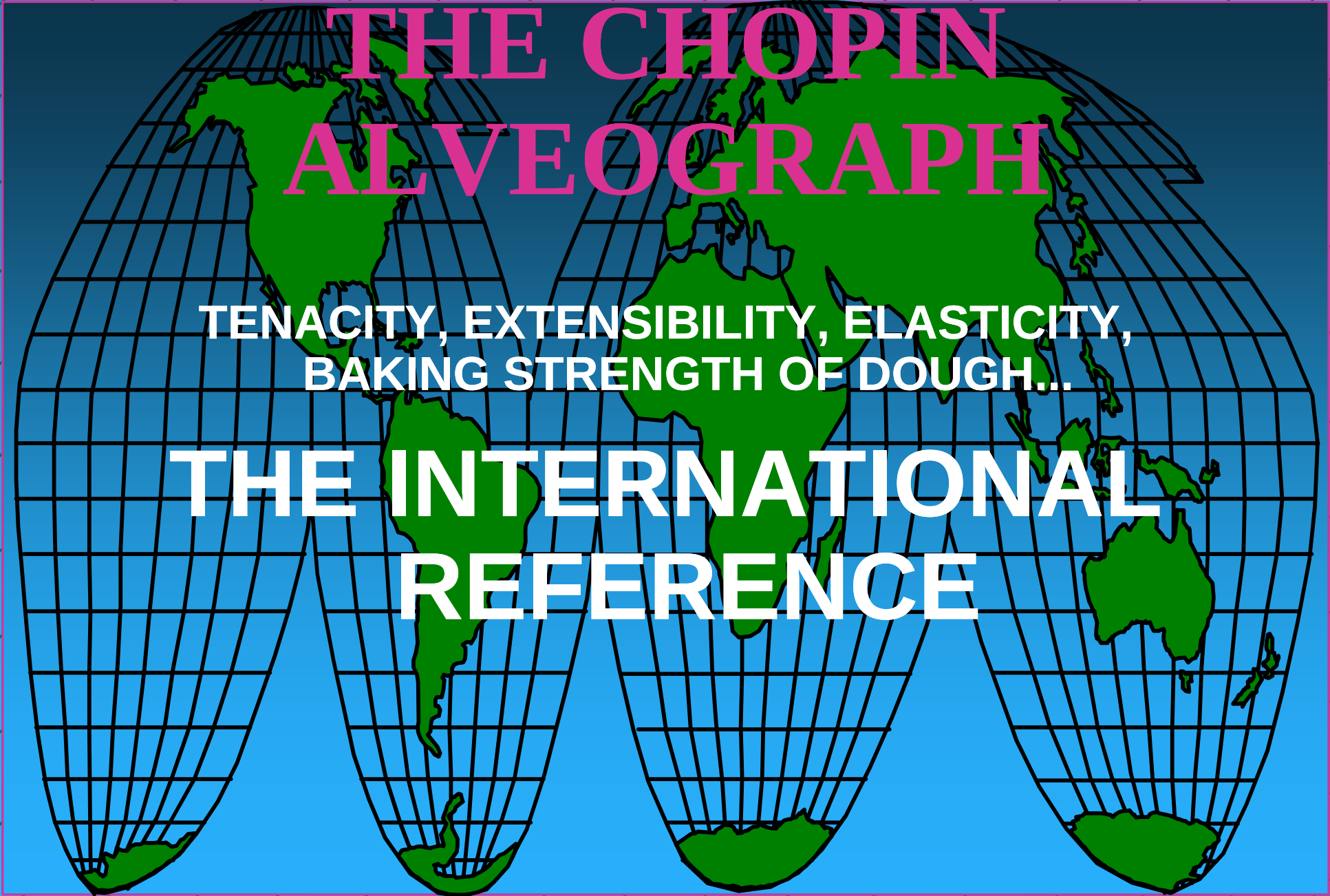




THE CHOPIN ALVEOGRAPH

TENACITY, EXTENSIBILITY, ELASTICITY,
BAKING STRENGTH OF DOUGH...

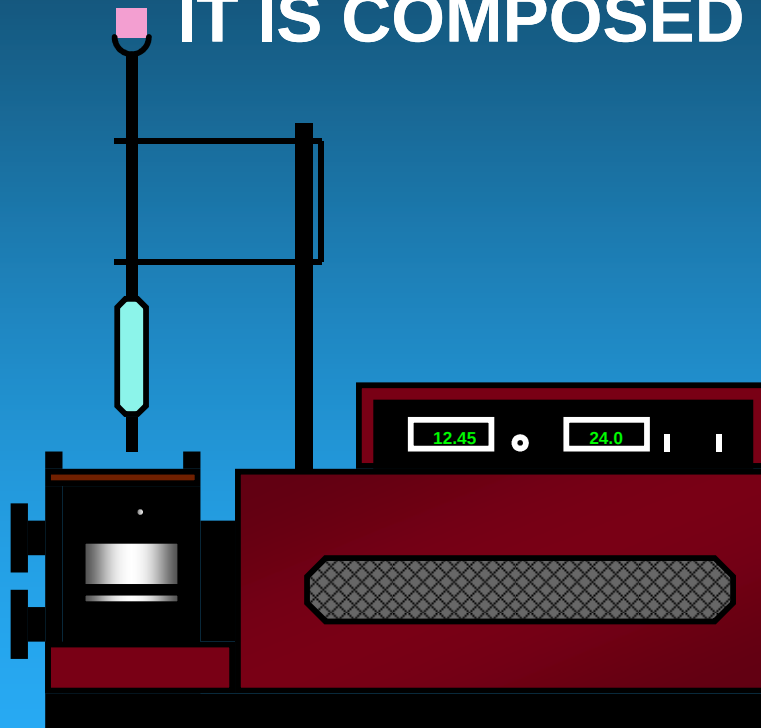
THE INTERNATIONAL REFERENCE

PART 1

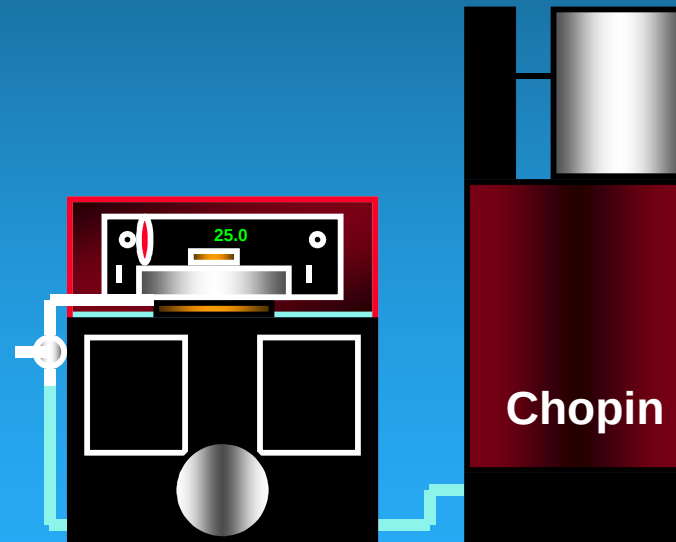
USING THE **CHOPIN** ALVEOGRAPH

THE CHOPIN ALVEOGRAPH

■ IT IS COMPOSED OF 3 LINKED PARTS



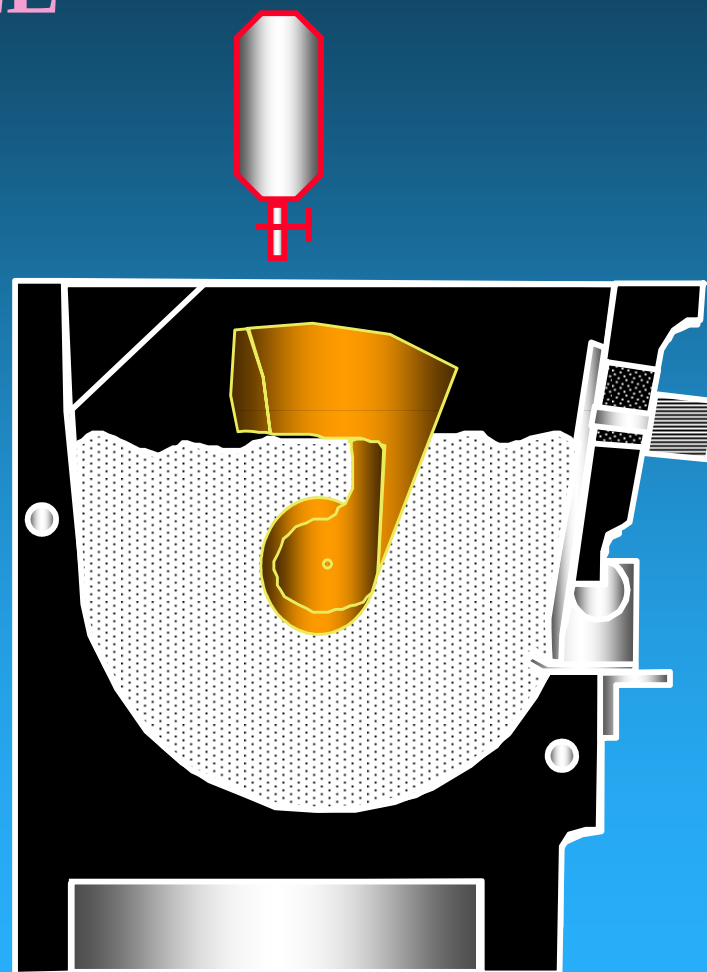
THE KNEADER



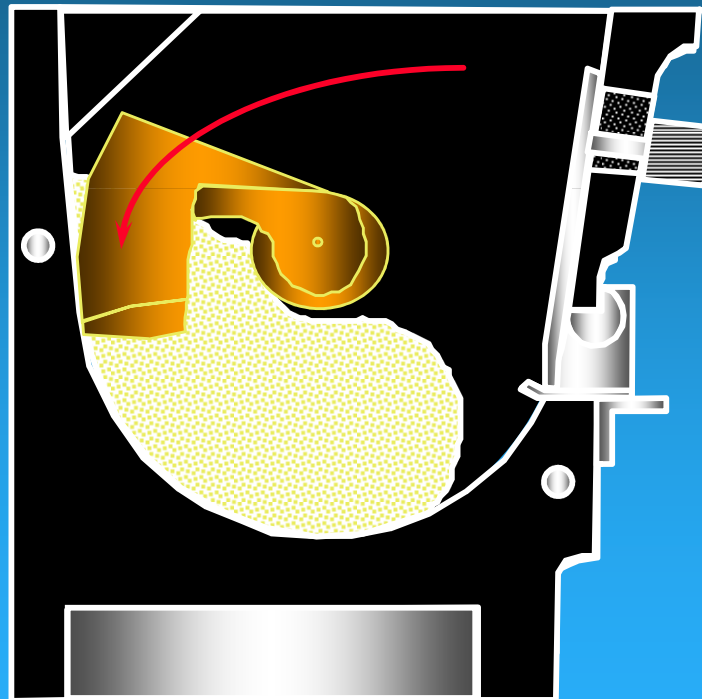
THE ALVEOGRAPH THE MANOMETER
(OR RCV4)

INTRODUCTION OF SALT WATER BASED ON THE MOISTURE OF THE SAMPLE

NaCl 25g/ L



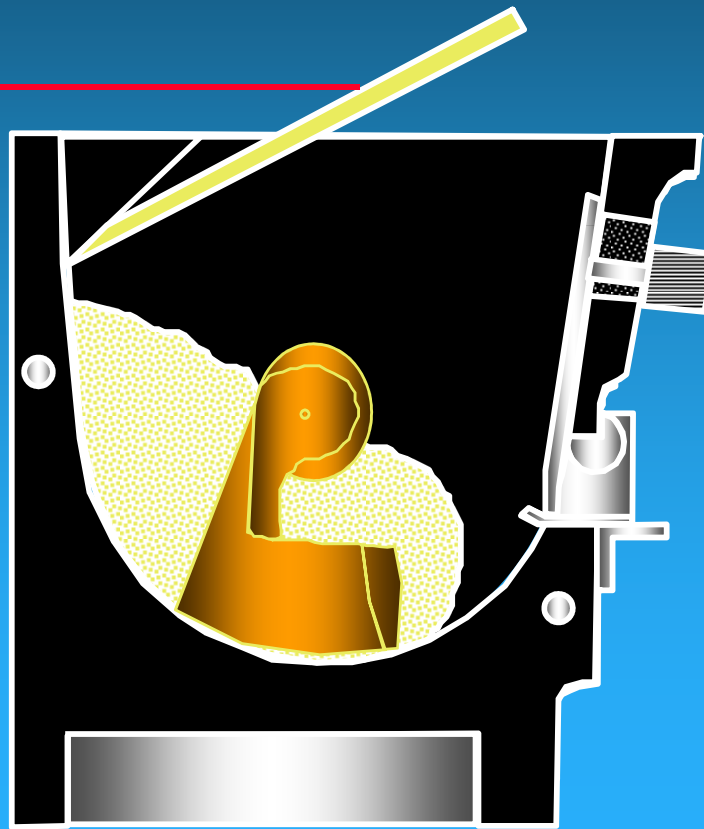
1 MINUTE KNEADING



1 MINUTE TO CLEAN THE MIXER

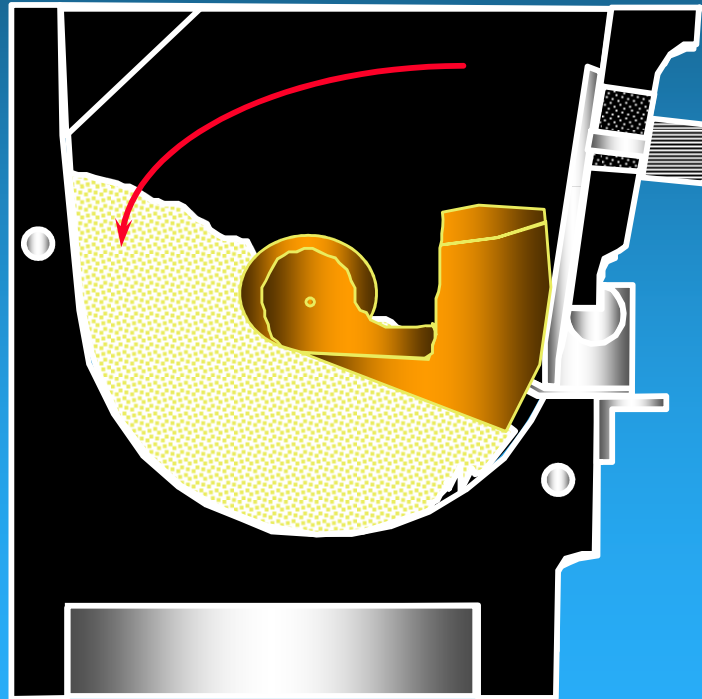
PLASTIC SPATULA ONLY

SPATULA



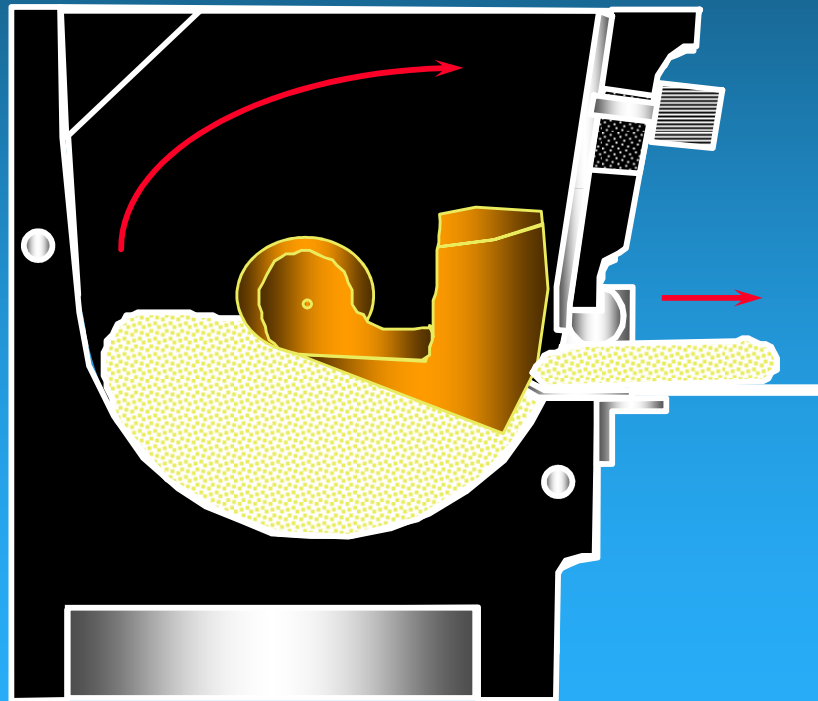
6 MINUTES MORE MIXING

Rotates toward rear of mixer

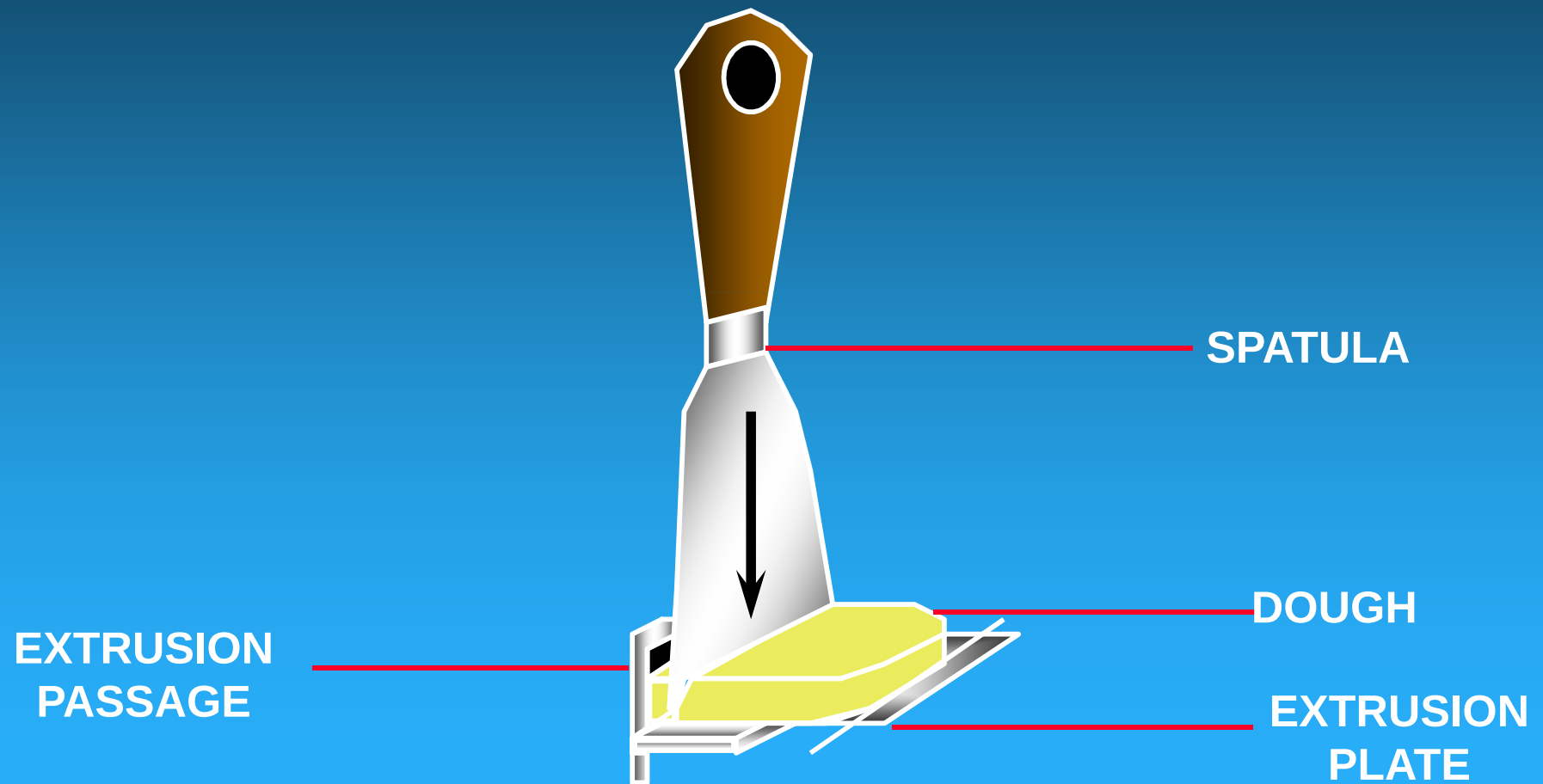


EXTRUSION OF THE DOUGH

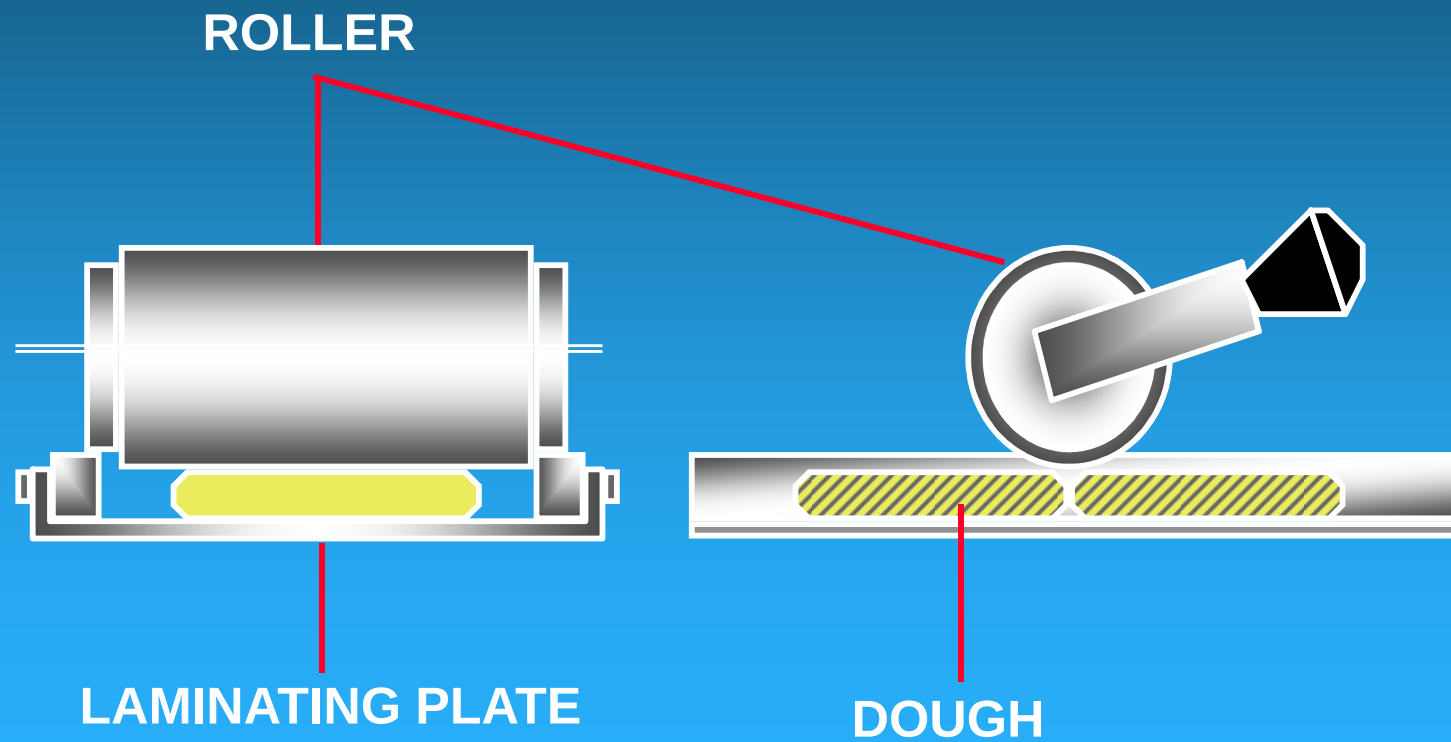
Simulates sheeting and rounding of the dough



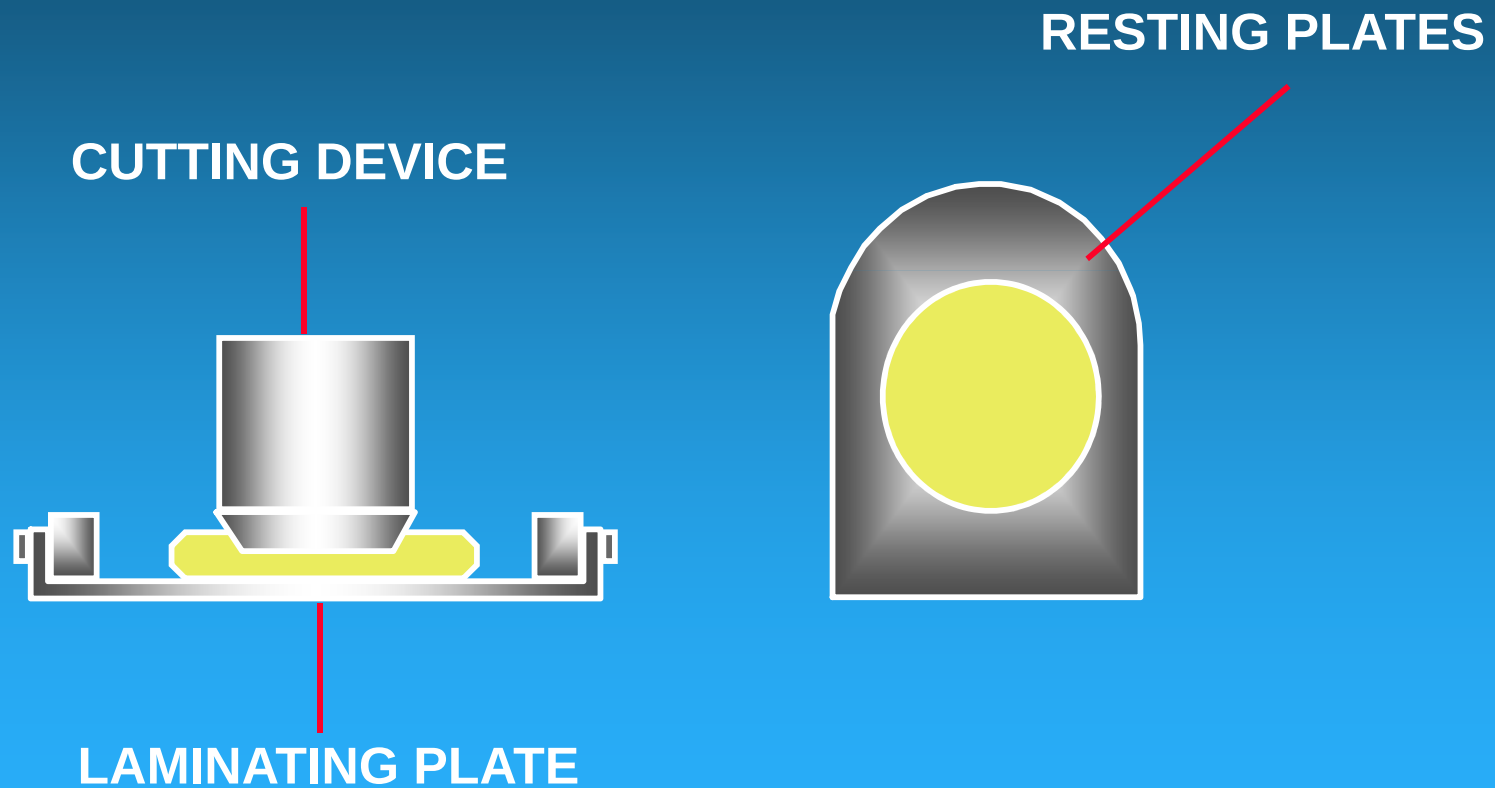
CUTTING THE PATTIES



LAMINATING

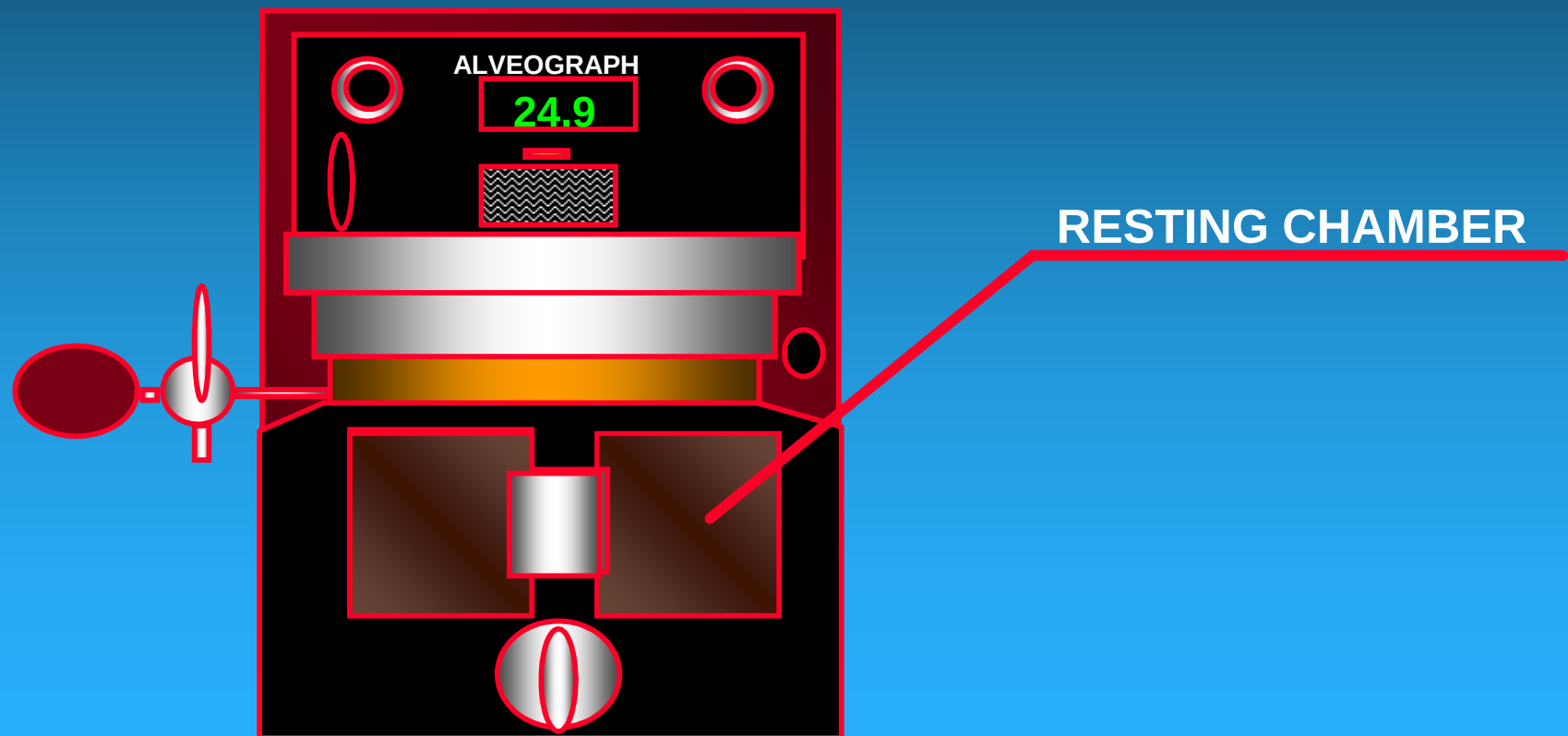


CUT AND TRANSFER THE PATTIES

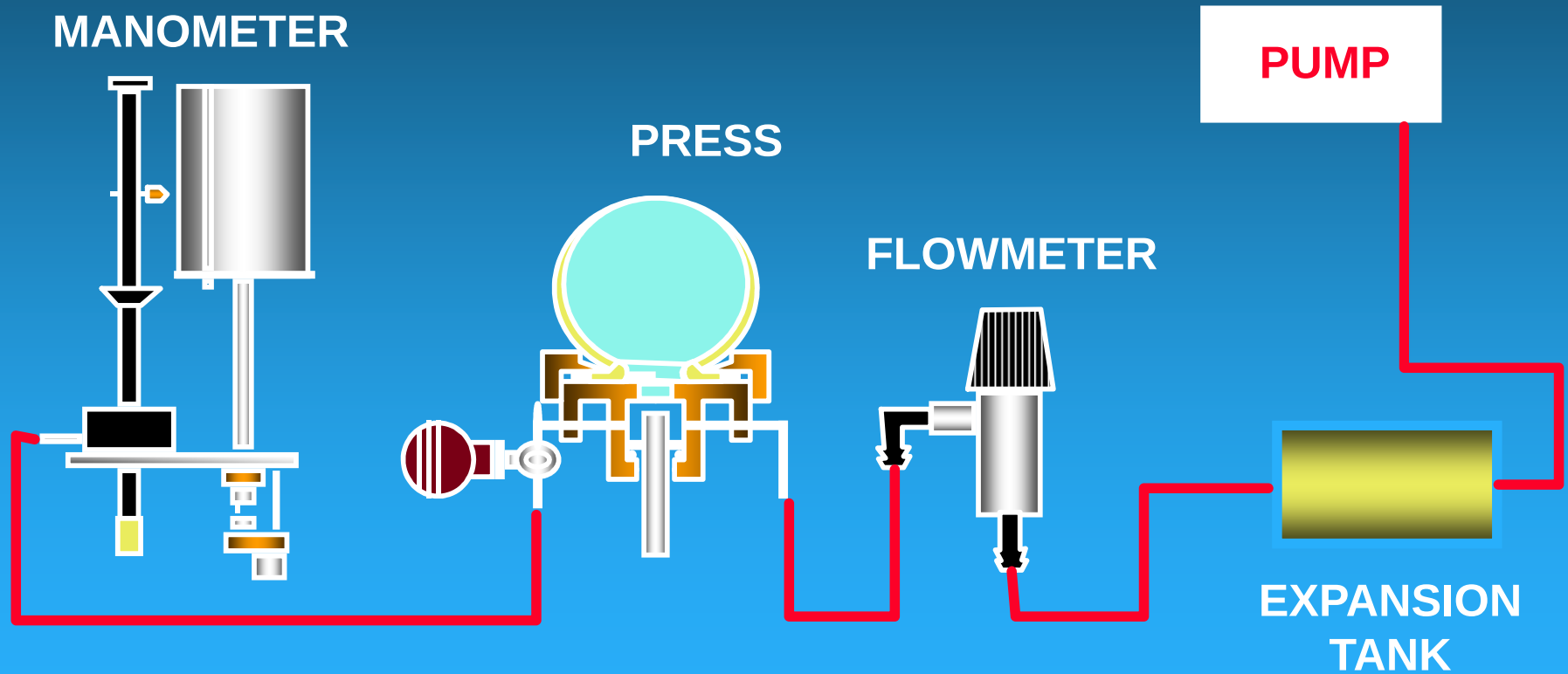


20 MINUTES RESTING/RELAXATION TIME

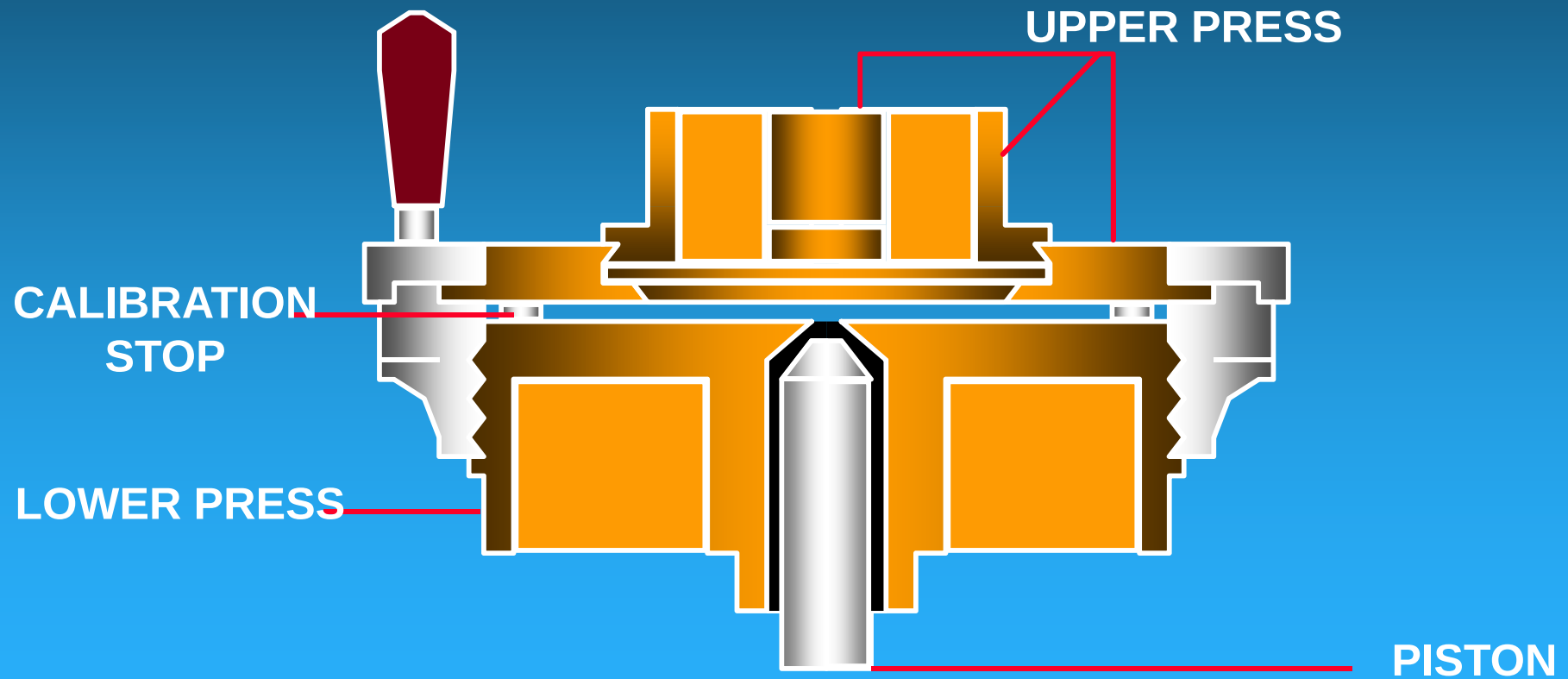
@ 25.0 DEGREES C



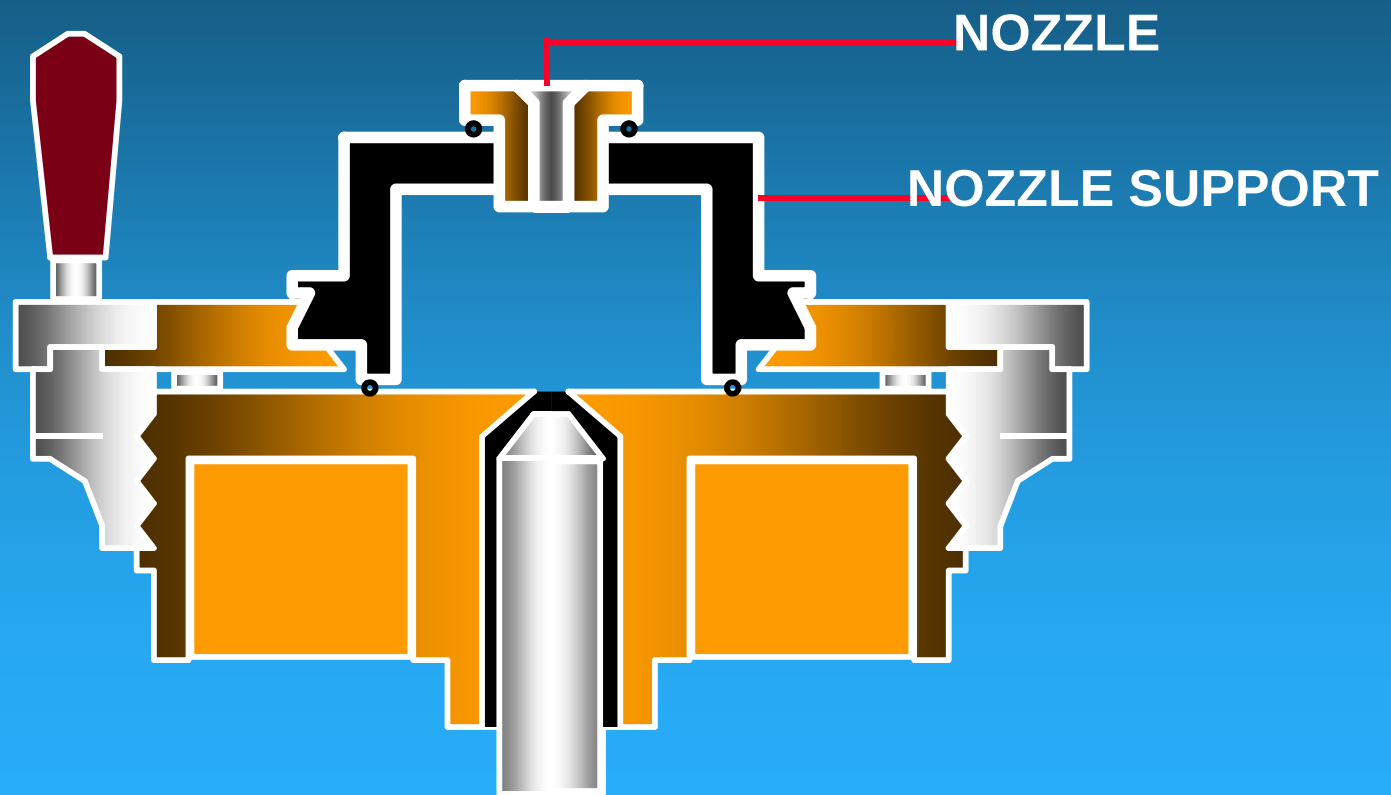
AIR CIRCUIT



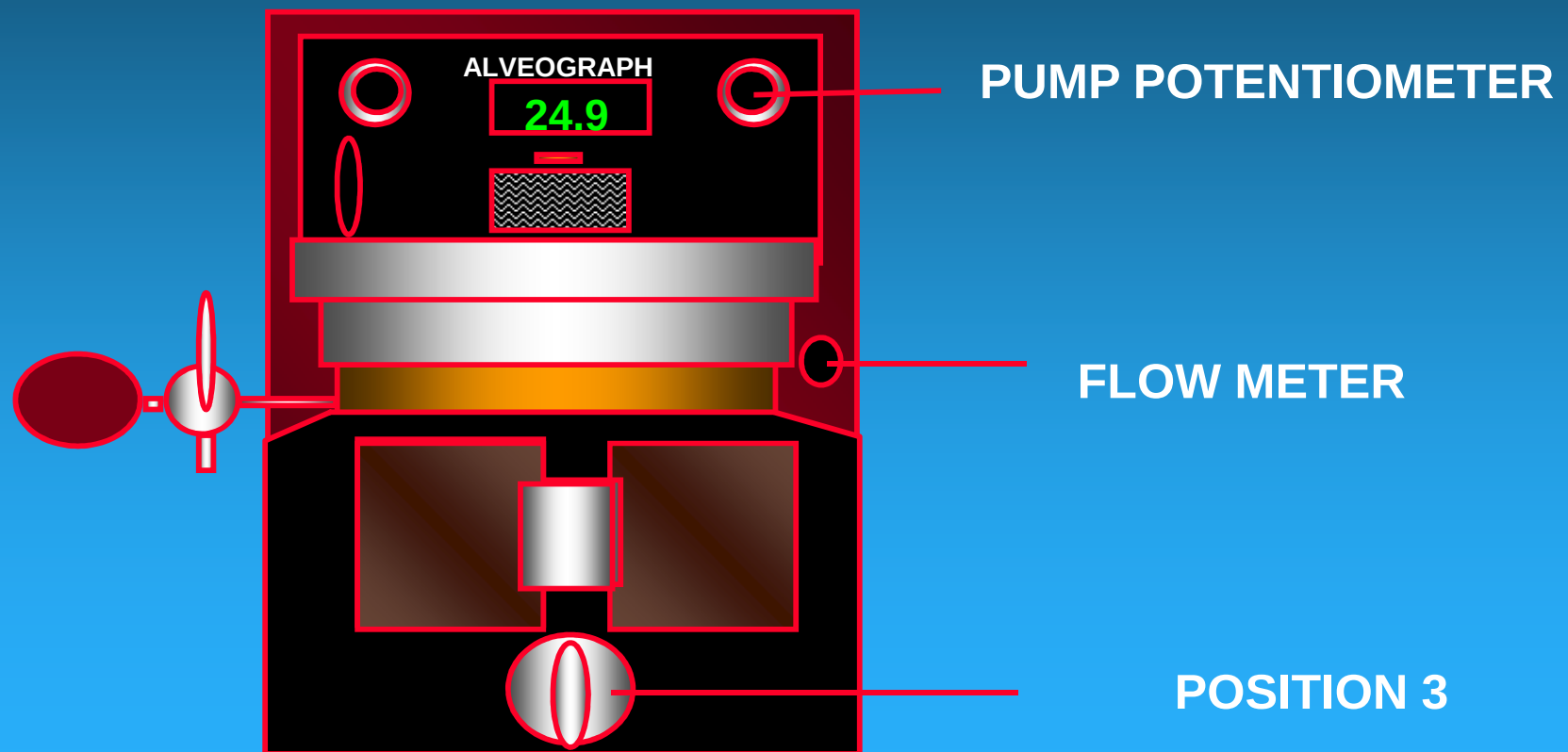
VIEW OF THE ALVEOGRAPH PRESS



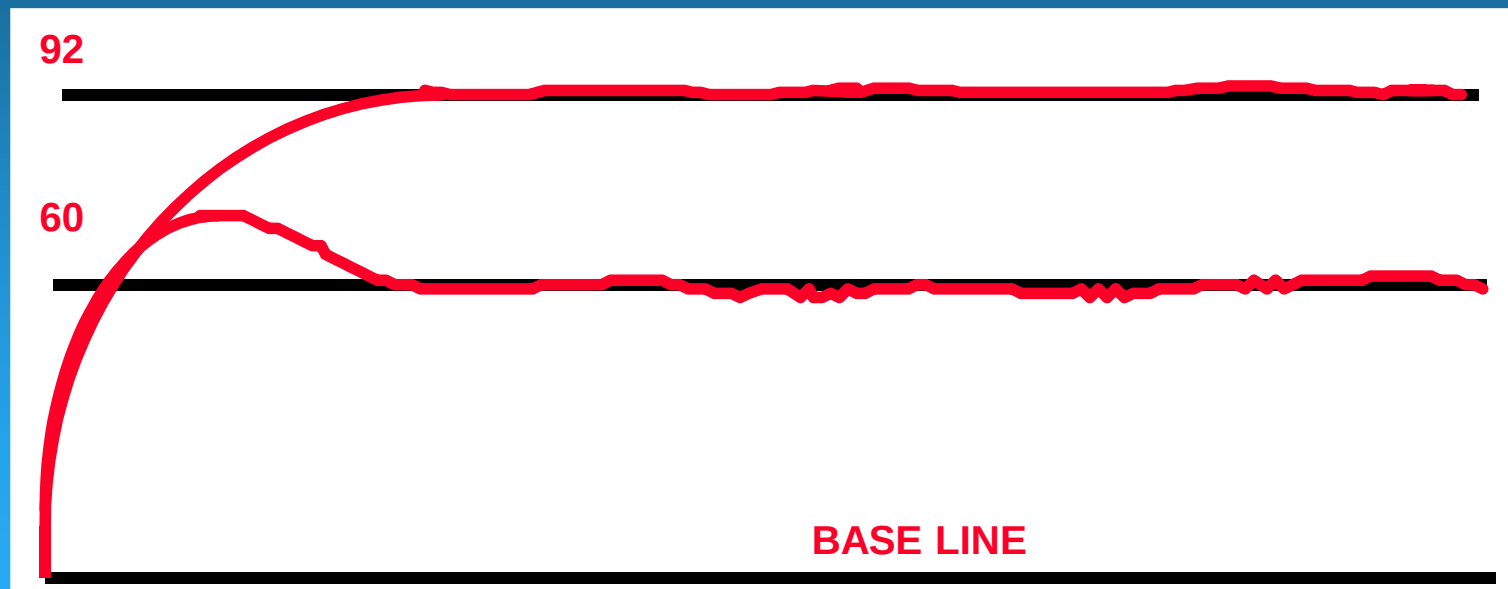
AIR FLOW CALIBRATION NOZZLE



AIR FLOW ADJUSTMENT

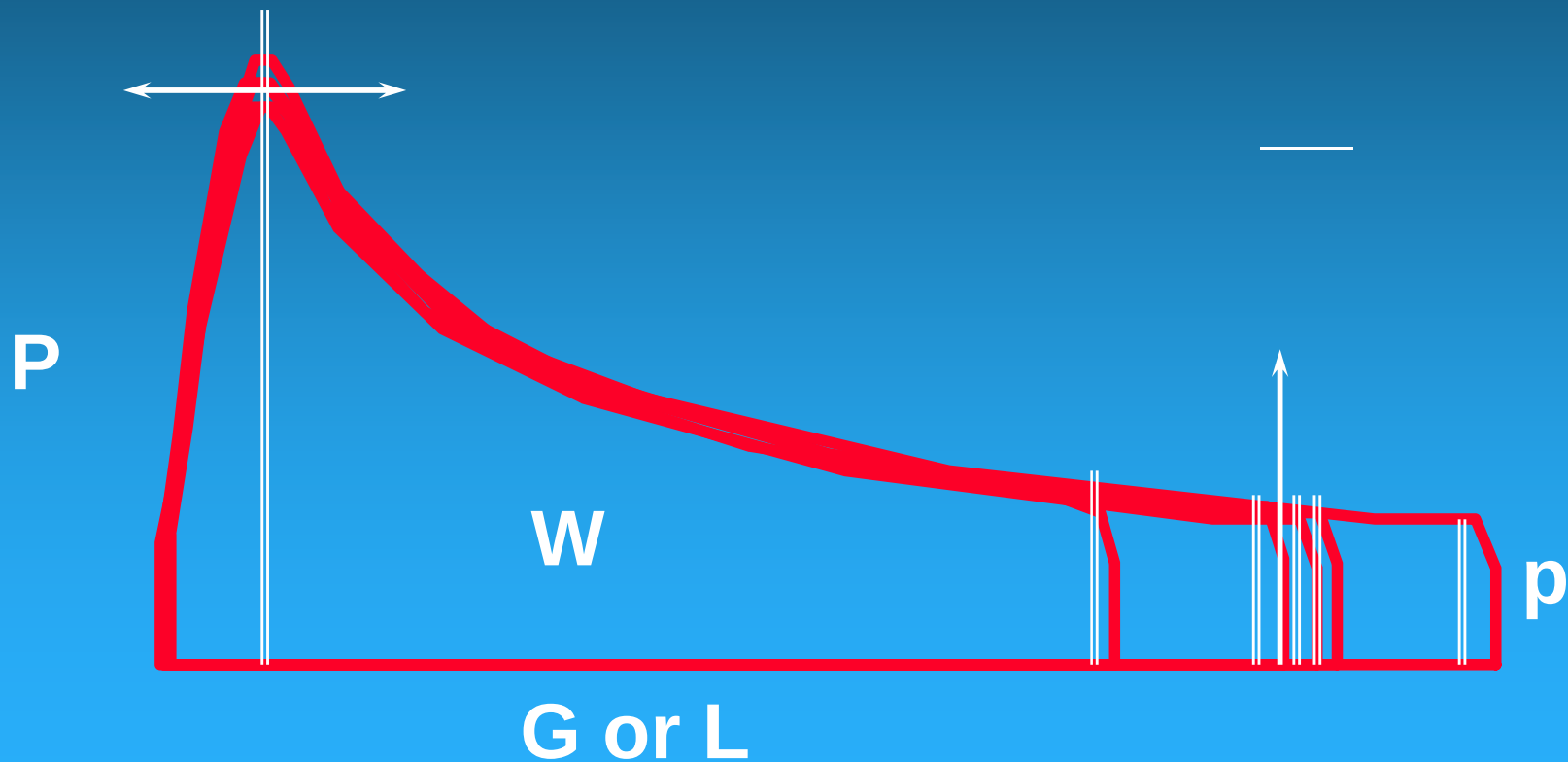


AIR FLOW ADJUSTMENT



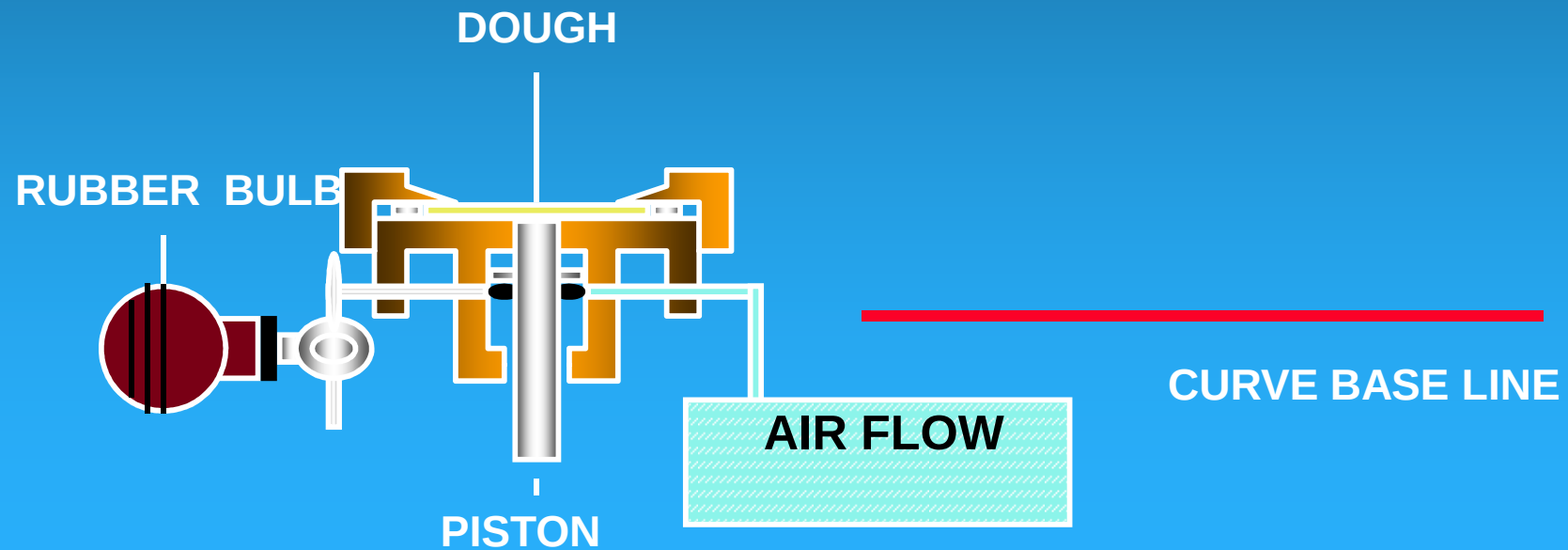
TYPICAL CURVE

Average taken of 5 curves



BLOWING THE BUBBLE

STARTING POSITION



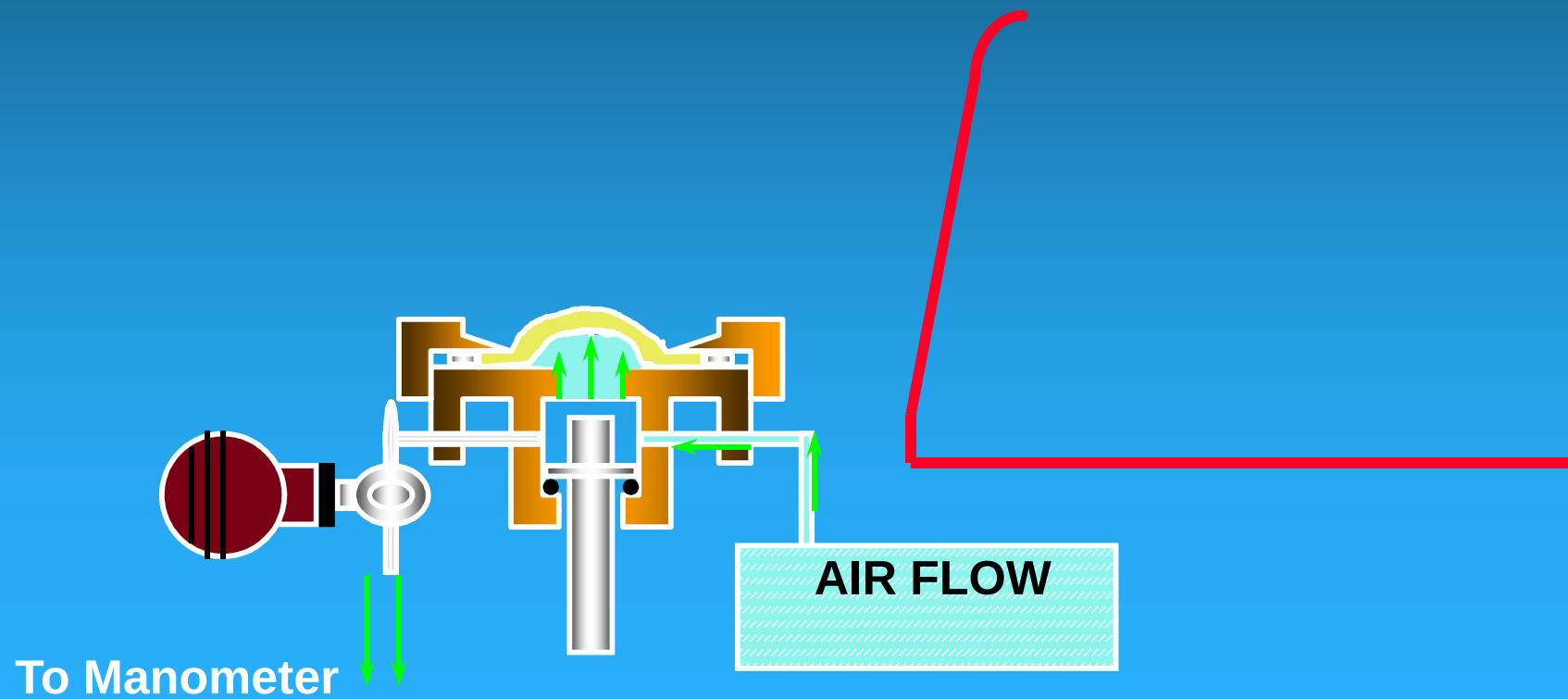
BLOWING THE BUBBLE

LIFT TO BREAK
SURFACE
TENSION

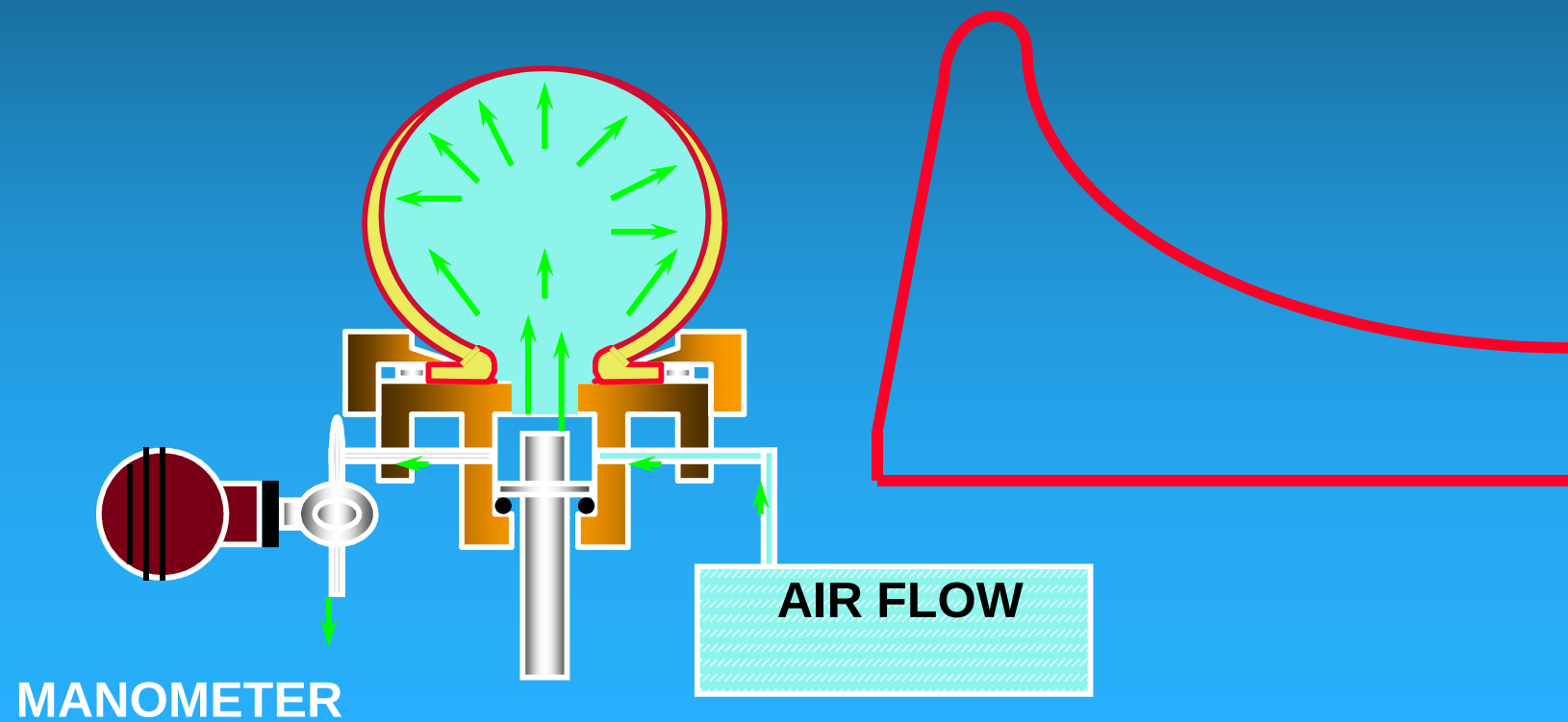


BLOWING THE BUBBLE

DOUGH RESISTS THE AIR COMING FROM THE PUMP

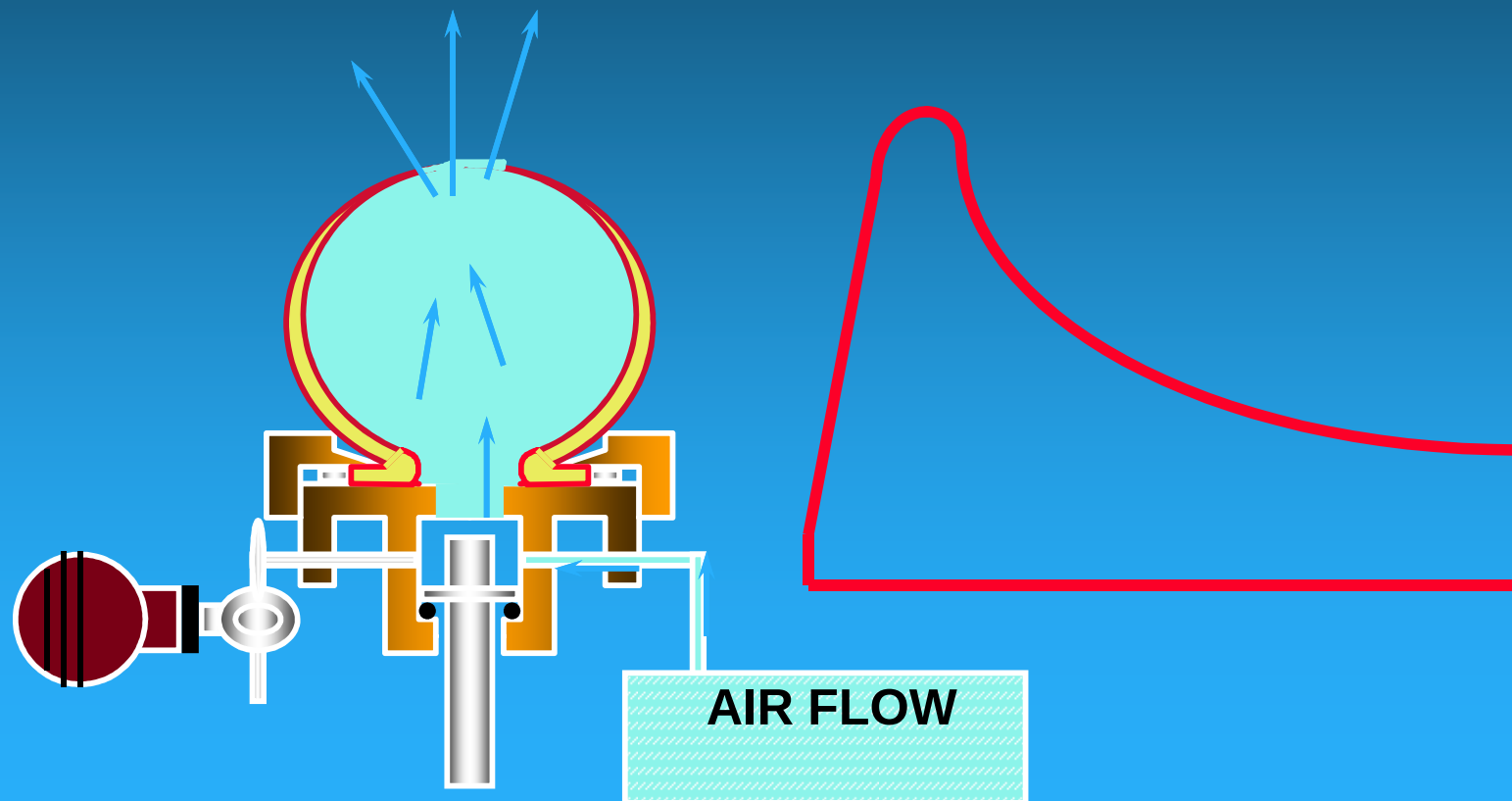


BLOWING THE BUBBLE



BLOWING THE BUBBLE

BUBBLE BURSTS, TEST ENDS

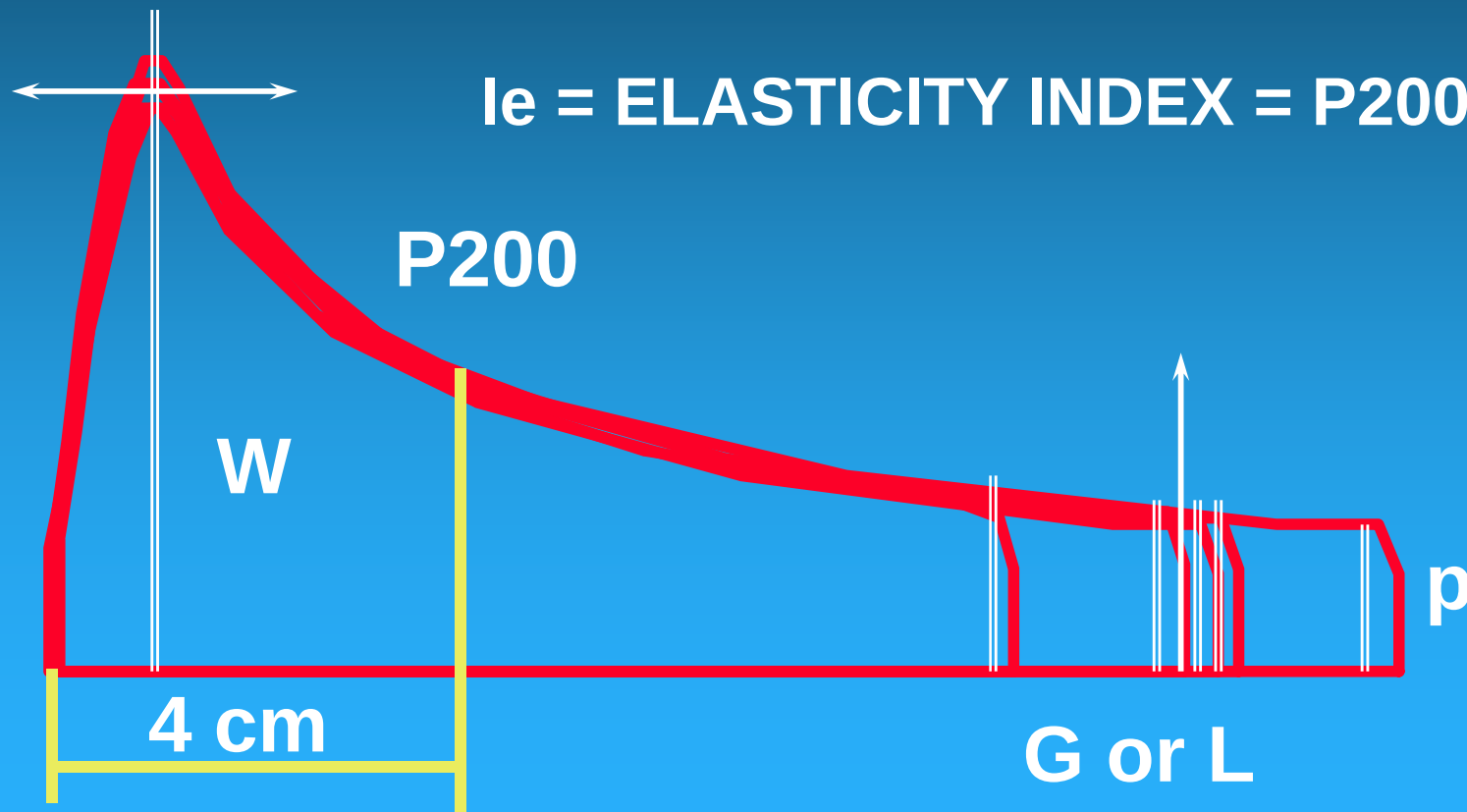


AVERAGE OF 5 CURVES

P

$$W = 6.54 S \quad G = 2.226 \sqrt{L}$$

le = ELASTICITY INDEX = $P_{200}/P \times 100\%$

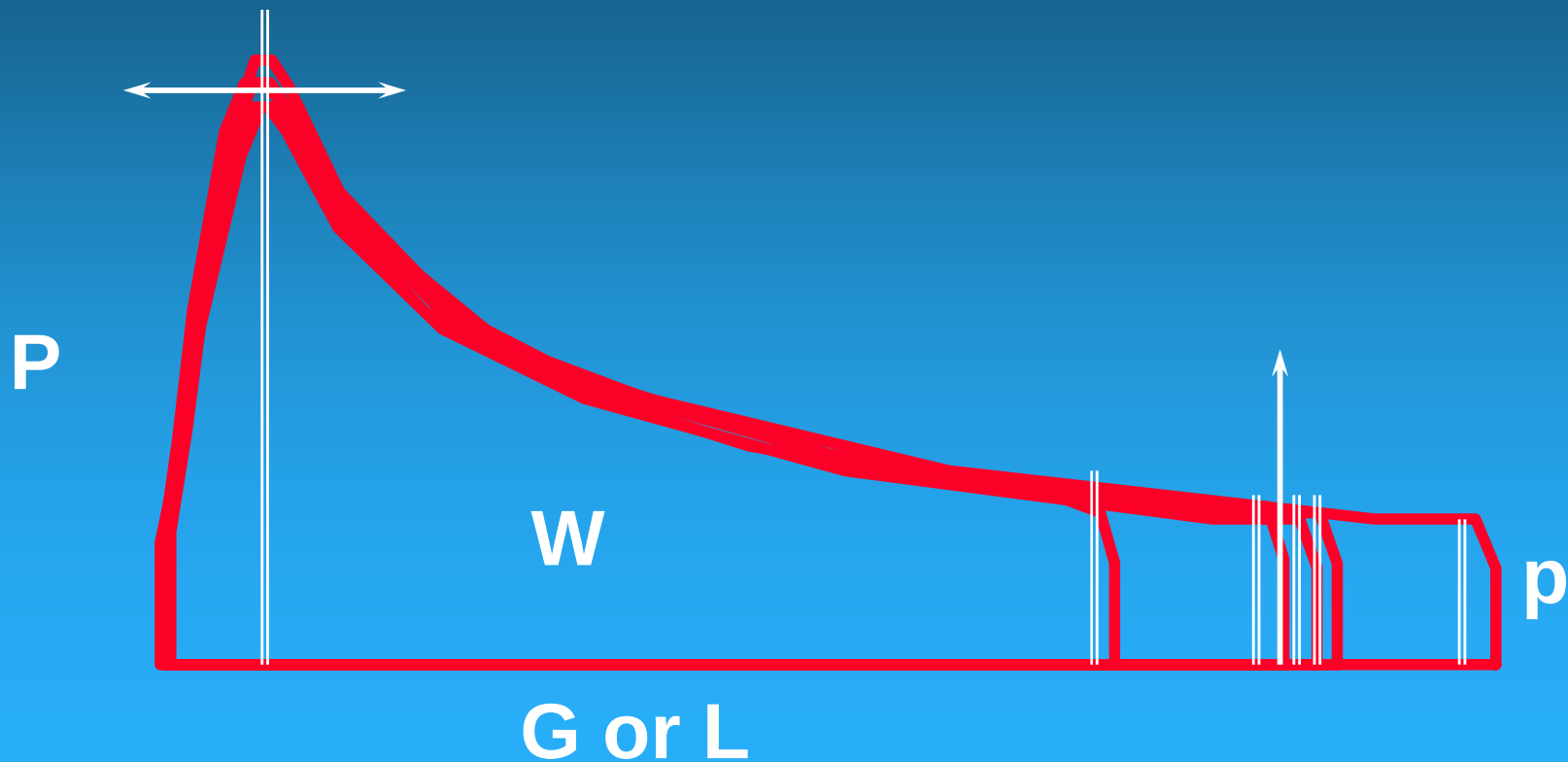


PART 2

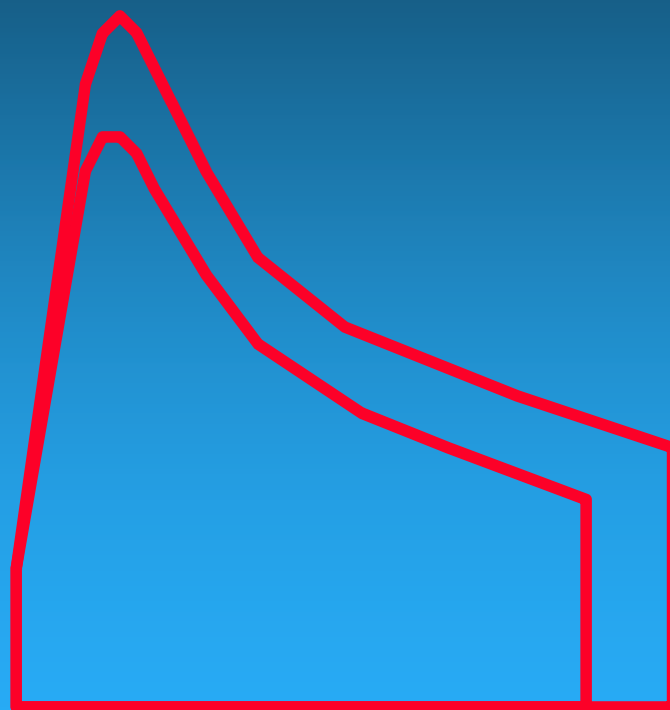
ALVEOGRAPH CURVES AND APPLICATIONS

MEAN CURVE

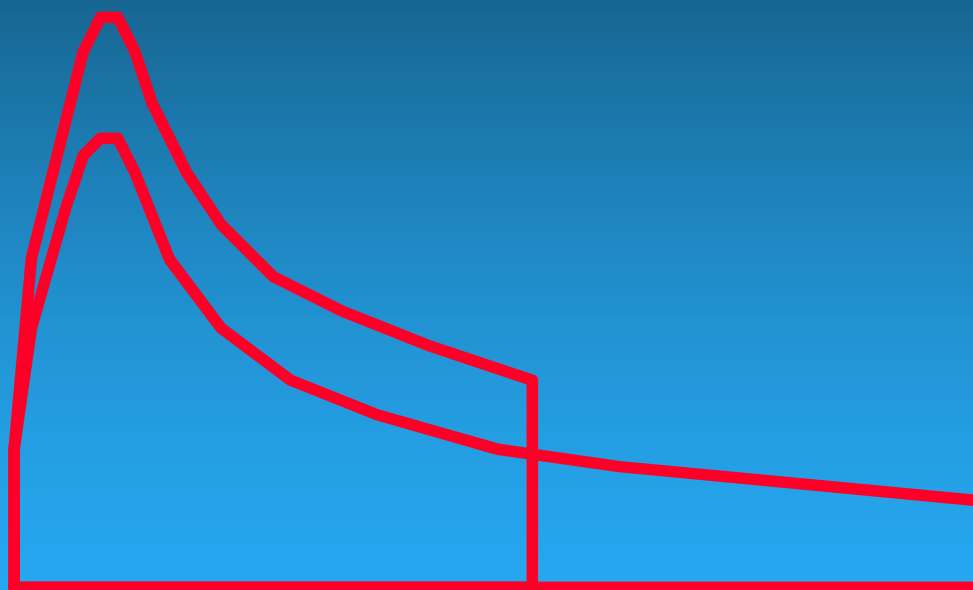
Average taken of 5 curves



2 FLOURS WITH $P/L = 1.35$



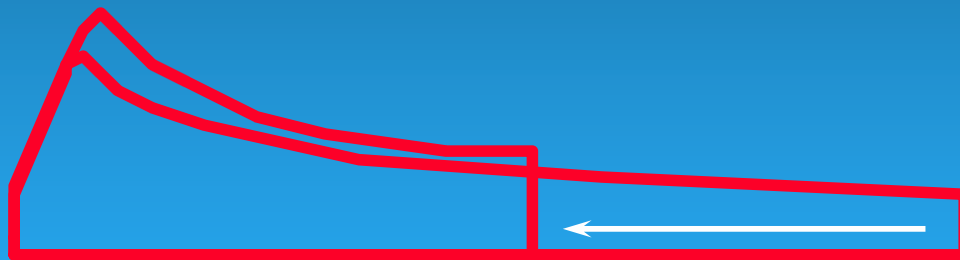
2 FLOURS WITH $W = 220$



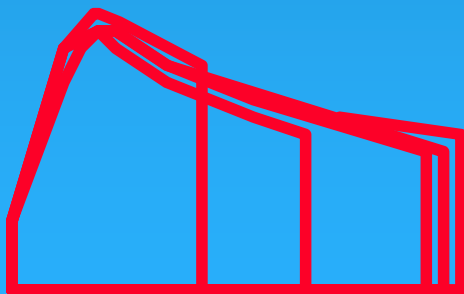
WHEAT AND FLOUR STORAGE



WHEAT DAMAGED BY
BAD STORAGE
CONDITIONS.

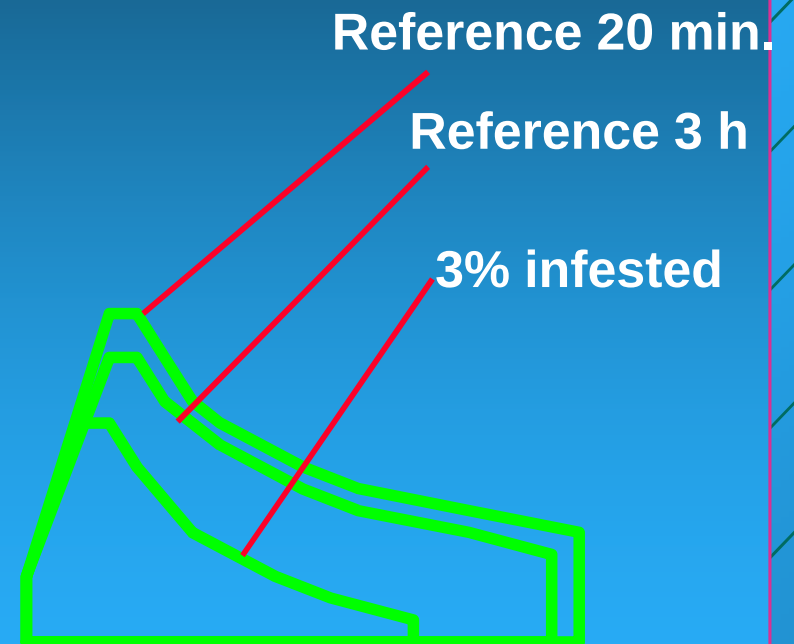
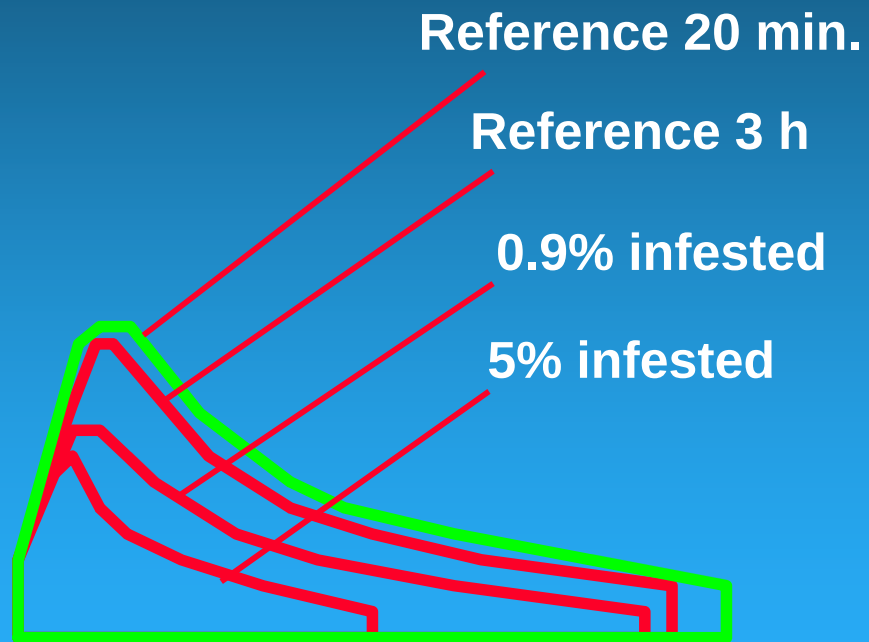


FLOUR DAMAGED BY
EXCESSIVE HEAT.

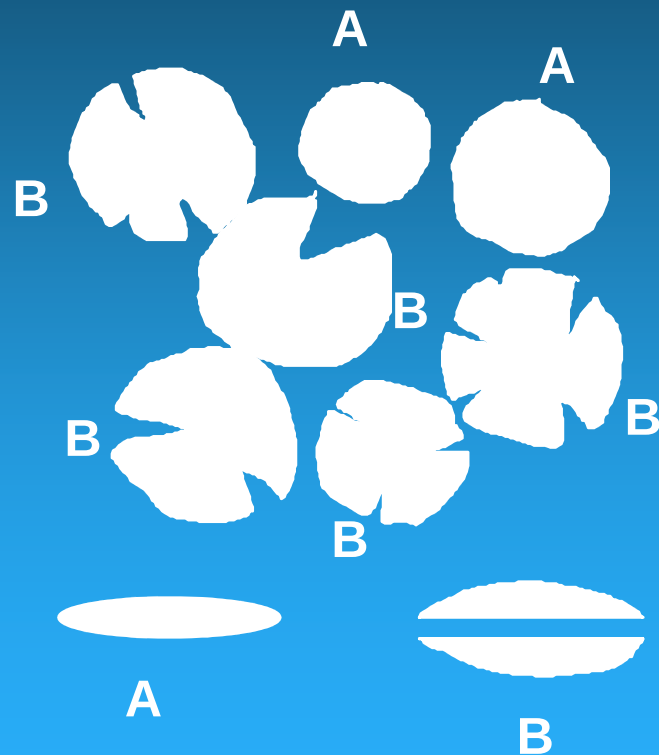


WHEAT DAMAGED BY
EXCESSIVE DRYING
TEMPERATURE.

INFESTED WHEAT

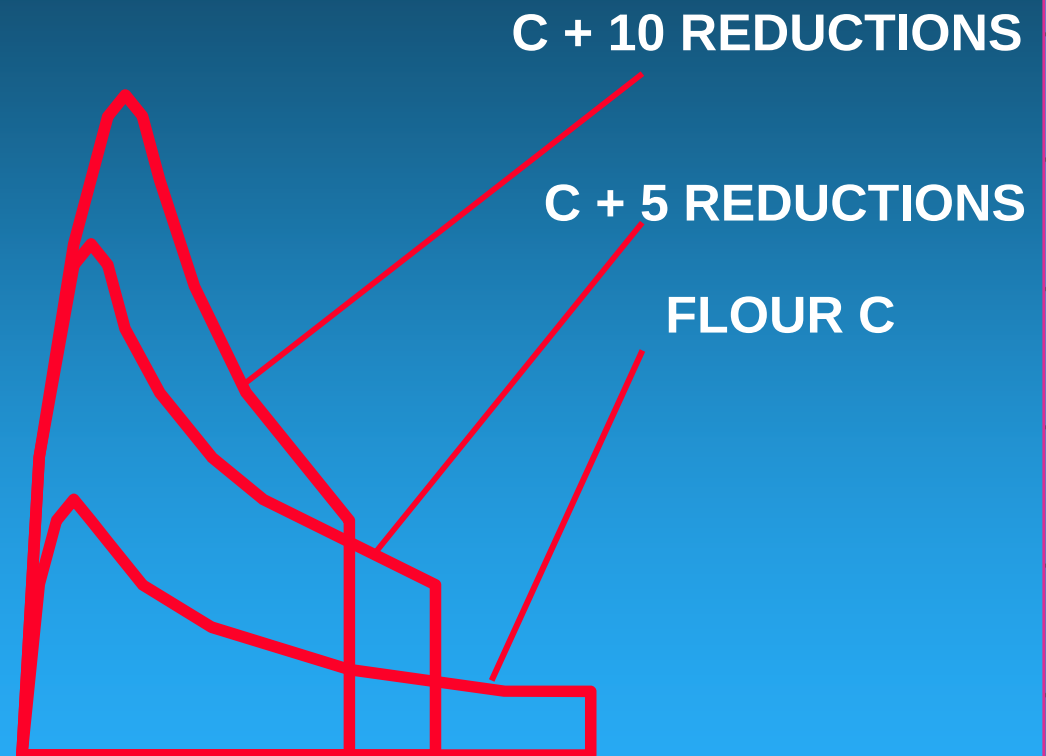


DAMAGED STARCH



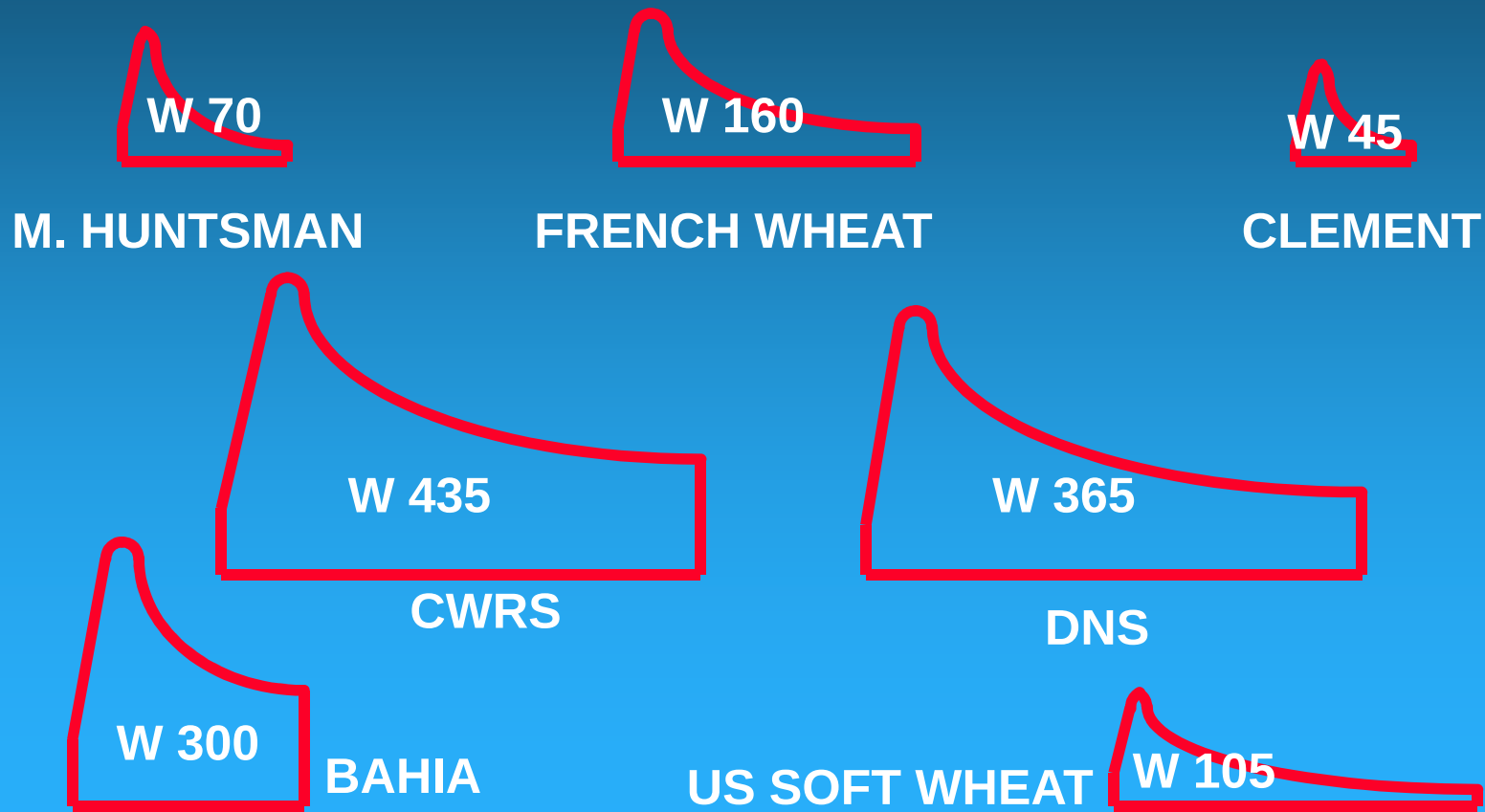
A : NATIVE STARCH

B : DAMAGED STARCH



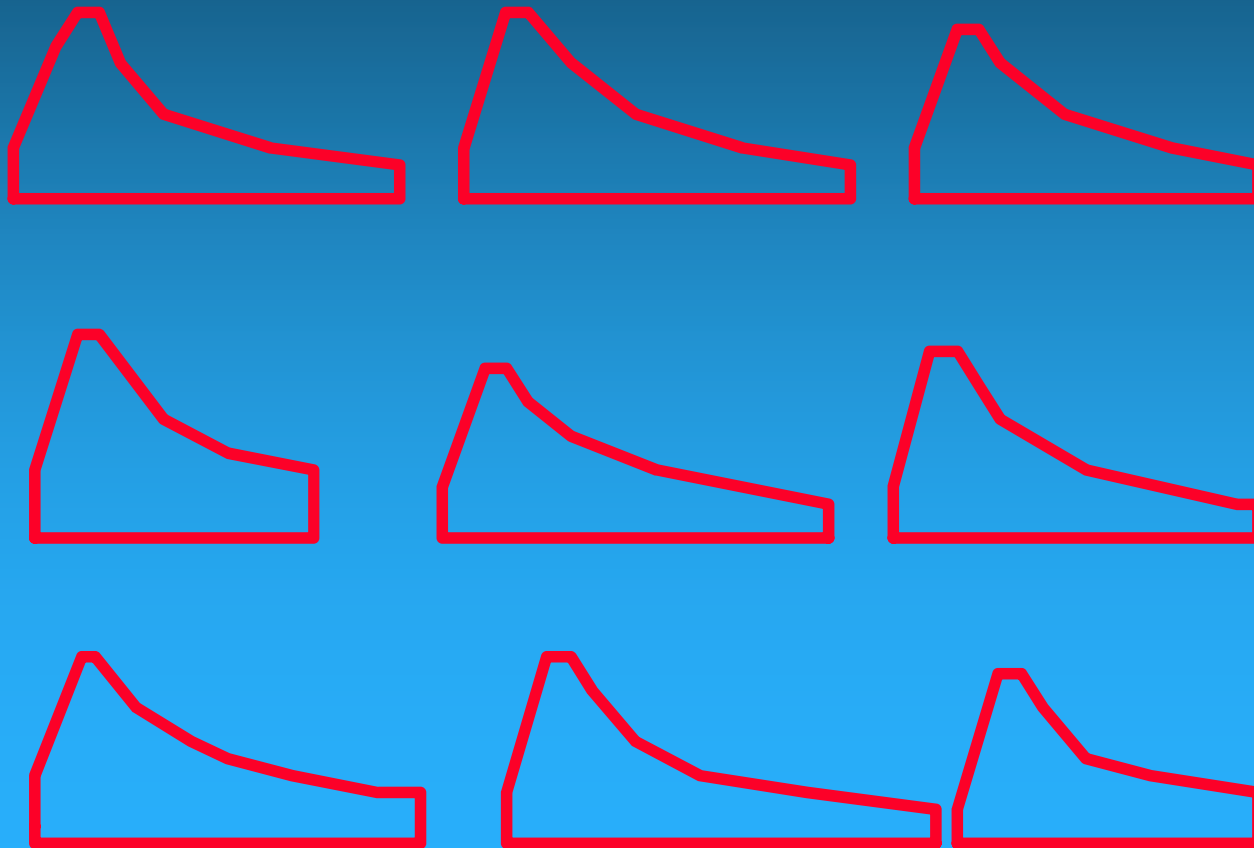
DIFFERENT TYPES OF WHEAT

1989 CROP



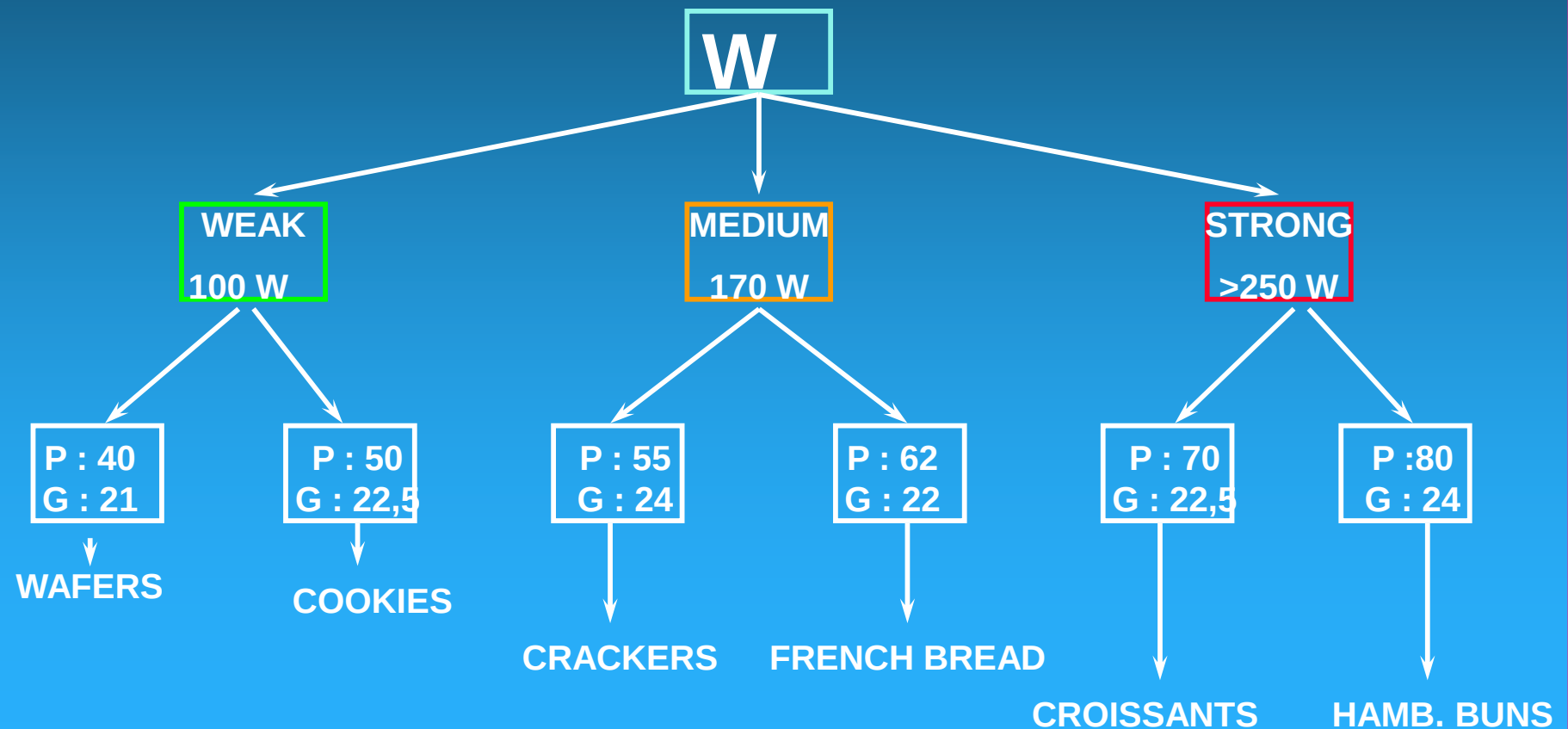
CONSISTENCY

FLOUR UNIFORMITY



HOW TO EVALUATE FLOUR WITH THE ALVEOGRAPH

MICHEL DUBOIS 1988



DANISH PASTRY



W = 417

G = 27.4

L = 152

P = 81

P/L = 0.53



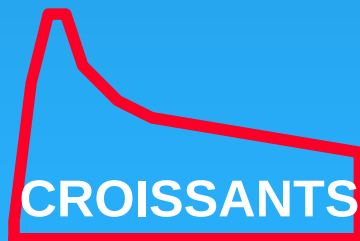
W = 217

G = 25.6

L = 133

P = 57

P/L = 0.43



W = 246

G = 23

L = 107

P = 69

P/L = 0.65

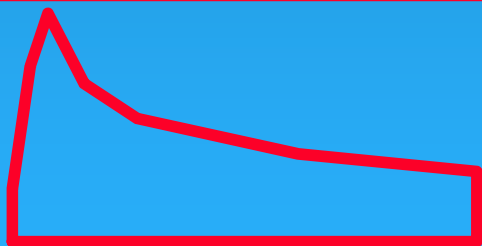
BREAD/BAKING FLOURS



- FOR FAMILY USES
- $W = 145$ $G = 21.5$ $P = 49$
 $P/L = 0.52$



- FOR LONG PROOFING
- $W = 153$ $G = 22.0$ $P = 53$
 $P/L = 0.54$



- FOR FRENCH BAGUETTE
- $W = 176$ $G = 23.4$ $P = 53$
 $P/L = 0.51$

COOKIES



W = 136

G = 25

L = 127

P = 47

P/L = 0.37



W = 133

G = 23.3

L = 110,2

P = 46

P/L = 0.42



W = 82

G = 24

L = 117

P = 29

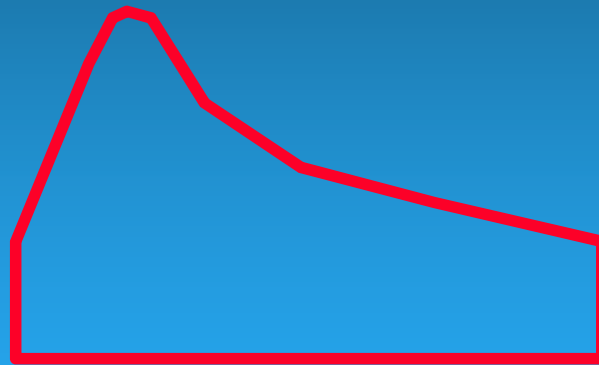
P/L = 0.25

BLENDING WHEAT OR FLOUR



50 %

W = 96
G = 19.4 P = 46

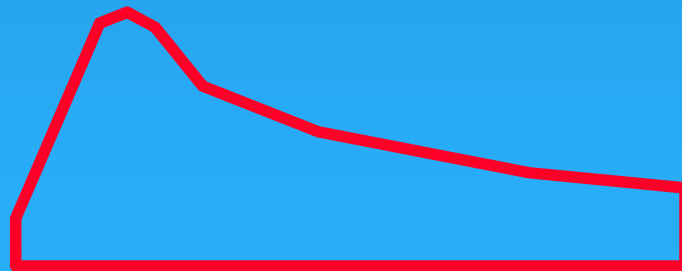


+

50 %

W = 224
G = 17.5 P = 103

=



100 %

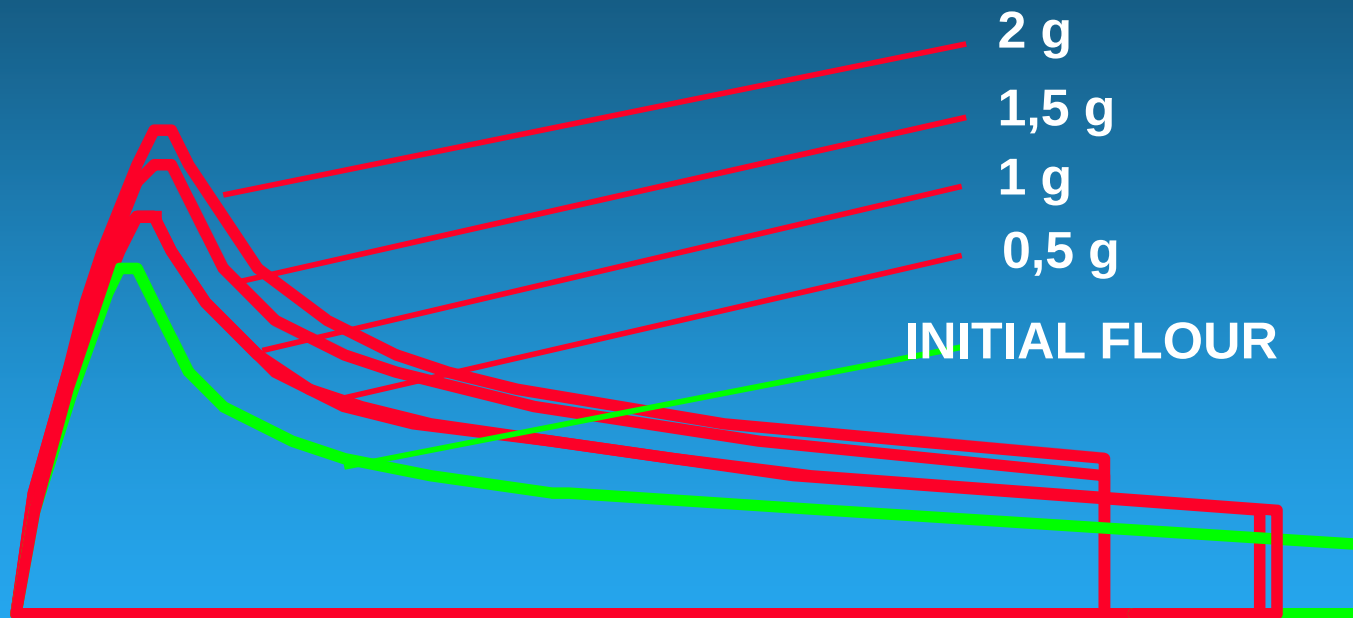
W = 160
G = 18.5 P = 74

FLOUR CHARACTERISTICS

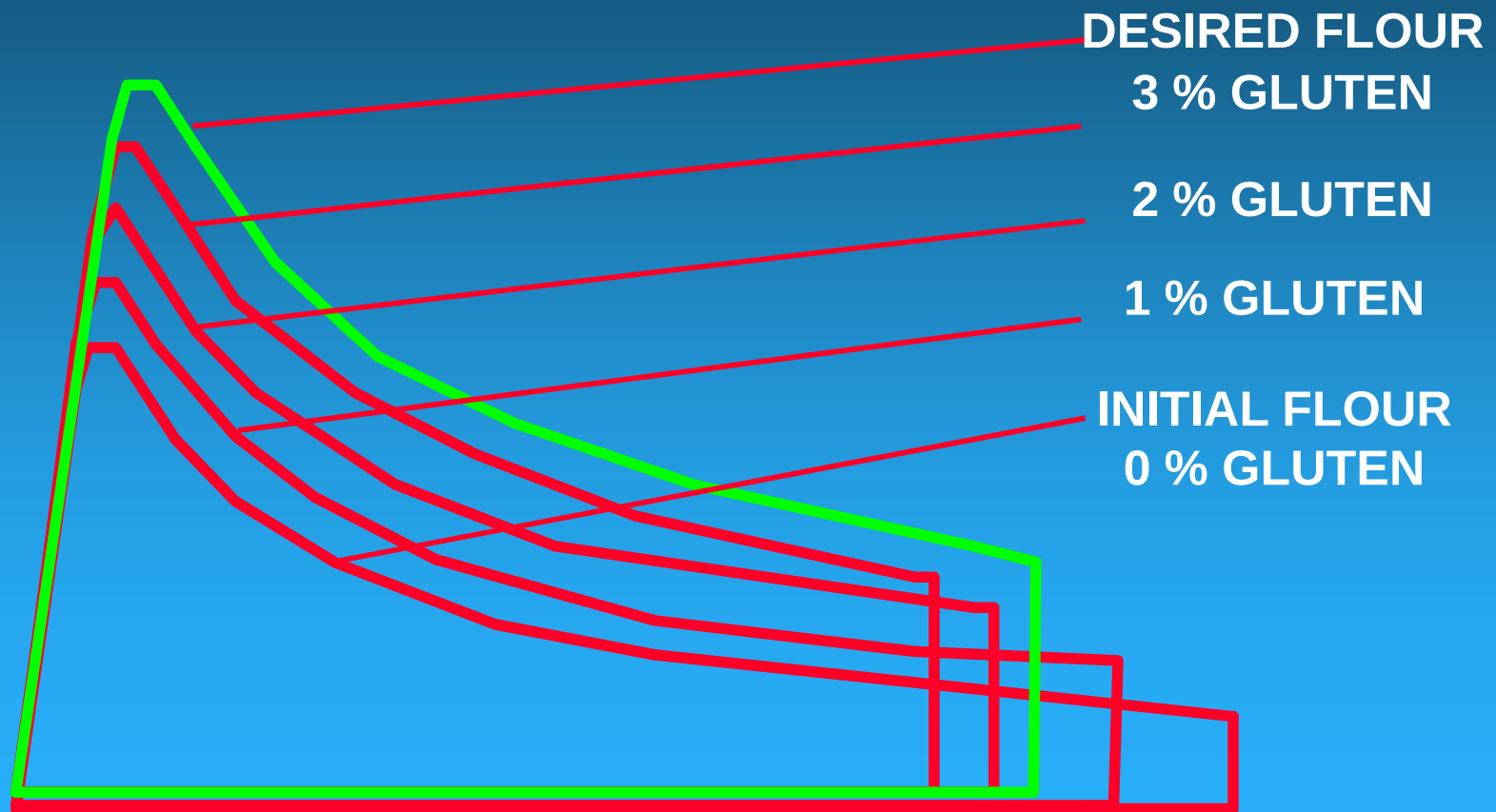
■ 1989 CROP

TYPES OF FLOUR	W	P	G	P/L
WAFER	82	29	24	0.25
BISCUITS	133	47	25	0.37
FRENCH BREAD	176	53	23.4	0.51
LONG TIME PROOFING	153	53	22	0.54
CROISSANTS	246	69	23	0.43
BRIOCHE	417	81	27.4	0.53

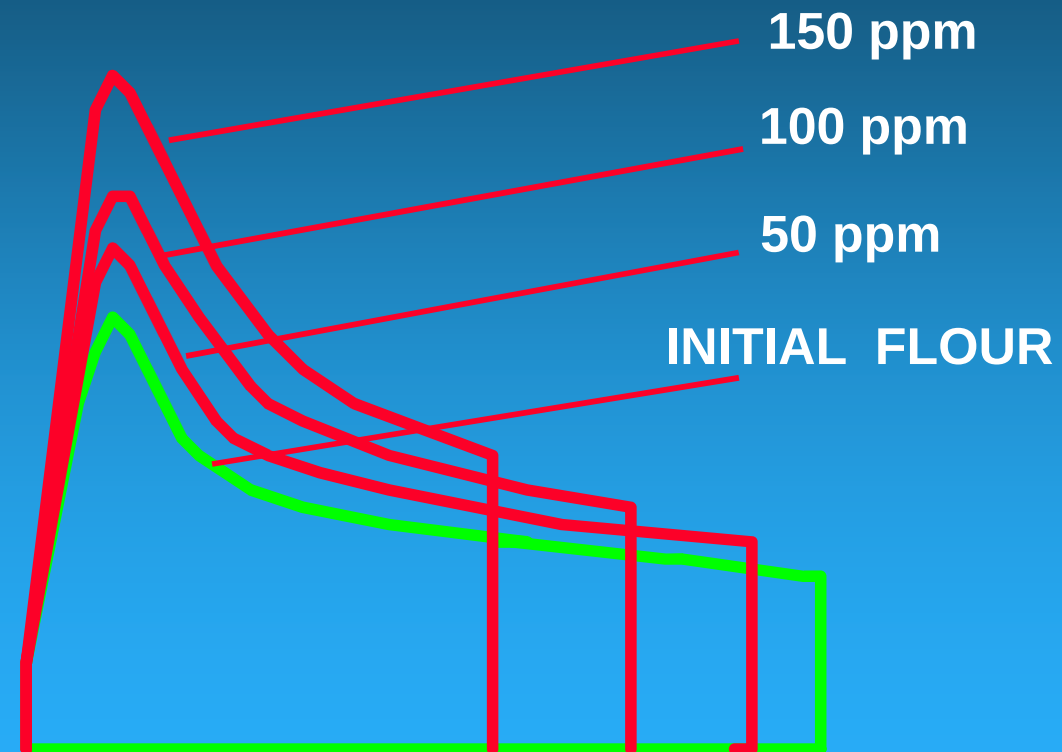
ASCORBIC ACID



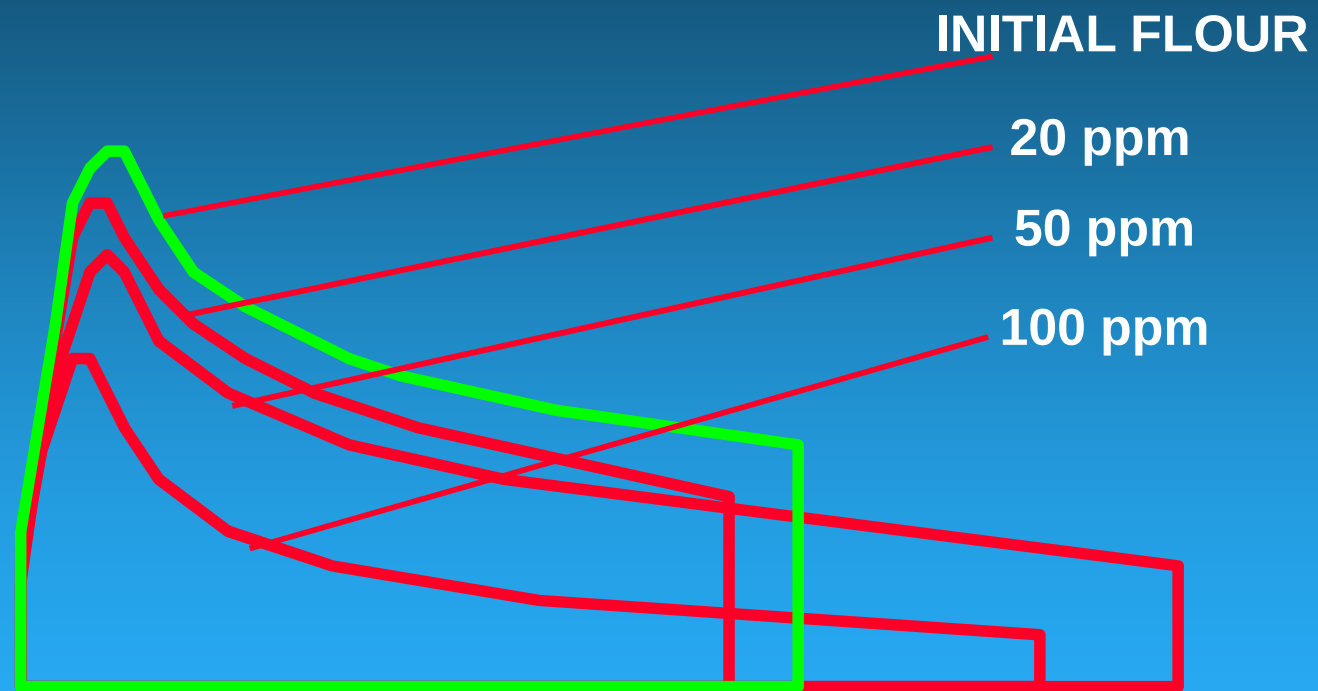
GLUTEN



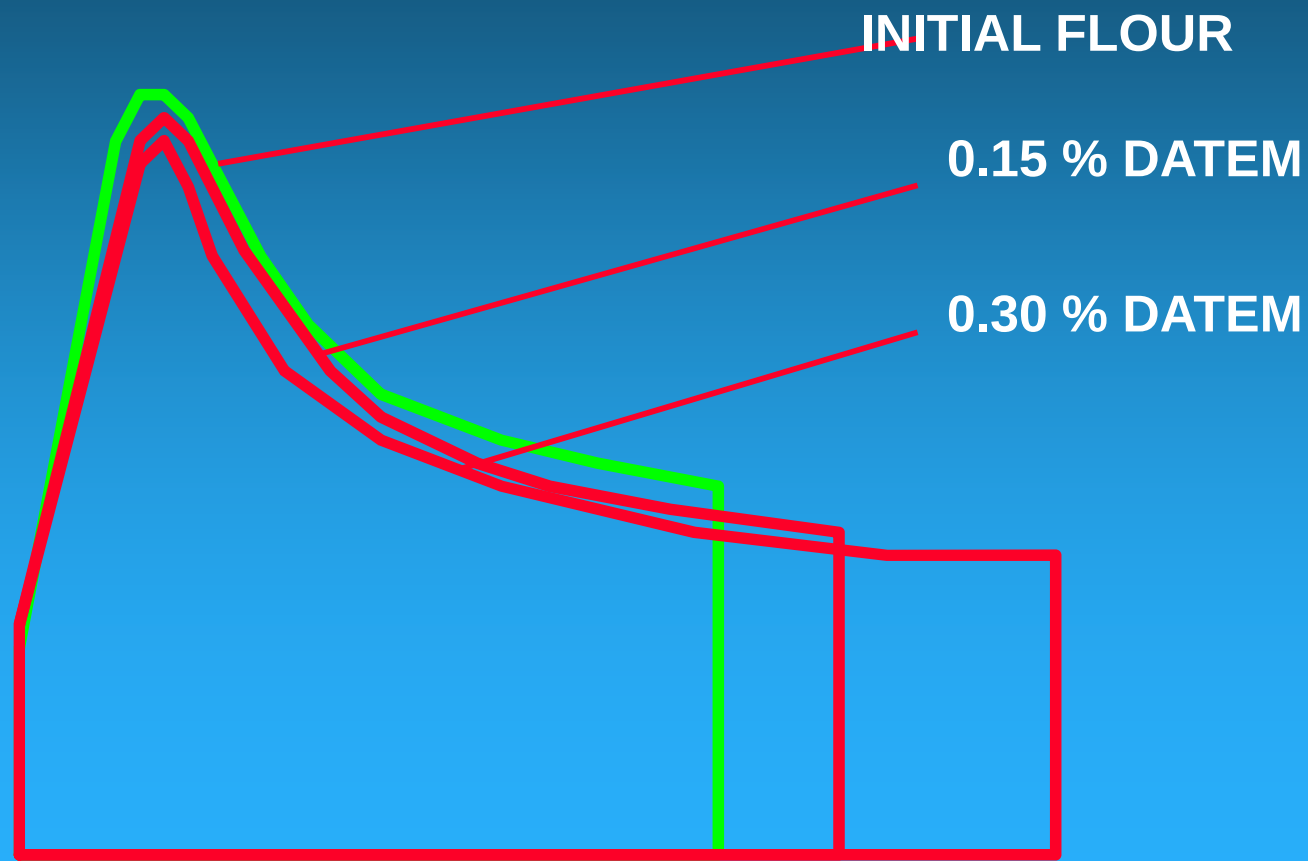
AZODICARBAMIDE



REDUCERS (cystein)



DATA ESTERS



Alveograph Summary

- Measure the strength of wheat and flour
- Select additives to improve products
- Determine optimum blends of flour
- Investigate flour properties in actual use
- World wide acceptance as the rheological standard

C'est Finie!!!
(Thats all folks)

CHOPIN

