

ITALIAN QUALITY & DESIGN



*Presents*

# New AR Side Bet



## Main Features:

- There are 4 different coloured bets available for players to choose
- Each bet is a separate independent bet on an individual Lucky Ball
- Each bet is colour coded and has its own pay table
- Players can place bets on each individual bet or on all of them or any amount they choose
- Every game one of the coloured Lucky Balls will be a Bonus Payout. If players cover all the 4 bets then they will have a chance of winning between 60 to 120 to 1 every game.





## Lucky Ball Game Sequence



Bets are placed on  
Lucky Ball areas  
above the zero bet



Lucky Ball numbers  
are generated after  
"No More Bets"



If the winning result  
matches a Lucky Ball number  
the bet Wins

## Lucky Ball Bonus Pay



In this example  
the bonus pay is triggered  
and the bet pays out 120 to 1



## Lucky Ball Technical Overview

### Introduction

Lucky Ball is a family of side bet games for roulette, having minimal impact on the base game and easy for players and dealers to learn. This document is concerned with one particular variant of the game Lucky Ball Standard.

Other variants are Lucky Ball Classic and Lucky Ball Double Hit. The fundamental difference between Standard and the others is that Standard offers four betting options for patrons, whereas the other variants offer one betting option.

### Game Operation

Players may place bets on any or all of the four colour coded Lucky Ball betting areas just as they would on the main layout. There is no requirement to place any Lucky Ball bet (if the player does not wish to participate in Lucky Ball) and there is no requirement for any Lucky Ball player to place any bet on the main layout.

After the ball is spun by the dealer, the Lucky Ball display shows 4 Lucky Balls dropping down and landing in a unique coloured area (red, green, blue and yellow). Each ball will reveal a roulette number shown on it, and a payout to its left. If an illuminating LED panel is installed underneath the Lucky Ball betting area, it will pulsate in an “attract” mode.

Depending on how the game is configured, the number shown on each ball may not be revealed until after No More Bets.

After the roulette wheel has signalled No More Bets, one of the lucky balls is randomly selected and will change to a higher payout this represents a Bonus Pay game for that payout. If an illuminating LED panel is installed underneath the Lucky Ball betting area, it will blink several times red (and may then stay lit depending on how it is configured) to indicate no more bets.

When the ball lands and the wheel signals the winning number, if the winning number matches the number on one of the Lucky Balls, any players who placed winning bets on that lucky ball’s colour are paid out at the prevailing payout for the winning bet. If an illuminating LED panel is installed underneath the Lucky Ball betting area, it will illuminate to show the win.

The winning number display history shows Lucky Ball wins with a Lucky Ball symbol to the left of the winning number. In the case of a Bonus Pay, the Lucky Ball symbol will be shown surrounded by a gold aura.

## Game Maths

Using the standard payable and by taking the average of the house edges, the overall house edge is 5.41% for single zero games and 7.89% for double zero games.

### Single "0" Roulette House Edge Calculator

	Payout	Probability	Expected Value
Red Bet	6	0.020	0.122
Red Bonus	120	0.007	0.811
Lose	-1	0.973	-0.973
House edge %:			4.05

	Payout	Probability	Expected Value
Green Bet	12	0.020	0.243
Green Bonus	100	0.007	0.676
Lose	-1	0.973	-0.973
House edge %:			5.41

	Payout	Probability	Expected Value
Blue Bet	20	0.020	0.405
Blue Bonus	75	0.007	0.507
Lose	-1	0.973	-0.973
House edge %:			6.08

	Payout	Probability	Expected Value
Yellow Bet	25	0.020	0.507
Yellow Bonus	60	0.007	0.405
Lose	-1	0.973	-0.973
House edge %:			6.08

### Double "00" Roulette House Edge Calculator

	Payout	Probability	Expected Value
Red Bet	6	0.020	0.118
Red Bonus	120	0.007	0.789
Lose	-1	0.974	-0.974
House edge %:			6.58

	Payout	Probability	Expected Value
Green Bet	12	0.020	0.237
Green Bonus	100	0.007	0.658
Lose	-1	0.974	-0.974
House edge %:			7.89

	Payout	Probability	Expected Value
Blue Bet	20	0.020	0.395
Blue Bonus	75	0.007	0.493
Lose	-1	0.974	-0.974
House edge %:			8.55

	Payout	Probability	Expected Value
Yellow Bet	25	0.020	0.493
Yellow Bonus	60	0.007	0.395
Lose	-1	0.974	-0.974
House edge %:			8.55



## Game Maths with Mega Bonus

### Single "0" Roulette House Edge Calculator

	Payout	Probability	Expected Value
Red Bet	5	0.020270	0.101
Red Bonus	120	0.006753	0.810
Mega Bonus	1000	0.000003	0.003
Lose	-1	0.972973	-0.973
House edge %:			5.78

	Payout	Probability	Expected Value
Green Bet	12	0.020270	0.243
Green Bonus	100	0.006753	0.675
Mega Bonus	1000	0.000003	0.003
Lose	-1	0.972973	-0.973
House edge %:			5.10

	Payout	Probability	Expected Value
Blue Bet	20	0.0203	0.405
Blue Bonus	75	0.006753	0.507
Mega Bonus	1000	0.000003	0.003
Lose	-1	0.972973	-0.973
House edge %:			5.77

	Payout	Probability	Expected Value
Yellow Bet	25	0.0203	0.507
Yellow Bonus	60	0.006753	0.405
Mega Bonus	1000	0.000003	0.003
Lose	-1	0.972973	-0.973
House edge %:			5.76

### Double "00" Roulette House Edge Calculator

	Payout	Probability	Expected Value
Red Bet	5	0.019737	0.099
Red Bonus	120	0.006576	0.789
Mega Bonus	1000	0.000003	0.003
Lose	-1	0.973684	-0.974
House edge %:			8.26

	Payout	Probability	Expected Value
Green Bet	12	0.019737	0.237
Green Bonus	100	0.006576	0.658
Mega Bonus	1000	0.000003	0.003
Lose	-1	0.973684	-0.974
House edge %:			7.60

	Payout	Probability	Expected Value
Blue Bet	20	0.0197	0.395
Blue Bonus	75	0.006576	0.493
Mega Bonus	1000	0.000003	0.003
Lose	-1	0.973684	-0.974
House edge %:			8.25

	Payout	Probability	Expected Value
Yellow Bet	25	0.0197	0.493
Yellow Bonus	60	0.006576	0.395
Mega Bonus	1000	0.000003	0.003
Lose	-1	0.973684	-0.974
House edge %:			8.24

## Random Number Generator

The RNG is used for two purposes:

- Selecting the four Lucky Balls
- Selecting which of the four Lucky Balls gets the bonus pay

The RNG uses the Mersenne Twister algorithm and generates a new random number every 100 milliseconds. It is not a critical function of the RNG to select the four Lucky Balls in fact, in one variant of Lucky Ball, the Lucky Balls are not random but the previous winning number and its neighbours. However, it is a critical function of the RNG to select which Lucky Ball is the bonus payout because prior knowledge of which of the four bets becomes the bonus would give a player an advantage.

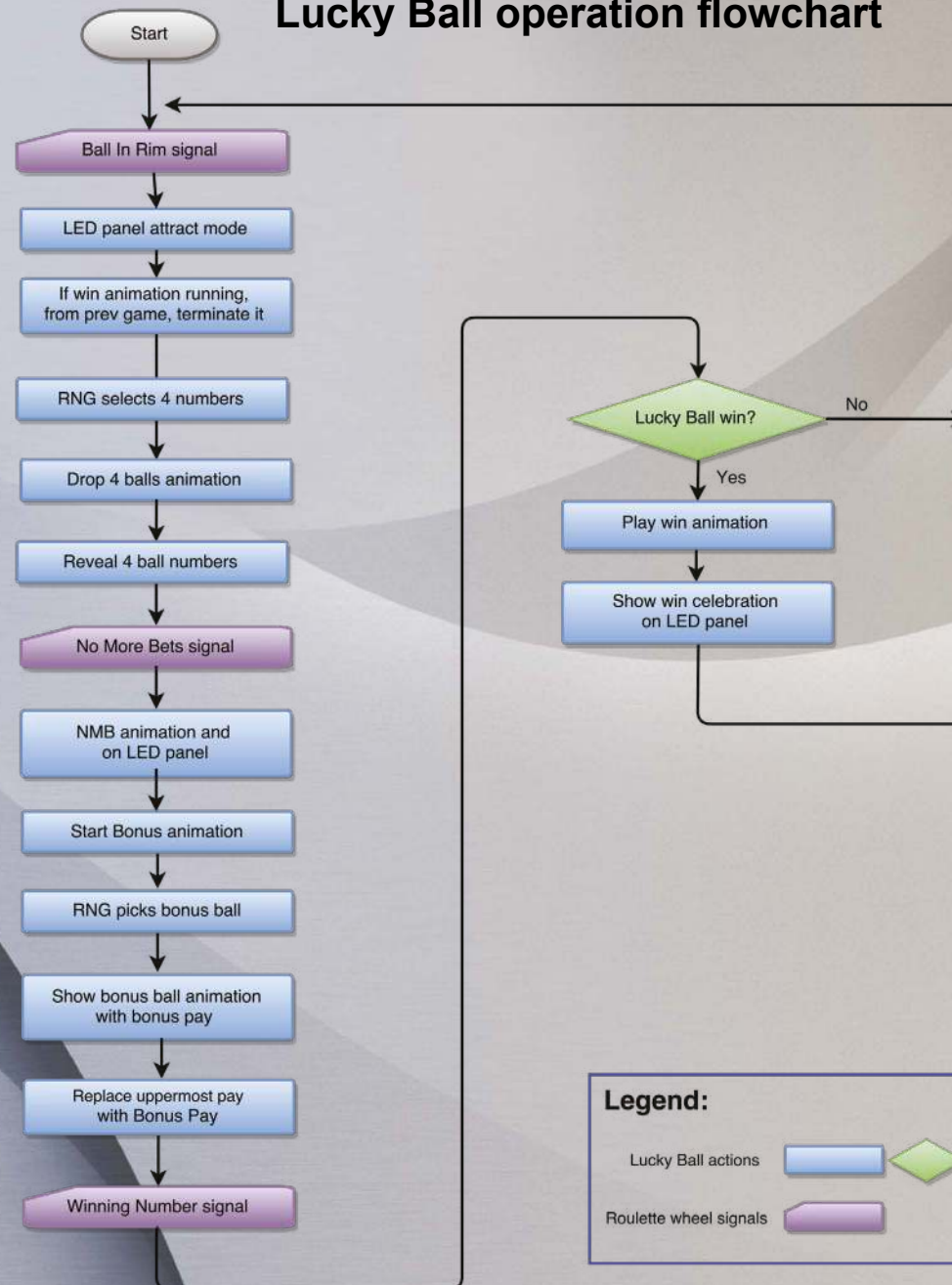
It is configurable whether the four Lucky Balls are revealed shortly after the dealer spins the ball, or after the wheel has issued the No More Bets signal, as knowing what the four lucky balls are whilst being able to place bets does not affect the house edge. However, it is extremely important that no bets are accepted after the bonus has been revealed.

## Other Functions

Using the keypad the operator can open/close the table, add and remove results, and view game statistics. The statistics show the total number of games played, the number and percentage of Lucky Ball hits, and the number and percentage of Bonus Ball hits.



## Lucky Ball operation flowchart



## Lucky Ball Block Diagram



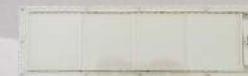
Abbiati Laser Wheel - Patented



GLI-25 in specific configuration only  
Roulette Control System



Keypad for various operations



LED Panel underneath layout



LED Panel controller



HDMI splitter



Lucky Ball controller

### Power requirements:

Display: 12V and 5V  
HDMI splitter: 5V  
LED Panel controller: 12V  
Lucky Ball controller: mains power



## **Lucky Ball Rules and Procedures**

### **1. OVERVIEW**

- a. Lucky Ball is a side bet game for American Roulette played on a standard table with either a single or double zero roulette wheel.
- b. The Lucky Ball side wagers are independent of the base roulette game. Players can play the Lucky Ball side wagers without having to play the base roulette game.
- c. The layout includes a Lucky Ball wagering area which is located adjacent to the "0" and / or "00" wagers. See Appendix A.
- d. Lucky Ball requires a Lucky Ball display. See Appendix B.
- e. There are 4 Lucky Ball wagers each defined by a colour; red, green, blue and yellow.
- f. Every game the Lucky Ball display shall select a unique roulette wheel number and allocate it to each of the red, green, blue and yellow Lucky Ball wagers.
- g. Each individual Lucky Ball wager has a base payout and a bonus payout.
- h. Each individual Lucky Ball wager has a 1 in 4 chance of a bonus payout.
- i. Every game, after "No More Bets" has been announced, one of the 4 Lucky Ball wagers will offer bonus payout odds.

### **2. MINIMUM AND MAXIMUM WAGERS**

- a. The casino operator shall determine and display the minimum and maximum Lucky Ball wagers.
- b. Wagers below the minimum shall be returned to the owner and the owner shall be advised of the minimum wager.
- c. Wagers above the maximum shall be paid only to the maximum wager allowed.

### **3. WAGERS**

- a. Prior to announcing "No More Bets" each player shall be given the opportunity to place a Lucky Ball wager.
- b. All wagers shall be made by placing either gaming chips or colour chips on the appropriate area(s) of the layout.
- c. Players are permitted to place wagers on each or any of the 4 Lucky Ball wagers.
- d. Once "No More Bets" has been announced or displayed no player shall handle, remove or alter the original wager, or place an additional wager, until a decision has been rendered and implemented on that wager.
- e. No player shall handle, remove or alter the original wager, or place an additional wager after the Bonus Payout Odds have been indicated by the Lucky Ball display. See Appendix B.

#### 4. DEALING THE GAME

- a. The dealer shall spin the ball in the opposite direction to the rotation of the wheel.
- b. To constitute a valid spin the ball shall complete at least 3 revolutions around the ball track.
- c. "No More Bets" shall be announced either:-
  - I. by the dealer
  - II. by a message displayed on the Lucky Ball display. See Appendix B.
  - III. optionally by a light box illuminating the Lucky Ball wager area with a continuous red flashing light effect.
- d. After "No More Bets" has been announced the Lucky Ball display will indicate which one of the 4 Lucky Ball wagers will pay Bonus Payout Odds
- e. No person other than a casino employee shall at any time interfere with the wheel or the ball.

#### 5. PAYOUT ODDS

- a. Winning Lucky Ball wagers shall be paid out as follows:

	Payout Odds	Bonus Payout Odds
Red Bet	6 to 1	120 to 1
Green Bet	12 to 1	100 to 1
Blue Bet	20 to 1	75 to 1
Yellow Bet	25 to 1	60 to 1

#### 6. SETTLEMENT OF WAGERS



- a. A Lucky Ball wager shall win if the number in which the ball has come to rest matches the allocated Lucky Ball number indicated on the Lucky Ball Display. See Appendix B.
- b. Each wager shall be settled in accordance with the payout odds.
- c. The Lucky Ball display will indicate if a winning Lucky Ball wager pays Bonus Payout Odds. See Appendix B.
- d. Optionally a light box will illuminate the winning Lucky Ball wager.

#### 7. LUCKY BALL SYSTEM MALFUNCTION

- a. If there is a malfunction with the Lucky Ball display then all Lucky Ball wagers are voided and returned to their owners.



## Appendix A

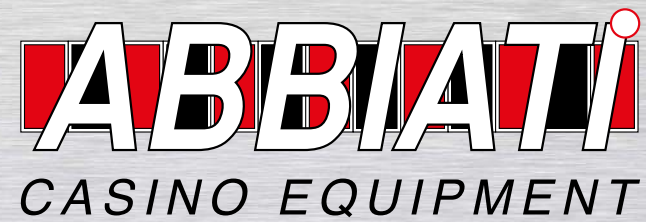
<div> <div>LUCKY BALL</div> <div> <div>18</div> <div>18</div> <div>18</div> <div>0</div> </div> </div>				3	6	9	12	15	18	21	24	27	30	33	36	2 to 1
				2	5	8	11	14	17	20	23	26	29	32	35	2 to 1
				1	4	7	10	13	16	19	22	25	28	31	34	2 to 1
				1 <sup>ST</sup> 12				2 <sup>ND</sup> 12				3 <sup>RD</sup> 12				
1-18		EVEN						ODD		19-36						

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## Appendix B







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**ABBIATI CASINO EQUIPMENT S.r.l.**

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