

## Overview

BURRO Grande is a heavy-duty, indoor/outdoor collaborative robot, designed to help laborers work more productively. To date, Grande has primarily been deployed in towing applications for nursery and greenhouse customers. However, Grande is well-suited for countless other carrying and towing applications.

No matter how complex Grande may be under the hood, we know that it must be practical, durable, and easy-to-use.



## Dimensions & Weight

|                                      |  |
|--------------------------------------|--|
| <b>LENGTH</b><br>58.75 in (149.2 cm) | <b>HEIGHT</b><br>56 in (142.2 cm) (To Top of Beacon);<br>23.5 in (59.7 cm) (To Payload Area) |
| <b>WIDTH</b><br>48 in (121.9 cm)     | <b>PAYLOAD AREA</b><br>50 in (127 cm) x 48 in (121.9 cm)<br>Solid Steel Tray                 |
| <b>WEIGHT</b><br>1081 lbs (490 kg)   |  |

## Carrying & Towing Capacity

|  |   |
|--|---|
| <b>MAX CARRYING PAYLOAD<sup>1</sup></b><br>1000 lbs (454 kg) | <b>MAX TOWING PAYLOAD<sup>2</sup></b><br>5000 lbs (2268 kg) |
|--|---|

<sup>1</sup>Rated for flat asphalt/concrete. Rated up to 1500 lbs (680 kg) on dirt/gravel

<sup>2</sup>Will vary based on speed, terrain, and payload

## Power & Range

### MOTORS

4x Ruggedized heavy-duty dual-stage helical wheel drive with high-capacity output shaft

### PEAK POWER

12.6 hp (9.4 kW)

### CONTINUOUS TORQUE

221 ft·lb (300 N·m)

### PEAK TORQUE

1124 ft·lb (1524 N·m)

### MAX SPEED<sup>4</sup>

5.8 mph output shaft

### POWER SOURCE

System: 48VDC, 2 x 51.2V 100Ah Lithium Iron Phosphate (LFP) battery

### BATTERY RANGE<sup>5</sup>

Min. 15 mi (24 km)

### OPERATING TEMPERATURE

-4°F to 113°F (-20°C to 45°C)

### CHARGE TIME

11 hours

### CHARGING INPUT

100-240 VAC, 50-60Hz: 8-10A at 120 VAC, 4-5A at 240 VAC

### CHARGING OUTPUT

Onboard: 48VDC, 20A

### CHARGING TEMPERATURE

32°F to 122°F (0°C to 50°C)

<sup>4</sup> BURRO Grande can go up to this speed. Autonomy, load, and field conditions can/ will reduce its maximum speed

<sup>5</sup> Will vary based on average speed, carrying/towing payload, and terrain (type & grade). Additional batteries can be added for extended range.

## Wheels & Tires

### WHEELS<sup>6</sup>

10 x 7, 1.5 in offset

### TIRES<sup>6</sup>

R4, 18 x 8.5-10 in (tubeless)

<sup>6</sup>Current standard wheel and tire configurations for BURRO Grande. Alternative options may be available in the future.

## Computing & Sensors

### CAMERA SYSTEM

4 x Stereo Camera (12 Cameras in Total)

### GPS

RTK (NTRIP Compatible)

### LIDAR

3D LiDAR

### MODEM

4G LTE Modem

### CPU & GPU

All Computing Onboard/Local

### RAM

32 GB

### STORAGE

256 GB SSD

### COOLING

Zero-ingress Forced-Air Cooling System

## Interface & Safety Features

### SCREEN

7" LCD Touch Monitor

### BRIGHTNESS

1000 nits

### RESOLUTION

1024 x 600

### BUMPER BAR/SAFETY EDGE

Front & Rear

### REMOTE VIEW

Online dashboard view: See robot on map, what it's doing, and what it's seeing

### VISUAL

Strobe safety running light (LED; hard-wired); Front & Rear LEDs provide cues & safety/area lighting

### AUDIO

Cues inform users of Burro's autonomy & when it's in motion; Adaptive Horn: Volume adjusted based on ambient noise when in motion

## Autonomy

### PERSON FOLLOWING

Vision Based

### AUTONOMOUS ROUTES (TEACH & REPEAT)

Vision + GPS + LiDAR

### ROW NAVIGATION + ROW TO ROW

Vision Based

### ATLAS (ONLINE ROUTE CREATION & MANAGEMENT + DESTINATION BASED NAVIGATION)

GPS + LiDAR

### OBSTACLE HANDLING (STOPPING & AVOIDANCE/PATH PLANNING)

Vision + LiDAR

### DATA COLLECTION

Up to 1 TB/hour

