AXIS

TEST DRIVE REDEFINED

POWERED BY DOBECK PERFORMANCE

Designed with one goal
Replicate load, drag and gravity

Patented Direct Torque Measurement Measured at the tire

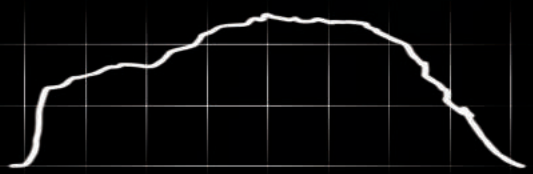
Road Surface Traction Traction matching the street

Patented Air Turbines Aerodynamic drag

Engine Cooling Built in

Variable Inertia Accurately matching vehicle weight

AXIS is the future of performance tuning.



PATENT #8,418,541

DIRECT TORQUE MEASUREMENT

By utilizing our Direct Torque Measurement design and a light weight drum, the tire is essentially touching the load cell; eliminating all frictional drag from bearings, belts and temperature changes. This technology greatly enhances the AXIS Dyno's repeatability and accuracy over the competition.

ROAD SURFACE TRACTION

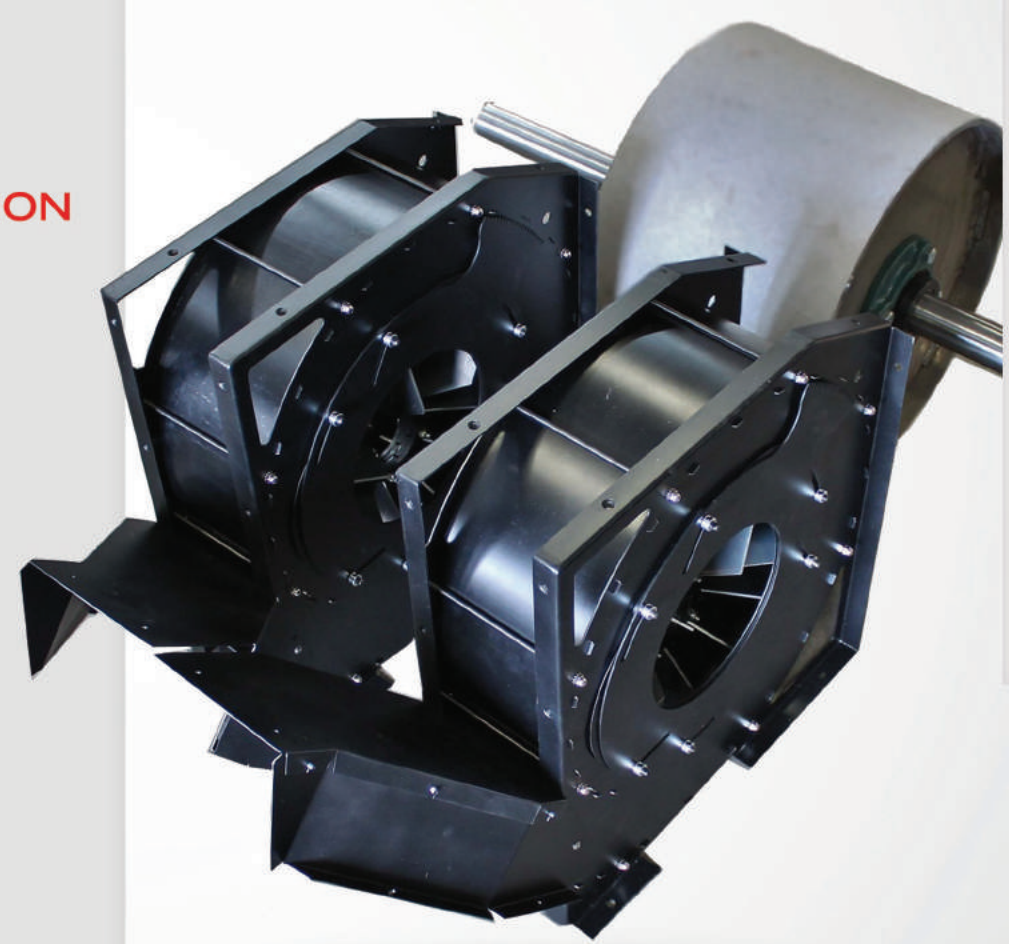
AXIS dyno drums are coated with a durable and rust-resistant metalizing arc spray; delivering uncompromised traction and tire wear that matches the road.

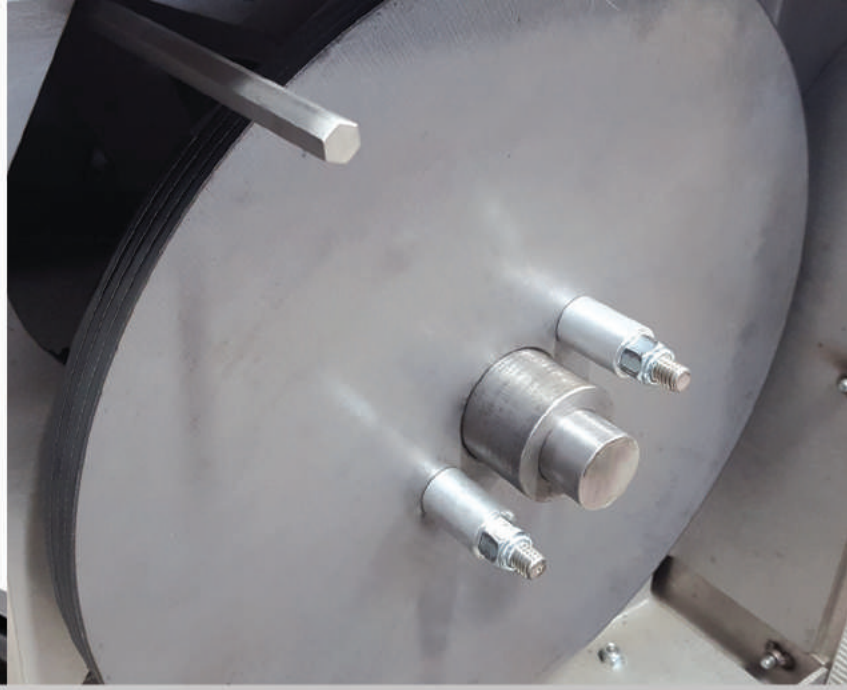
AIR TURBINES

PATENT #8,684,676

Air Turbines powered by the test vehicle create aerodynamic drag proportional to the vehicle's speed.

OPTIONAL Air Drag Trimmer allows for the dyno operator to trim out an additional 25% load for special effects such as drafting.





ENGINE COOLING

Wind created by the turbines is redirected through the ducts to cool the test vehicle's engine. The air velocity is proportional to the vehicle's speed, providing the same engine cooling as driving on the road. No additional cooling fans required.

VARIABLE INERTIA

By simply stacking or removing up to 10 inertia discs, the test vehicle's weight can be accurately matched. This allows for more precise tuning and provides the opportunity to test a variety of vehicles.

MOTO-VX12

A VARIABLE ENVIRONMENT FOR REAL WORLD RESULTS

SPECIFICATIONS

Maximum Torque	1000 ft-lb (higher available)
Wheel Base	40 in - 84 in (longer available)
Drum Size	18"DIA, 12"W
Inertia Adjustability	250lbs – 950lbs
Power Requirements	120 volt
Dimensions	38"W x 114"L x 50"H
Dyno Weight	APPROX. 1200lbs

Today's motorcycles have amazing technology: primary and secondary fuel injectors, throttle control, ram air intakes, exhaust output control, launch and shift control, individual fuel and timing maps per gear, etc. A new kind of dyno is required to handle these innovations. The MOTO-VX12 delivers unprecedented features not available by any other dynamometer. The MOTO-VX12 can produce street / track running conditions to fully analyze and diagnose a vehicle to the exact detail.

QUAD-RX74

PERFORMING WHERE THE RUBBER HITS THE DIRT

Real world conditions are critical for setup and testing of CVT clutches. Our dyno is the first to give you the ability to troubleshoot and tune your CVT clutch. The QUAD-RX74 crushes competition in traction, tire wear, and ease of use. The Gates Corporation–manufacturer of CVT belts–uses the QUAD-RX74. Come join our high tech team of tuners before you find yourself a lap down.

SPECIFICATIONS

Maximum Torque	2500 ft-lb (higher available)
Wheel base	(any available)
Drum Size	18"DIA, 74"W
Maximum Vehicle Weight	4000lbs
Inertia Adjustability	900lbs – 2300lbs
Power Requirements	120 volt
Dimensions	93"W x 39"L x 22"H
Dyno Weight	APPROX. 1700lbs

AVS

AXIS VISUAL SOFTWARE

The AVS is the first of its kind with roots in gaming software. AVS allows you to acquire and analyze multiple variables at once and most importantly, in real time. Diagnostic graphs are displayed as the data is collected. You can scan over a dyno run and pinpoint any specific moment in time. You can also create your own drive cycle for the vehicle to operate in. Multi-screen options are available to analyze and compare different variables of data all at once. The interface is very user friendly and a proven crowd pleaser.

The AVS allows a variety of inputs: Power(HP), Speed, Engine RPM, Engine Torque, Dyno Torque, Injector Pulse Width and Duty Cycle, Air/Fuel Ratio and Drive Ratio. The base software also comes equipped with an additional four auxiliary (0-5 volt) inputs, with the option to upgrade to as many as 64 inputs.

ADD ONS

CLAMP N' GO

The Clamp 'N' Go mount system offers a quick and convenient way to securely mount most UTVs, ATVs or trikes to our dynamometer; achieving 5 minute dyno runs including loading and unloading.

MOBILE TRAILER

By utilizing a hydraulic system, the AXIS dyno trailer can be set in place within a matter of minutes by simply lowering the frame to the ground. Purchase the rolling chassis to create your own custom look or sit down with our design team and we will build your vision.

FRONT DECK WITH AIR DUCTING

For maximum convenience, the QUAD-RX74 can be equipped with a front deck and air ducting. Built from steel, the frame is topped with industrial grade Grip Strut tread. For Do-It-Yourselfer's, wood and steel prints can be provided at no charge.

HIGH LOADS

If you specialize in sand dune, mud, or ultra-horsepower tuning, an additional blower can be installed in a matter of minutes.

FRONT WHEEL CHOCK

A front wheel chock can be mounted on the QUAD-RX74 for trike and motorcycle testing.

MINI WIDEBANDS

The base software can utilize up to four (0-5 volt) AFR inputs. Your AXIS Dyno will come with one DP SAFR.

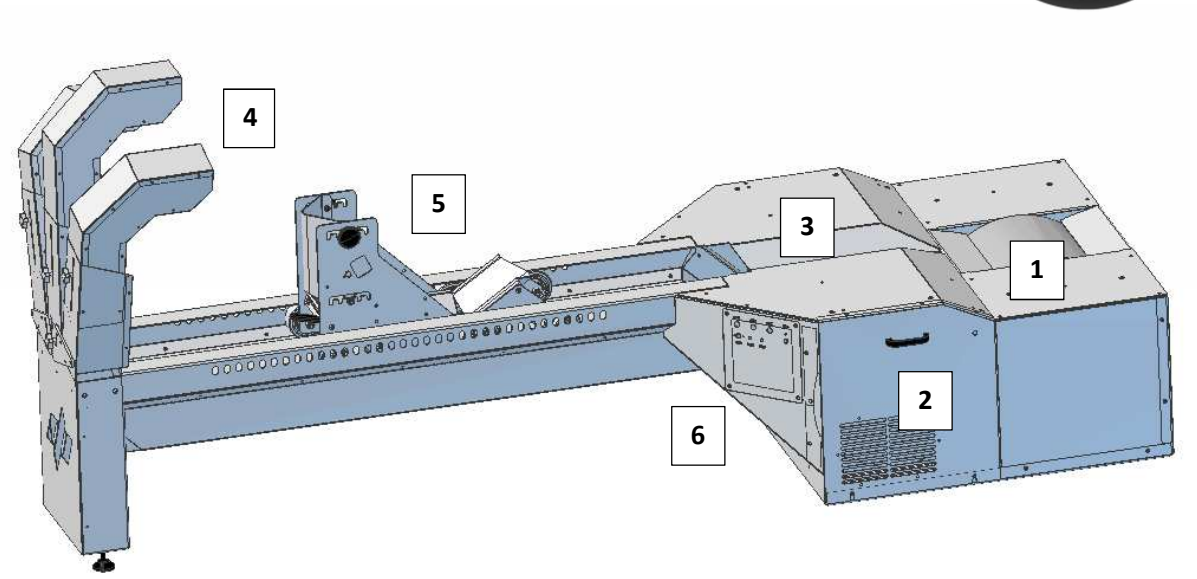

THE AXIS SIMULATOR
Schedule your event today
AXIS
AXIS
Dynamometer

AXIS

POWERED BY DOBECK PERFORMANCE

Address: 157 Progressive Dr., Belgrade, MT 59714
Phone: 406-388-2377 or Toll Free 877-764-3337
Email: info@dobeckperformance.com **Website:** Axisdyno.com

AXIS MOTORCYCLE DYNAMOMETER



Features

1. Tungsten Carbide Coated Drum – Excellent traction with limited tire wear
2. Adjustable Inertia – Match vehicle weight from 230 to 815 pounds
3. Adjustable Wind Loading – Blower inlets are adjustable to match vehicle aero profile
4. Adjustable Ducting – Air fingers adjust in height and width to cool vehicle
5. Adjustable Tire Cradle – Accommodates up 84” wheelbase and 24”+ wheels
6. Electronics Panel – Convenient access to dyno inputs

Safety

1. The area around the dyno must be kept clean. Any lose derbies can and will be sucked in by the blowers and projected toward the operator.
2. Safety glasses and hearing protection must be worn at all times.
3. **Top speed must not exceed 160 MPH.**
4. Hands and feet must be kept away from rotating drum
5. Exhaust gases must be vented away from the operator.

Initial Setup

Dyno must be placed on a level concrete or asphalt pad

Set dyno chassis on included levelers or remove the levelers and bolt to the ground

Attach the track to the chassis using two ½-13 bolts located inside the track

If used indoors:

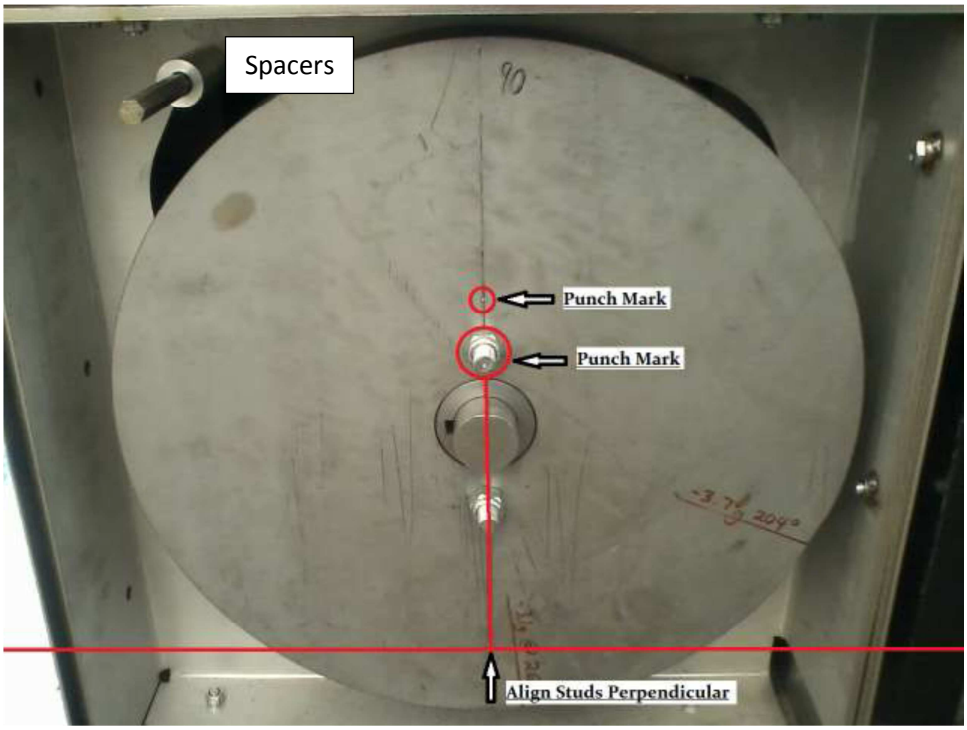
- Engine exhaust gases must be expelled to the outside
- It is preferred that outside air be ducted to the dyno air inlets

A loading ramp of suitable width and strength must be securely attached to the dyno

Dyno Setup and Vehicle Loading

Adjust inertia stack

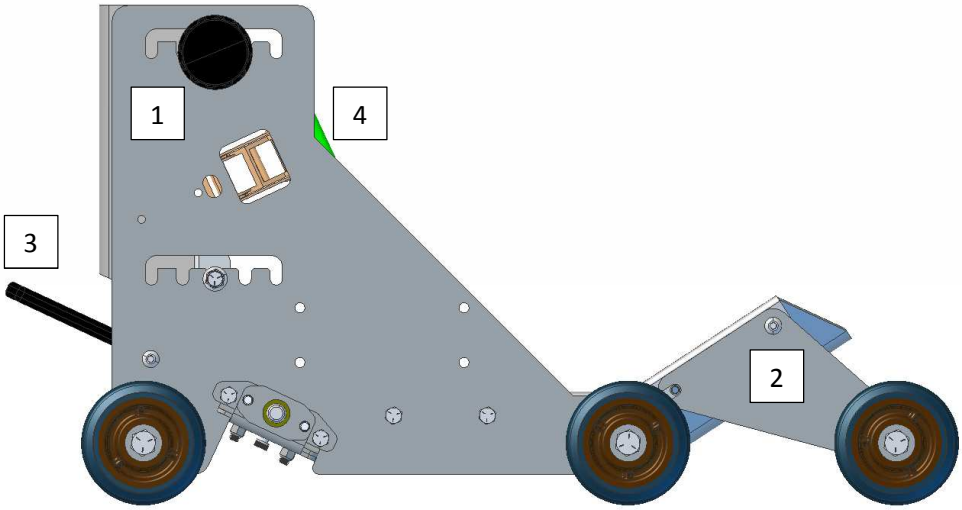
- Remove the inertia cover and refer to the inertia chart on the back to determine the numbers of inertia disks required
- Remove the two ½-13 locknuts using a ¾" deep socket
- Add or remove disks as needed. Set unused disks aside.
- **Ensure disks are oriented as shown below**
- Use supplied spacers if 5 or less disks are used
- Tighten ½-13 locknuts and replace the inertia cover



Adjust air inlets to match vehicle aerodynamic profile. Use a 7/16” wrench to turn the shaft protruding through the inertia cover. Resistance goes from 0 (least) to 8 (most)

Adjust the tire cradle

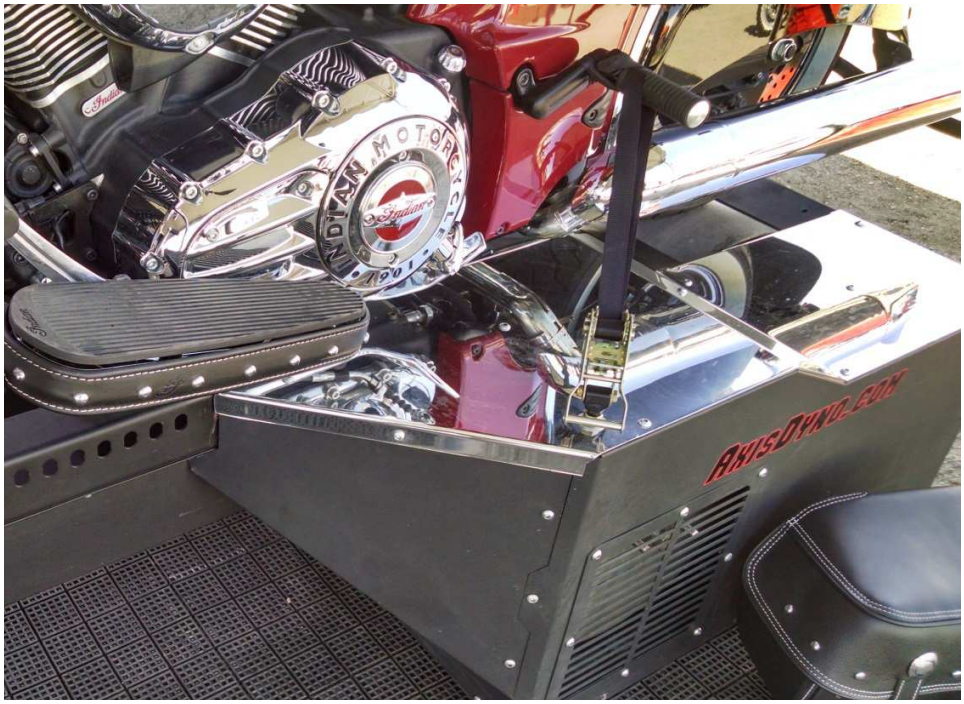
1. Loosen the round knob and set the front tray to the appropriate wheel size. The smallest position is for 15 in wheels and the largest one is for 24 in wheels
2. If the vehicle has wheels larger than 24 in or has a low front fairing, remove the two rear 5/16-18 bolts and slid the rear wheel assemblies off



Load the vehicle

- Push or ride the vehicle up the loading ramps and into the tire cradle. When the rear tire is centered over the drum, release the locking pins using the black lever on the tire cradle (3 above). Ensure that the pins protrude fully through the track holes
- Use the ratchet and strap on the side of the tire cradle (4 above) to secure the front wheel

- Secure the rear of the bike to the dyno using two straps. They should pull down and forward. The best locations are usually rear pegs or the rear sub frame. Straps should only be tightened to the point that the vehicle does not squat any more when a driver sits on the seat.



- On vehicles with long rakes or large front suspension travel, an additional strap may be needed on the front to compress the suspension.
- Ensure the rear tire is still centered or slight forward of the drum. Adjust the tire cradle pin location and re-strap as needed.
- Slowly drive the vehicle to ensure it is securely attached. Adjust as needed

Vehicle Electronics

1. If only dyno torque, horsepower, and speed are required, no vehicle connections are required (skip to step #5)
2. Always attach the vehicle ground wire first to a secure location on the motorcycle
3. Connect the engine rpm to the injectors using a supplied harness or the piercing probe. The engine rpm may also be connected to the coil primary using the piercing probe
4. Connect additional 0-5v sensors as desired.
5. Connect dyno power and computer USB
6. Open software and verify that all desired inputs are working correctly.

Specifications

- **Max Wheelbase:** 84”
- **Max Wheel Torque:** 1000 ft-lb (higher values available)
- **Max Speed:** 160 MPH
- **Drum Dimensions:** 18 in diameter by 12 in wide

- **Dyno Dimensions:** 112 x 38 x 51 inches
- **Weight:** 1200lbs (weight may vary with additional options)

Maintenance

Maintenance should be done after every 80 hours of use. All bolts should be checked for loosening and thread locker added if needed. Remove all top covers for maintenance.

Belt tension should not need to be changed but can be checked using one of the following:

1. Pluck the belt like a guitar string and measuring the frequency using a phone guitar tuner app. Belt tension should be between 62 to 70 Hz
2. The belt should deflect 5/16" with a 30 lb force at the center of the span

If the belt tension is wrong, use the following procedure:

1. Loosen the two 3/8 bolts located behind the tensioner and next to the drum
2. Adjust the belt tension from the top using the long ½-13 bolt
3. Tighten the 3/8 bolts and check the tension again. Repeat if necessary.

Bearings should be lubed using a high speed and temp Lithium base NGLI #2 (See included sheet). The five bearings are accessible by removing covers 1, 2, and 4 in figure 1.

Keyless bushings on blowers should be checked and re torqued (See included sheet for details).

AxisDyno.com
877.764.337| 406.388.2377
sales@dobeckperformance.com
157 Progressive Drive
Belgrade, MT 59714

Hardware Auxiliary Setup Guide

1. Attach the sensor ground wire to the auxiliary cable black wire
2. Attach the sensor power wire to the auxiliary cable red/yellow (possibly orange) wire – Only do this if the sensor uses 5v power. Otherwise supply power from an outside source
3. Attach the sensor signal wire to the auxiliary cable inputs using the chart below
4. Attach the auxiliary cable to the dyno hardware.

Red/Yellow – 5v supply[1]

Black – Ground

Purple – Input AIN0 (+/- 10V)

Blue – Input AIN1 (+/- 10V)

Green – Input AIN2 (+/- 10V)

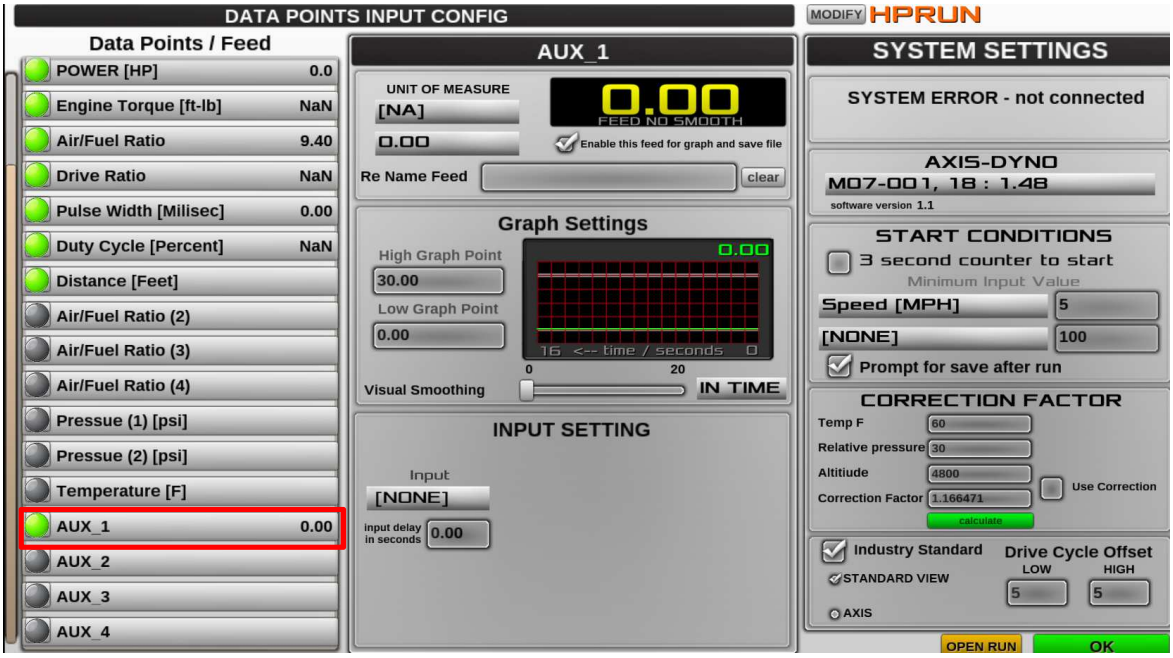
White – Input AIN3[2] (+/- 10V)

1 - 450mA max with USB 2.0 computer port

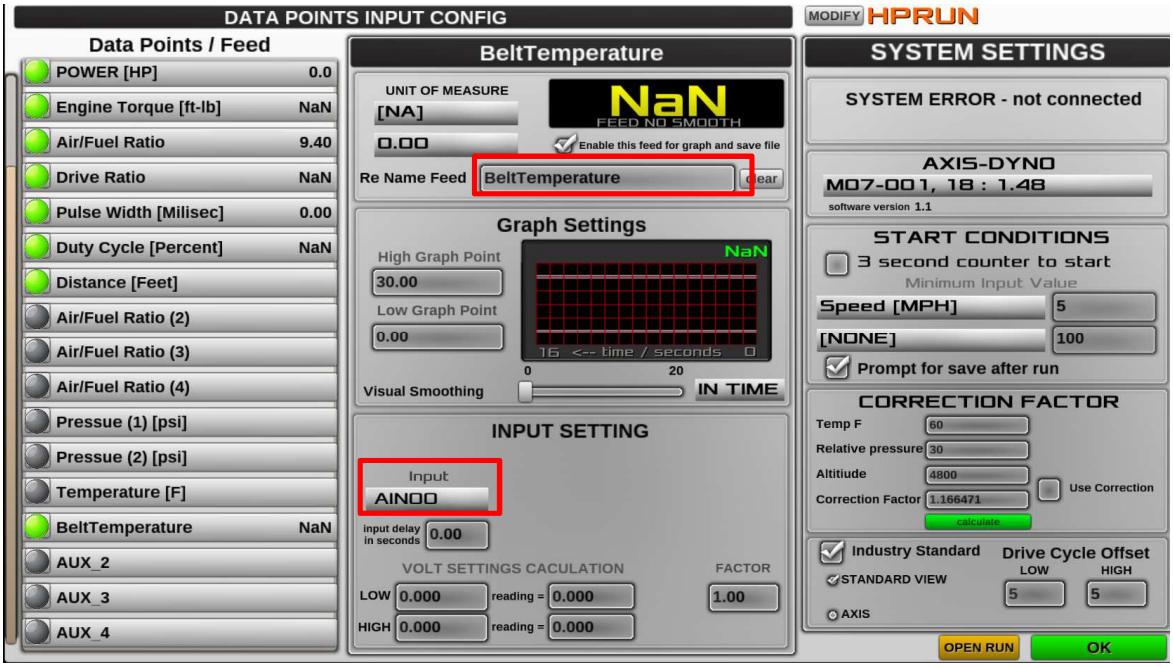
2 - Not available if pressure sensor is installed

Software Auxiliary Input Setup Guide

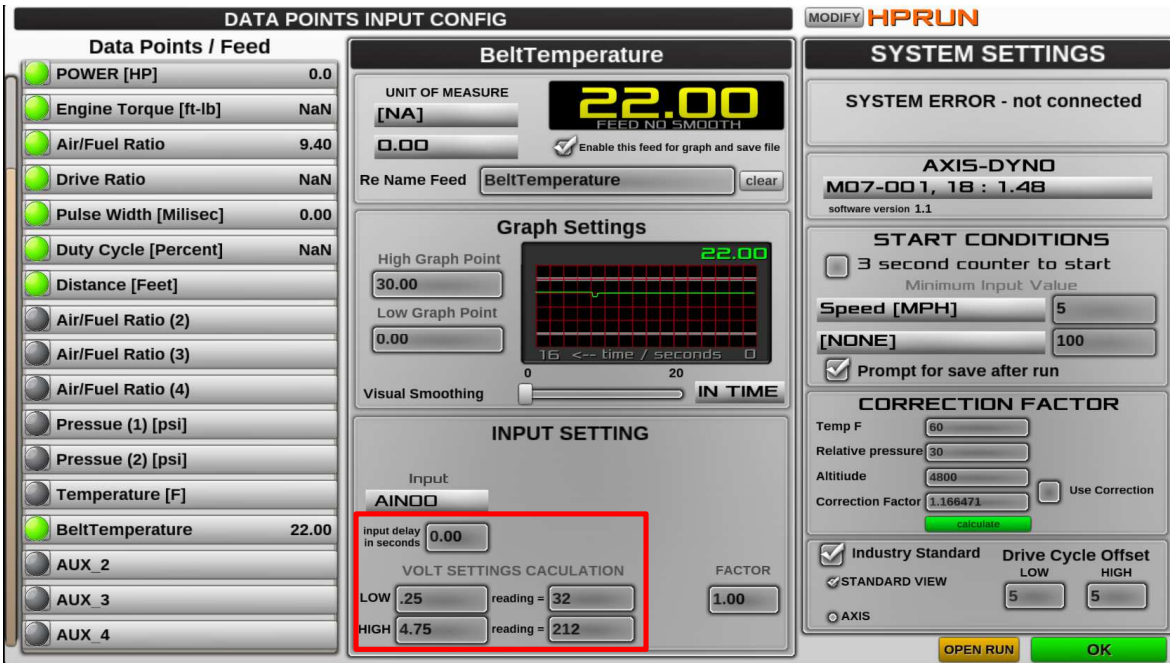
1. Open the software and enter the settings screen
2. On the left side, click on the circle of the feed you would like to add (AUX_1 in this example). The circle must be green to record data



3. Re name the feed if needed and select the input channel according to the chart above (Belt Temperature and AIN00 in this example)



4. Set the inputs delay if needed and the calibration variables for the particular sensor (In this example, 0.25 volts = 32 F and 4.75 volts = 212 F)



5. Test the sensor by running the vehicle, set the graphing range and smoothing as desired
6. The new feed is now available for viewing and recording.

Disk Weight Chart

Total weight =
vehicle + fluids + cargo + passengers

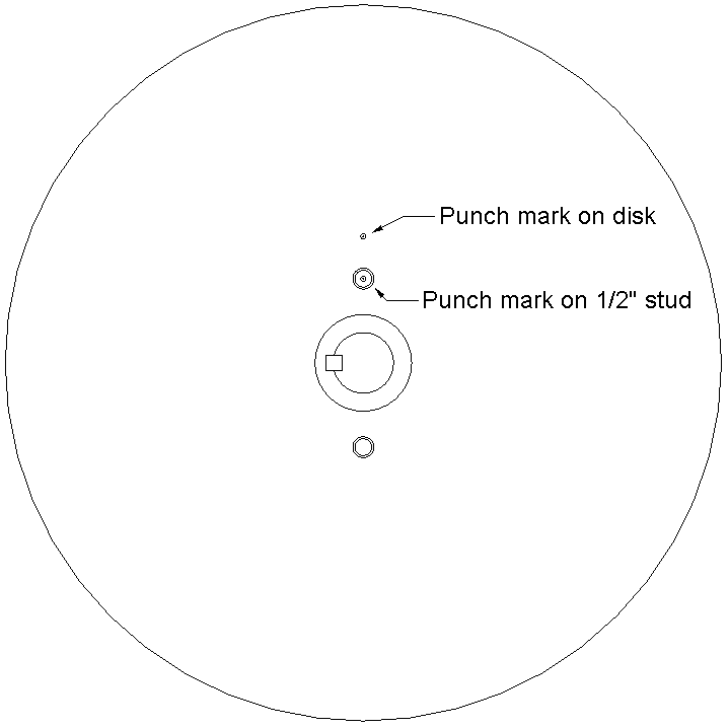
Weight (lbs)	# of Disks
230	0
285	1
345	2
400	3
460	4
520	5
580	6
635	7
695	8
755	9
815	10

Note: Use spacers with 5 disks or less

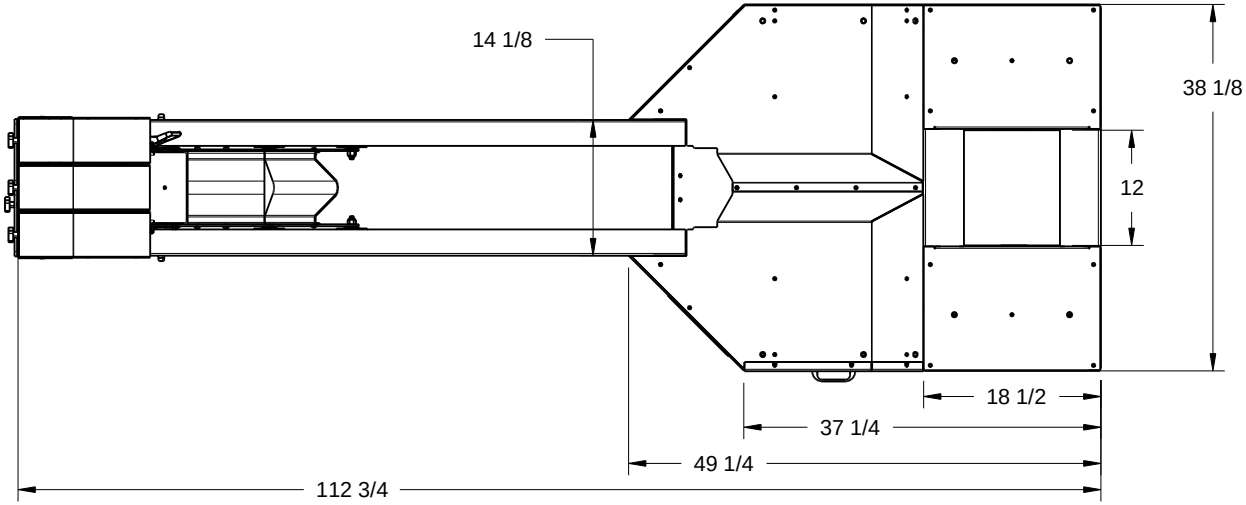
18 in dia drum, 80t driver, 28t driven, and 17 in dia disks

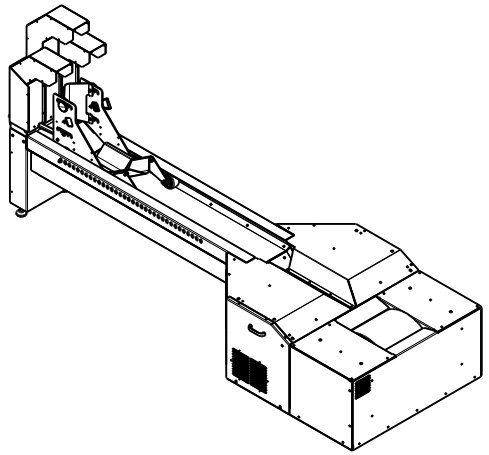
Disk Alignment

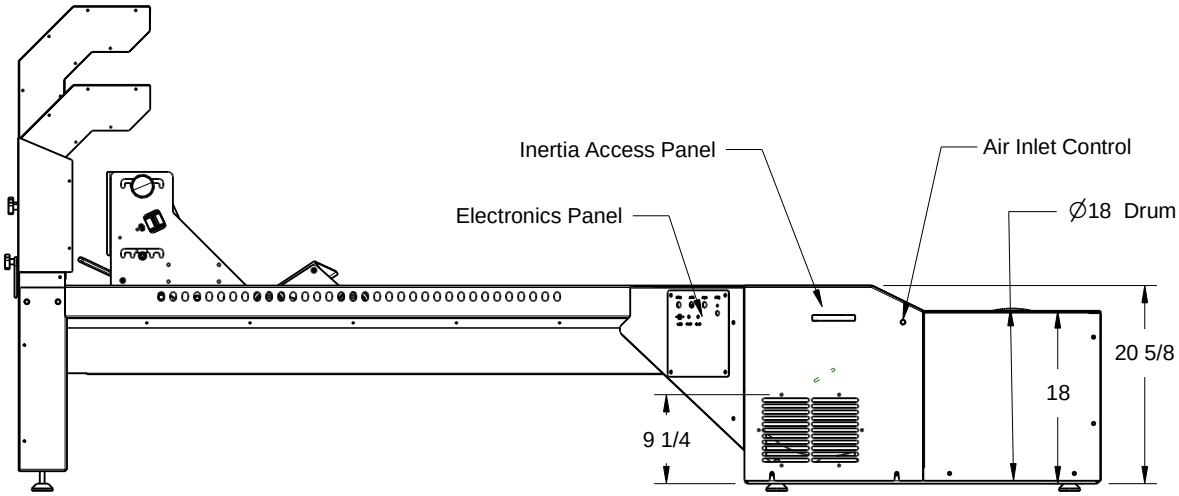
When changing inertia discs, it is very important that they are aligned correctly in order to maintain balance.

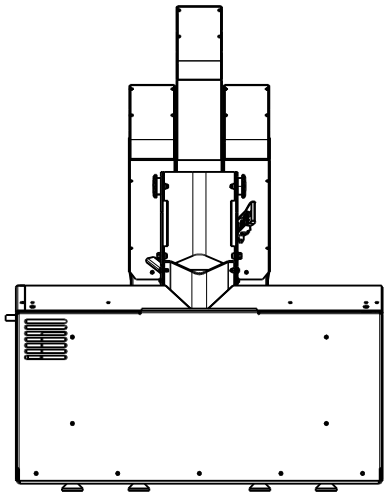


The punch mark on the ½” stud needs to be aligned with the punch mark on each disk and oriented vertically before tightening









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UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
DECIMAL .XX ± .020 .XXX ± .010
ANGLE ± .5˚

MATERIAL

MFG

MFG PO/PN

DESIGN JLF

DRAWN JLF

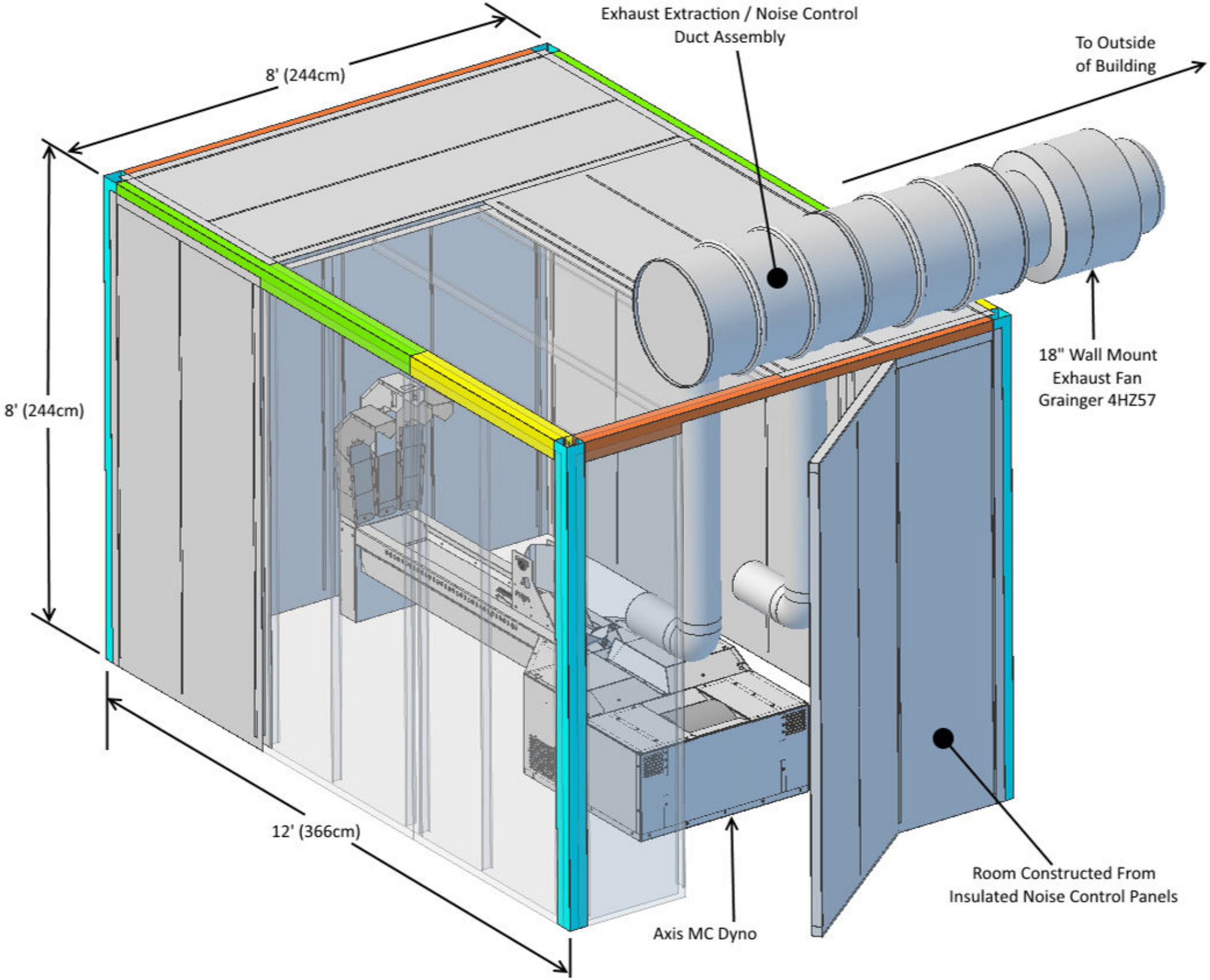
APPROVED

Dobeck Performance
157 Progressive Drive Belgrade, MT 59714
406-388-2377 www.dobeckperformance.com

Axis Motorcyle Dyno

SIZE	DWG NO.	PART NO.	REV
A			

SCALE	DATE	SHEET
1:20	5 October 2015	1 OF 1


Exhaust Extraction / Noise Control
Duct Assembly
To Outside
of Building
8' (244cm)
8' (244cm)
18" Wall Mount
Exhaust Fan
Grainger 4HZ57
12' (366cm)
Axis MC Dyno
Room Constructed From
Insulated Noise Control Panels