



2/02/25

APOLLO DISCUS THROW CAGE

Installation, Operation &
Maintenance Manual



PLAY HARD SPORTS EQUIPMENT

13 Alex Fisher Drive
Burleigh Heads, QLD 4220

1. Introduction

The most revolutionary throw cage design in 50 years; the APOLLO Discus Throw Cage is a World Athletics certified (E-12-0695) cage for competition use, designed and manufactured by Playhard Sports Equipment, Australia. The cage has a three-pole erected structure that has been structurally certified by Engineers. Three aluminium net support poles hinged on steel spigots and are designed to allow minimal impact from implement damage with the outward-facing poles also easily be assembled laid down and can be hand raised by 2-3 people. The poles and spigots can be removed leaving flush ground sleeves with caps.

The extension arms on these poles have a rope and pulley system that allows for the easy installation of the ropes. The cage has 3.0m x 6.0m gates with a 4m high around the perimeter.

The cage has a 115 kph wind rating with the net erected, meaning nets can remain erected in winds up to 115 kph. The nets can be lowered if required by using the rope and pulley system. The net is attached to rails which connect to pole ropes for raising. The ropes are tied off to cleats on each pole. Net retaining ropes from the poles are fed through the net and tied to saddle anchors set into footings.

Key features:

1. World Athletics Certified: E-12-0695
2. Engineer Certified
3. Wind rating of 115 kph
4. Opening gate height of 6m
5. Greater view for spectators of athletes in action



Safety Information for the Installer:

Important Safety Information

- **Read the Manual:** Ensure you read this manual in full before beginning assembly or installation.
- **Supervision:** Children should be supervised around the tower location during and after installation.
- **Wear Safety Gear:** Always wear appropriate safety gear during assembly and installation.
- **Avoid Electrical Hazards:** Keep electrical tools away from the goalposts and ensure the work area is dry.

Assembly Precautions

- **Two-Person Job:** Assembly requires at least three people to ensure safety and accuracy.
- **Check Parts:** Verify all parts are present and undamaged before starting assembly.
- **Level Ground:** Assemble on a flat surface to avoid instability.

Site Specific Precautions:

- Before commencing any groundwork, please survey the ground/field for underground electrical, water, or sewage lines and check for overhead electrical lines.
- It is advised that the soil is tested to know its strength. All our towers have been structurally designed to suit 'A', 'S' & 'M' Soils per AS2870. The contractors/installers must notify Play Hard Sports Equipment of any changes to the site specification. All other soil sites would require site-specific footing and slab engineering design.
- The concrete must be of a minimum 20 MPA, with a slump of 80 – 100 mm, and a maximum aggregate of size 20mm.
- Let the concrete set for at least 4 days before commencing further work.

2. Installation Instructions

2.1. Identification of Supplied Items:

Please refer to the parts lists provided to check if you have received all the items required for the installation of the cage. Contact us immediately if any parts are missing.

Fig: Apollo Packaged Item Lists

BOLTS AND FASTENERS		SUB ASY QTY	ITEM DESCRIPTION	PACKED	ITEM DESCRIPTION	PACKED	WEIGHT
QTY	ITEM DESCRIPTION						
10	SADDLE ANCHOR (2250KG)	3			GROUND SLEEVE		65 KG
20	M8 S/S 'D' SHACKLES	3			MOUNTING SPIGOT		54 KG
12	M16 X 50 H.T. 8.8 S/S HEX HEAD BOLT, FLAT WASHER, SPRING WASHER AND NUT	4			SLEEVE CAP		6 KG
3	M12 X 170 MM S/S THREADED ROD WITH M12 S/S EYE NUT WELDED TO ONE END	5			REAR BASE POLE		100 KG
3	M12 S/S EYE NUTS	1			REAR UPPER POLE		45 KG
6	M10 X 150 MM S/S HEXBOLT, NYLOC NUT	7			FRONT GATE UPPER POLE L & R		68 KG
16	M10 X 100 MM S/S HEX BOLT, NYLOC NUT	1			REAR UPPER POLE		24 KG
20	M10 X 100 MM CONCRETE SCREWS GAL (FOR ANCHORS)	2			GATE EXTENSION ARMS 3025 MM		27 KG
14	M8 X 50 MM S/S EYE BOLT, NYLOC	2			GATE REAR ARMS 2000 MM		18 KG
8	32 MM S/S PULLEYS	10			REAR POLE CROSS ARM		24 KG
12	70 X 20 MM NYLON ROPE WHEELS	11A & 11B			REAR POLE EXTENSION ARMS 2550 MM		12 KG
		12A			NET RAIL 3000 MM		12 KG
		12B			NET RAIL 2500 MM		4 KG
					ROPE DETAILS		
		6			5.0M BLACK ROPE (8MM) ONE EYE		
		4			7.0M BLACK ROPE (8MM) ONE EYE		
		4			10.5M BLACK ROPE (8MM) ONE EYE		
		2			12.0M BLACK ROPE (8MM) ONE EYE		
		2			13.0M BLACK ROPE (8MM) ONE EYE		
		2			15.0M BLACK ROPE (8MM) ONE EYE		
		1			25.0M BLACK ROPE (8MM) WITH METAL CLAMP BOTH END		
					TOTAL 180.0M BLACK ROPE (8MM)		
		1			25M X 6M X 4M NET		

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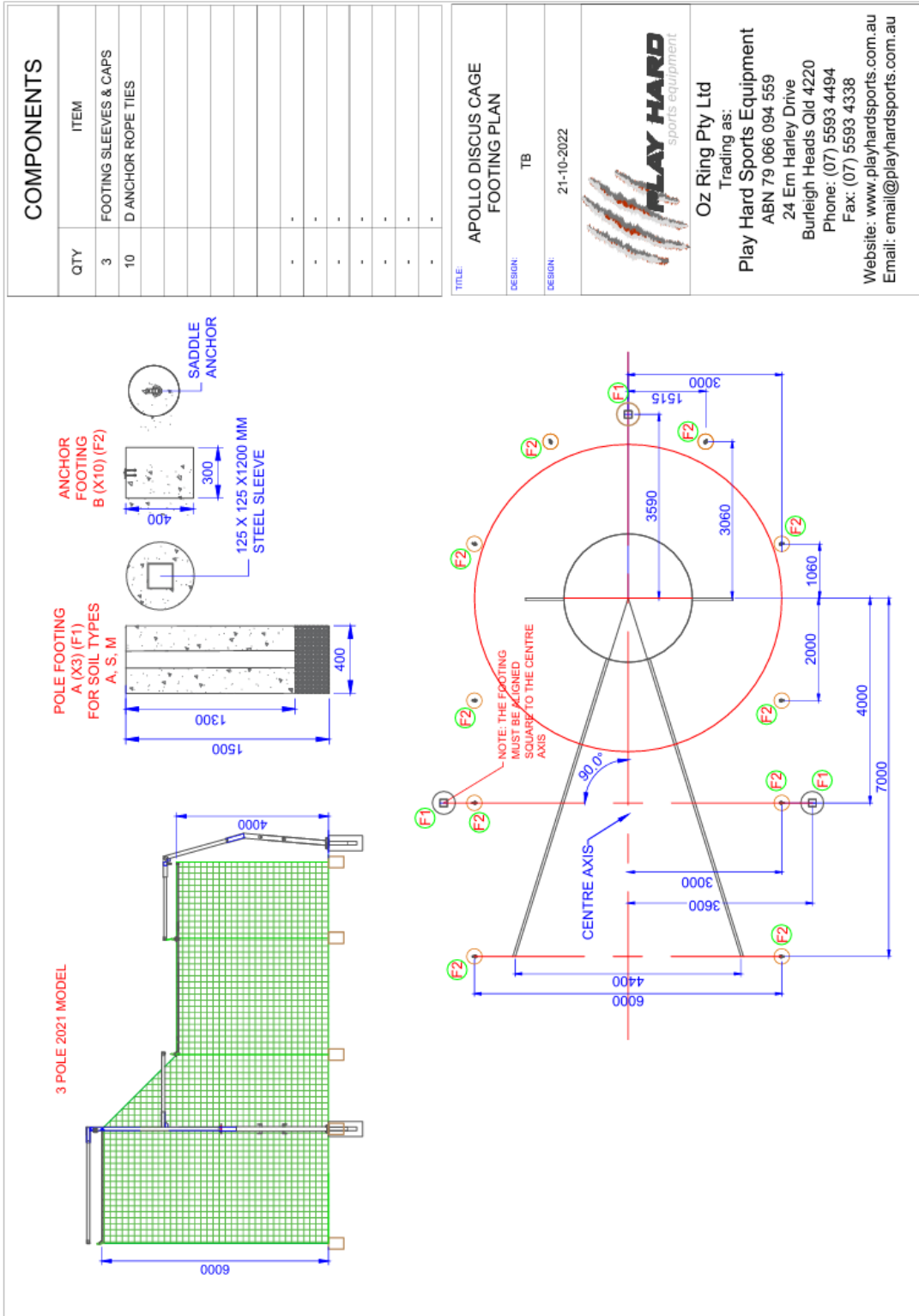
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2.2. Footing Details:

The details for the footing layout of the Apollo Discus cage system are shown in the image below. Please ensure that you have the required number of footings as listed for the ease of erection of the poles

Fig: Apollo Footing Layout Plan



2.3. Assembly Instructions:

1A. Site Preparation:

- Before commencing any groundwork, please survey the ground/field for any underground electrical line, water line and sewage line. Also, check for any overhead electrical lines.
- It is advised that the soil is tested to know its strength. All our towers have been structurally designed to suit 'A', 'S' & 'M' Soils per AS2870. The contractors/installers must notify Play Hard Sports Equipment of any changes to the site specification. All other soil sites would require site-specific footing and slab engineering design.

1B. Groundwork – Ground Sleeve & Anchors:

- Mark the position of the footings F1 and F2 taking centre of the discus circle centre as the reference point.
- Then, Bore Drill the footing holes to the required depth.
- Correctly position the ground sleeve in the footing holes as shown in the footing plan drawing.
- Pour the concrete into the hole. (Prevent any concrete from getting inside the post)
- Ensure the post is fixed while pouring the concrete into the hole.
- The concrete must be of a minimum 20 MPA, with a slump of 80 – 100 mm, and a maximum aggregate of size 20mm.
- Trowel the concrete sloping away from the pole to prevent water from pooling around the post base.
- While the concrete mix is still fresh, use spirit level to check that the ground sleeve is level in all axes.
- Let the concrete set for at least 4 days before commencing further work.

2. Once the ground sleeves are set, you can start the assembly of the cage.

A. **A.** Insert the hinged spigot into the ground sleeve



B. **B.** Place the Pole Spigot on top of the spigot and insert supplied M16 x 50mm hex bolt.



C. Lay the Base Pole, Upper Pole and Extension Arms on the ground and assemble them together; use the bolts already attached to the parts.



D. Slide the base pole into the pole sockets and attach them together with a bolt.



E. Ensure all the required ropes are fed through before the poles are raised. Refer Fig – Rope Assembly drawing for details.



G. Ensure that all the joining pieces are properly bolted, and all the ropes are attached together.



H. Hand lift the pole to an upright position and bolt them to the ground spigot.

I. Follow the Rope Installation Instructions to attach and raise the net.

1.4 Rope attachment

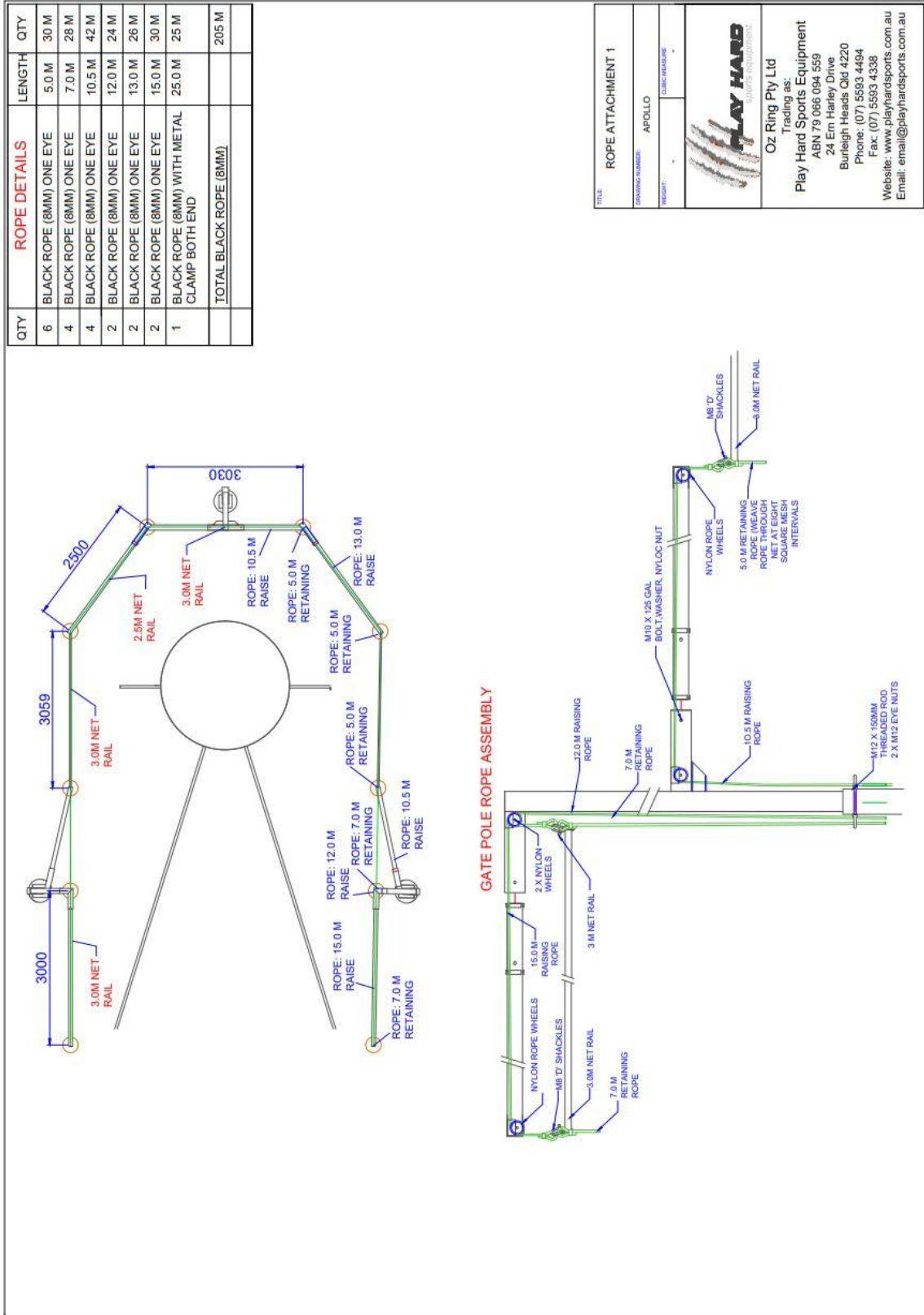


Fig: Rope Details 1

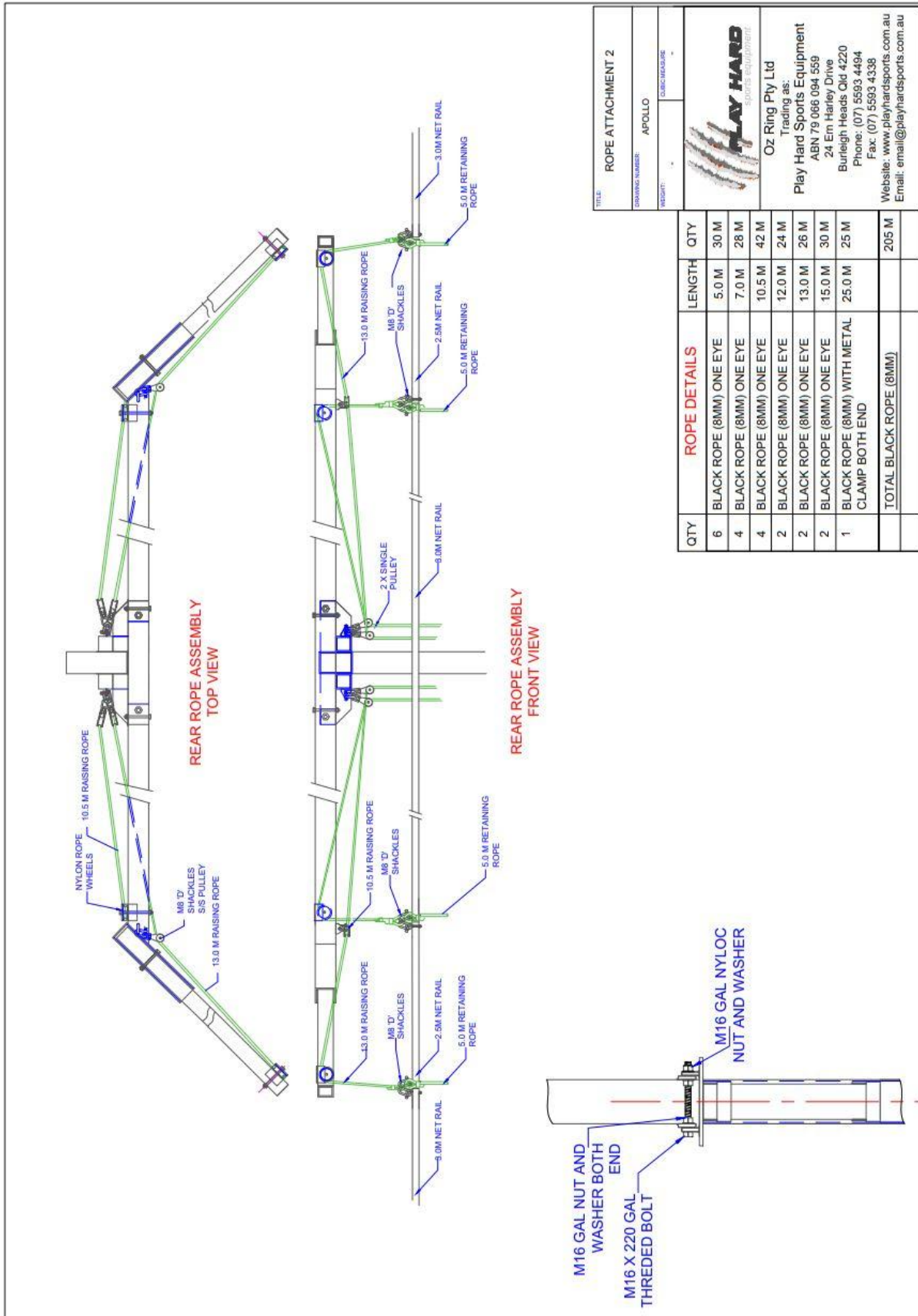


Fig: Rope Details 2

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Instructions to attach ropes:

1. Attach M8 'D' Shackles to the Net Support Rails (2 per Rails/ one each end).
 - 2 x gate rails (3.0m)
 - 3 x rear rails (3.0m)
 - 2 x rear rails (2.5m)
2. Lay down the net rails as per the positions mentioned in fig: rope details 1. Please ensure the support rails are positioned as shown in the layout.
3. Lay the net around the perimeter of the cage. Then, insert the net support rails to the top of net as shown below.



4. Join the rear rails together as shown in Fig: rope details 2 using the eye end of net raising ropes and D shackles in the net rails. Please ensure the correct ropes are used to attach the net rails.
5. Pass the other end of those ropes through the nylon rope wheels at the extension arms and then through the double pulley at the rear upper pole.
6. Attach the eye of the long gate-raising rope to the gate net rails (ensure this end is on the outer end of the gate) and pass it through the nylon rope wheel on the gate arm.
7. Attach the eye of the short gate-raising rope to the gate net rails (ensure this end is on the inner end of the gate) and pass it through the nylon rope wheel on the upper gate pole and then through the double-wheel
8. Attach a net retaining rope to each 'D' Shackle on all the net support rails.
9. Once the pole assemblies are erected using the net raising ropes, raise the rail. After the net has been raised tie down the ends of the ropes to the rope cleats on the base poles.
10. Then, use the net tensioning ropes to fix the net in position. Use the Saddle anchors (footing F3) to tie up the ropes.

OPERATION:

The cage is quick and easy to operate.

1. The gates are always open so there is no mechanism to open or close the gates.
2. Ensure the net is raised to a specified height and ropes are tensioned to limit the amount of net movement.
3. Adjust the net tensioning ropes when necessary to maintain the tension.
4. To lower the net,
 - Untie the net tensioning rope.
 - Untie the net raise rope and gradually lower the net.

MAINTENANCE

1. The net retaining ropes should always be tensioned to restrict the net from blowing.
2. Do not tie the net back to the poles – this can cause damage to the net voiding the warranty.
3. Do not tie the gate back to increase the opening.
4. Do not climb on the net or the poles.
5. Lower the net if winds are expected to exceed 115 kph.
6. Check the cage for wear and tear before each use.
7. Regularly check the bolts on the ground sleeves. Ensure they have not loosened to prevent movement in the poles. Tighten them regularly.
8. While in operation, spectators should remain well clear of the net and the field of throw to prevent any possible injury.

Safety Guidelines (Usage)

The owner of this equipment is responsible for ensuring all players are aware of these conditions for the safe use and operation of the equipment.

1. **Supervision:**
 - Supervise play, especially with younger players, to ensure safety.
 - Prevent players from hanging from the ring or climbing up the posts to prevent serious injury.
2. During visual inspection, if the bolts are loosened or the post or footing is damaged, the basketball system should not be used until they have been repaired.
3. **Note for Discus Throwers:**

When using the Discus, please ensure that no sharp materials are protruding that could potentially cause damage to the netting when throwing.

Certificate of Compliance:

All our products have been structurally designed and are made using structural-grade steel and Aluminium. All the workmanship is completed following the relevant Australian Standards. Our Products comply with the following Australian Standards.

1. AS/NZS 4100:1998 Steel Structures
2. AS/NZS 1554.1:2014 Welding of steel structures
3. AS/NZS 1664 Aluminium structures
4. AS/NZS 1665:2004 Welding of aluminium structures
5. AS/NZS 1170.0 Structural design actions – General principles
6. AS/NZS 1170.2 Structural design actions – Wind actions
7. AS/NZS 2312.1:2017 Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings
8. AS/NZS 2311:2017 Guide to the paintings of buildings
9. AS/NZS 4680:2006 Hot-dip galvanized (Zinc) coatings on fabricated ferrous articles

All our Cages have been certified by World Athletics (E-12-0695) to meet the technical requirements of the World Athletics Rules for relevant competitions.

All our products are designed and manufactured here in Australia.

Warranty Certificate:



When you purchase a Play Hard Sports Equipment product you have the peace of mind in knowing that your product is covered by Play Hard Sports Equipment's manufacturer's warranty against faulty workmanship and materials.

The Apollo Discus Cage has 10 years of warranty. The net has a year of manufacturer's warranty, however if properly looked after, it can last for 5-10 years.

The warranty covers damage or failure of the product during normal intended use. The warranty does not include damage to the product resulting from accident, misuse, improper installation, operation, or unauthorised repair or alteration. Products manufactured for home use are not guaranteed for use in commercial applications.

If the product should become defective within the warranty period, please get in touch with Play Hard Sports Equipment customer service:

13 Alex Fisher Drive
Burleigh Heads QLD 4220
Ph: (07) 55934494
Fax: (07) 55934338
Email: email@playhardsports.com.au

MAINTENANCE RECORD

To make a warranty claim, maintain a record of the regular maintenance carried out and any defects noticed. While performing maintenance work ensure all the standard conditions are met, if not take necessary action. Non-compliance with the maintenance checklist may void the warranty on the product.

Items	Standard Condition	MAINTENANCE RECORDS							
Net Retaining Poles Tensioned- Yes/No	Yes								
Net Tied to the Poles- Yes/No	No								
Gates In Correct Position- Yes/No	Yes								
Wind Rating 1. Less than 100kph 2. Exceeding 100kph	No Action Required Lower the net								
Bolted Connection	Always tightened								
Sign of any wear and tear – Yes/No	No								
Name:									
Date:									

SPECIFICATION COMPARISON CHART

Description	Technical Data		
	Thor 10 Hammer Cage	Thor 9 Hammer Cage	Apollo Discus Cage
Size	10m x 2m gates, 7-meter perimeter.	9mx3.2mgates, 7-meterperimeter.	6-meter-high net at front. 4m perimeter
Compliance standard	IAAF certified. E-05-0403	IAAF certified. E-15- 0822	IAAF certified. E-12-0695
Intellectual Property	Patented	Patented	Patented
Application	Hammer and Discus, Concentric	Hammer and Discus, Concentric	Discus
Gate pivot distance	7.0m from the circle centre.	4.2m from the circle centre.	7.0m from the circle centre.
Gate edge	Rope and steel cable.	Rope and steel cable.	Rope.
Gate operation	Swing arm, ground anchor hook.	Swing arm, ground anchor hook.	N/A
No. of poles	4	3	3
Pole hardware	Rope cleats and pulleys.	Rope cleats and pulleys.	Rope cleats.
Pole material	Steel and aluminium.	Steel and aluminium.	Steel and aluminium.
Groundwork	4 sleeves, 14 rope anchors	3 sleeves, 14 rope anchors	3 sleeves, 10 rope anchors
Finish	Galvanized and mill finish.	Galvanized and mill finish.	Painted
Net	44mm square mesh, 5mm woven poly, UV stable, IAAF certified.	44mm square mesh, 5mm woven poly, UV stable, IAAF certified.	44mm square mesh, 2.5mm woven poly, UV stable, IAAF certified.
Net support	Net rails all around.	Net rails all around.	Net rails and free hang.
Net retaining ropes	12	10	10
Ropes	8mm black woven polypropylene.	8mm black woven polypropylene.	8mm black woven polypropylene.
Wind rating	Wind rated: 100kph	Wind rating: 100 kph	Wind rating: 115kph.
Assembly method	Raised by winch.	Raised by winch.	Raised by hand.
Manpower	2-3 people	2-3 people	2-3 people
Assembly time	6-7 hours	5-6 hours	2.5 hours

World Athletics Certificate



PRODUCT CERTIFICATE

World Athletics is pleased to certify that the following product meets all the technical requirements of the World Athletics Rules for the relevant competitions.

Product's Trade Name:

Throwing Cage - Discus Apollo

Description, Colour/Absolute Thickness:

3 aluminium and steel poles, 6m high net, Silver

Company Name, Country:

Play Hard Sports Equipment, AUS

Catalogue Number:

Apollo

Certification Number:

E-12-0695

Test Report by and on:

Throwing cage safety inspection, Graham Dwight, 4/24 June, 1 September 2022

Notes:

Design wind speed 31.95 m/s max. (115km/h)

Date of Issue:

21 September 2022

Date of Expiry:

March 2025

Issued in accordance with the terms and conditions of the
World Athletics Certification System



Jon Ridgeon
World Athletics CEO

