

**Modified Enlarged 18pt**

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**

**Thursday 12 November 2020 – Afternoon**

**GCSE (9–1) Design and Technology**

**J310/01 Principles of Design and Technology**

**Insert**

**Time allowed: 2 hours  
plus your additional time allowance**

**INSTRUCTIONS**

**Use this Insert to answer the questions in Section B.**

**Each question tells you which part of the Insert to refer to.**

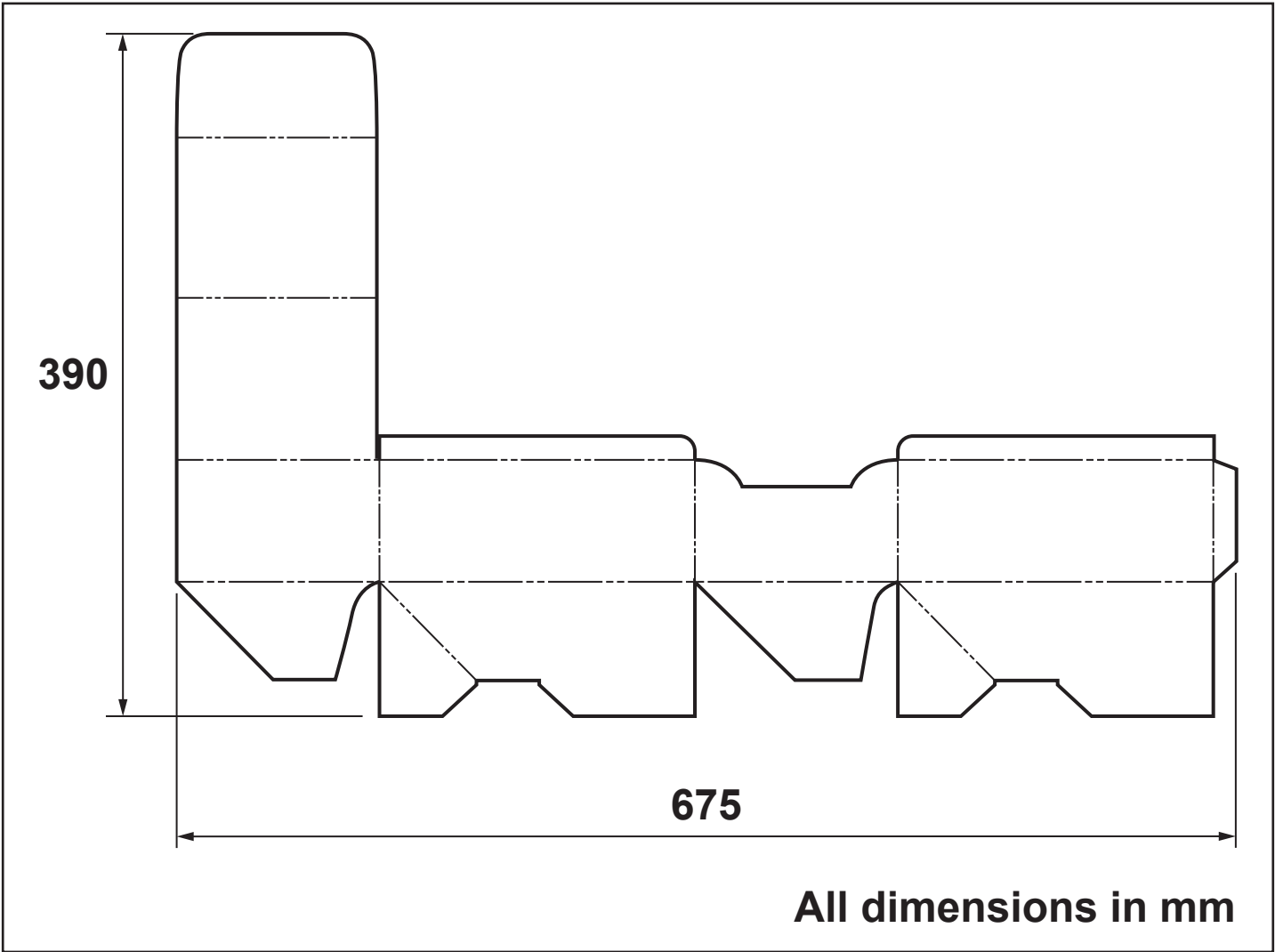
**Do NOT send this Insert for marking. Keep it in the centre or recycle it.**

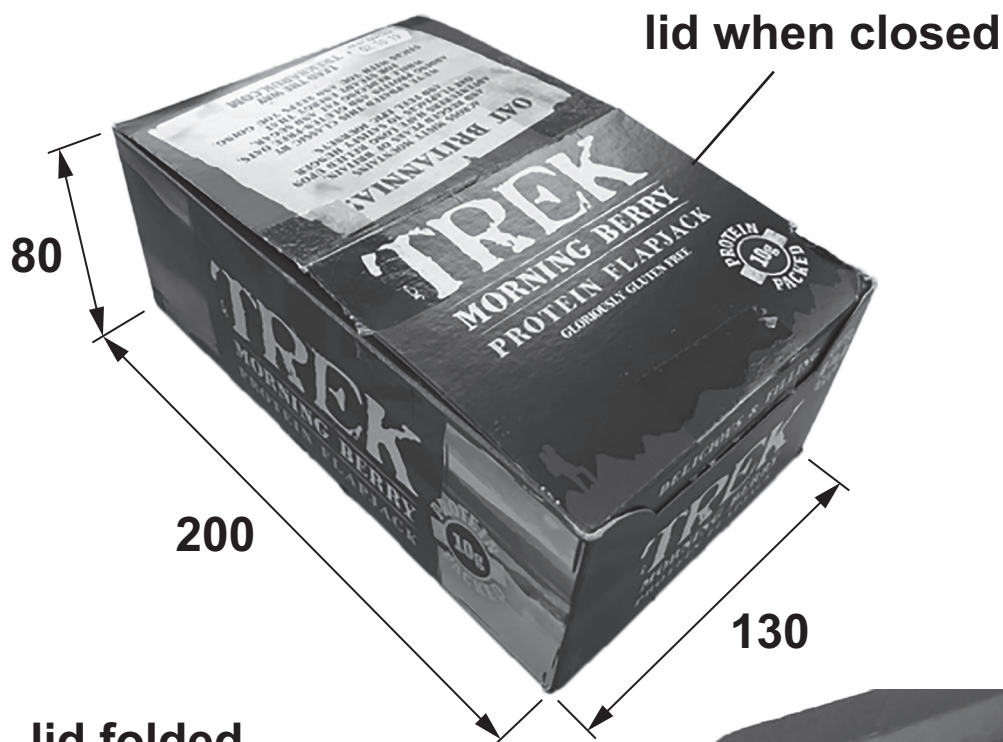


**PRODUCT 1: Point of sale display (papers and boards)**

The point of sale display holds 12 flapjack bars which are individually wrapped. The display is placed on the reception desk, so people can buy a flapjack bar on their way into the gym. The display lid closes flat for transportation and when in use it folds to create the display. It is printed with surface graphics.

Item	Material	Other information
Point of sale display	Single walled printed cardboard	350 micron thickness Printed with surface graphics
Wrapper	Printed polypropylene	—





lid folded  
to create  
the display

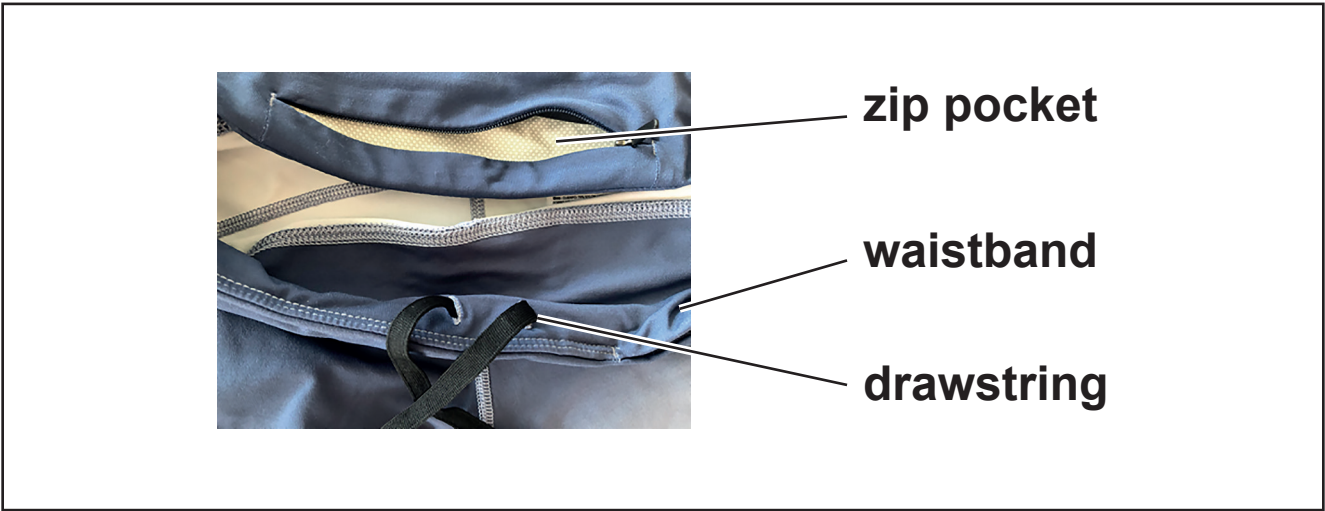


wrapper

**PRODUCT 2: Leggings (fibres and fabrics)**

A pair of leggings are designed to be worn when exercising in the gym. They are manufactured in three sizes; small, medium and large. The leggings have a small zipped pocket at the back to hold coins and keys, and a drawstring to allow them to be tightened. The leggings are branded with the logo of the designer.

Item	Material	Other information
Leggings	Nylon with elastane	Logo applied to left ankle
Drawstring waistband lining	Nylon with elastane and polyester	The waistband has a small zip pocket

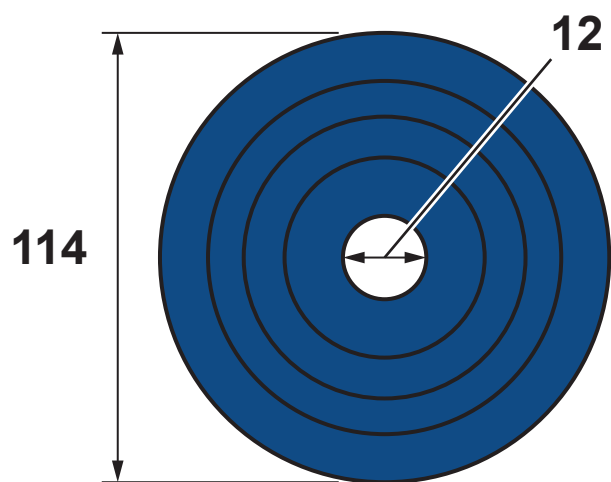
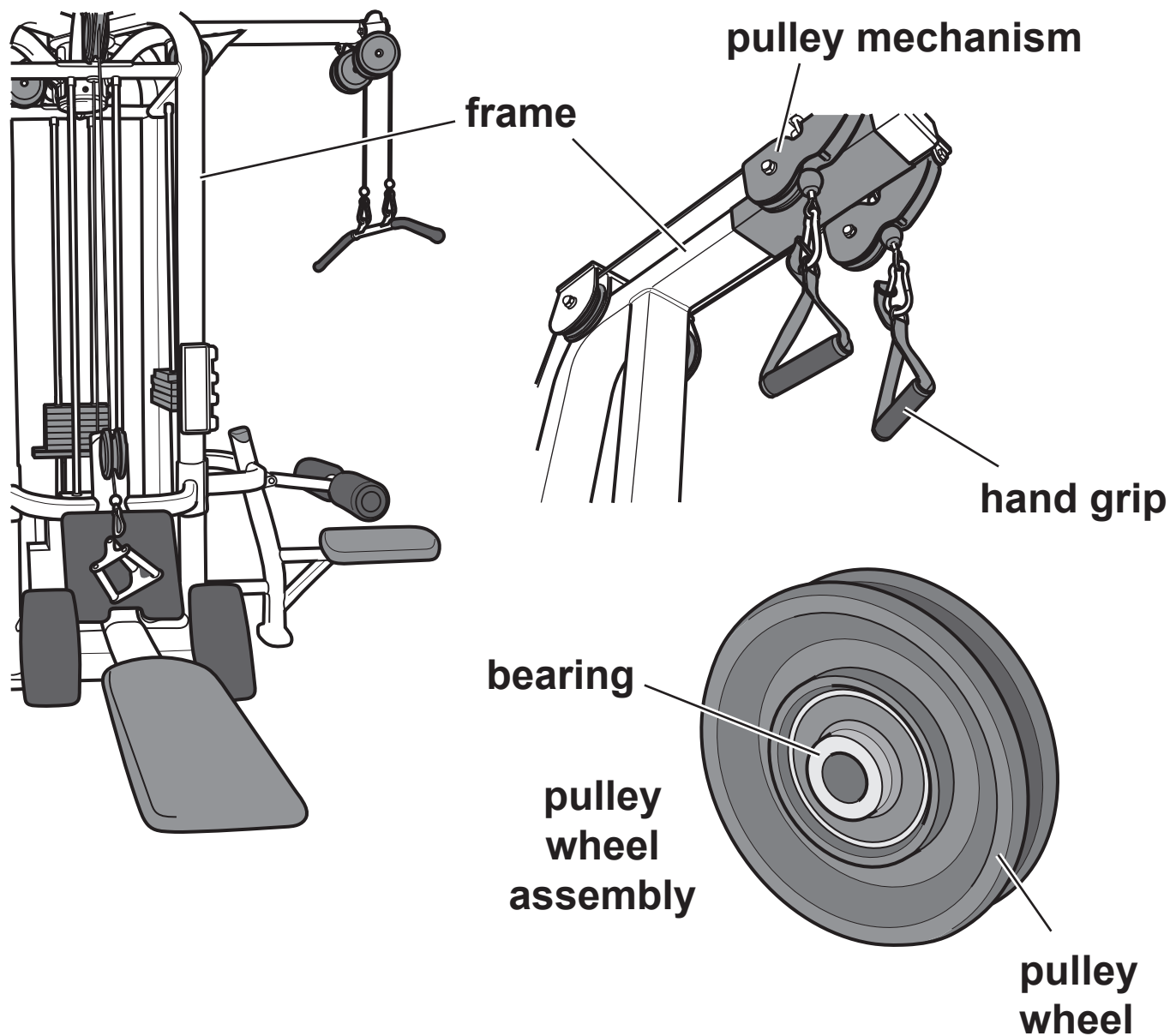


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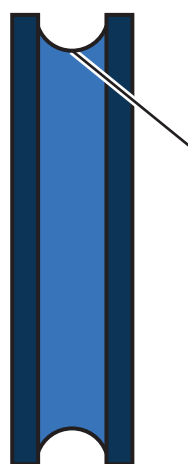
### **PRODUCT 3: Weights machine (design engineering)**

The weights machine is used from a seated position, the user pulls on the hand grips to lift the weights. The weights are attached to the hand grips by long wire cables which run over a series of pulley wheels. The frame of the weights machine has a powder coated finish.

<b>Item</b>	<b>Material</b>	<b>Other information</b>
<b>Pulley wheel</b>	<b>Nylon</b>	<b>Fitted with a standard bought-in bearing</b>
<b>Frame</b>	<b>Steel – box section and tube</b>	<b>Powder coated finish</b>



**pulley wheel – front view**



**groove depth  
suitable for up  
to 8 mm cable**

**pulley wheel – side view**

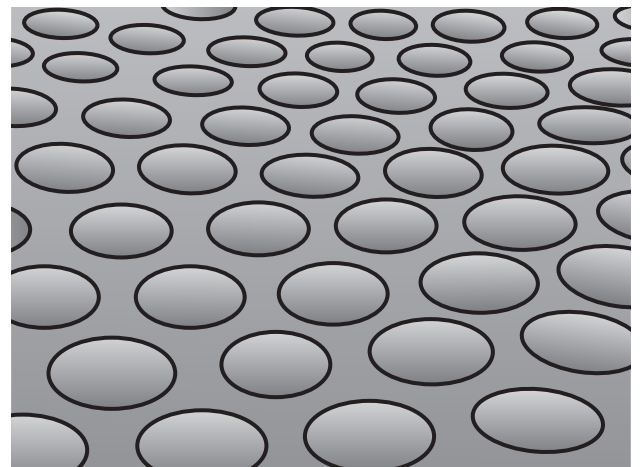
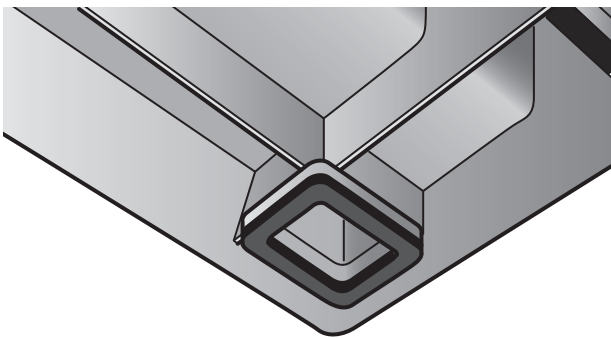
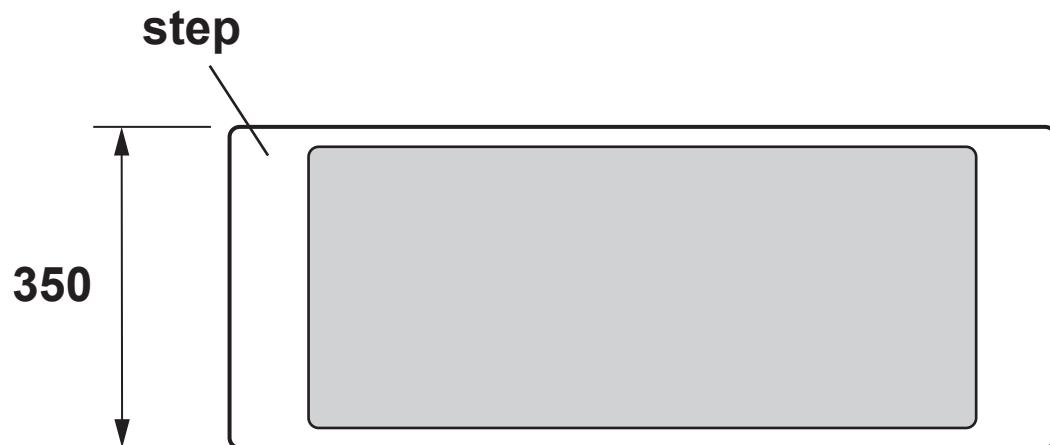
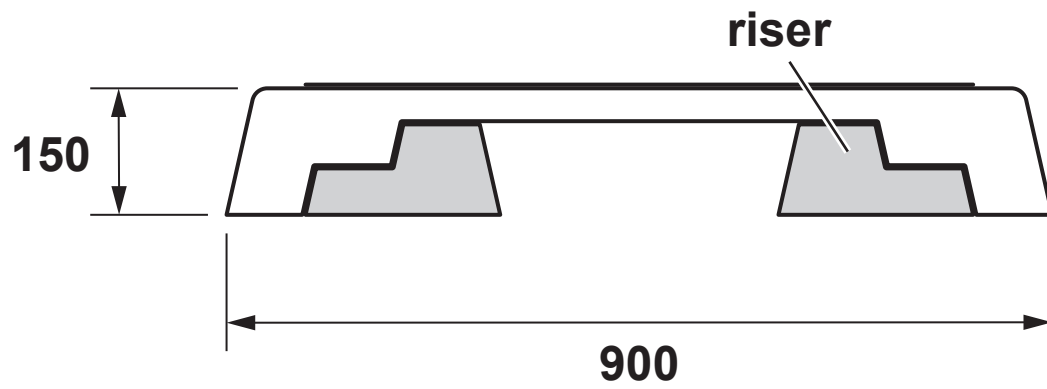
**All dimensions in mm**

## **PRODUCT 4: Step block (polymers)**

The step block is used in fitness classes at the gym. Users step on and off the block to increase their aerobic workout. The top of the step is covered with a textured surface pad. The risers allow the block to be set at three different heights; 150 mm, 200 mm and 250 mm.

<b>Item</b>	<b>Material</b>	<b>Other information</b>
<b>Step and risers</b>	<b>Polypropylene</b>	–
<b>Surface pad</b>	<b>TPE (thermoplastic elastomer)</b>	<b>Textured</b>





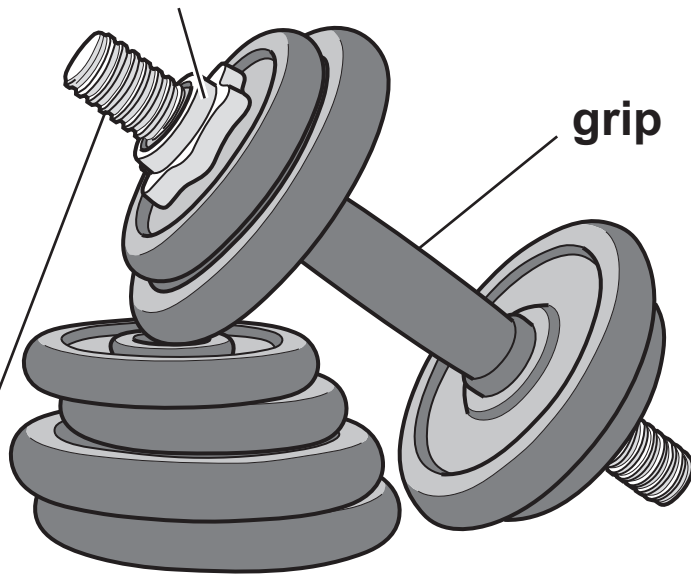
All dimensions in mm

## **PRODUCT 5: Dumbbell (metals)**

The dumbbell is a hand weight. The user grips the bar in the middle and lifts the weight(s) which are at either end of the bar. The weight of the dumbbell can be adjusted using three different weighted plates; 0.5kg, 1 kg and 5kg. Spin-lock collars are used to secure the weights once they are on the bar. The bar has an elastomer grip.

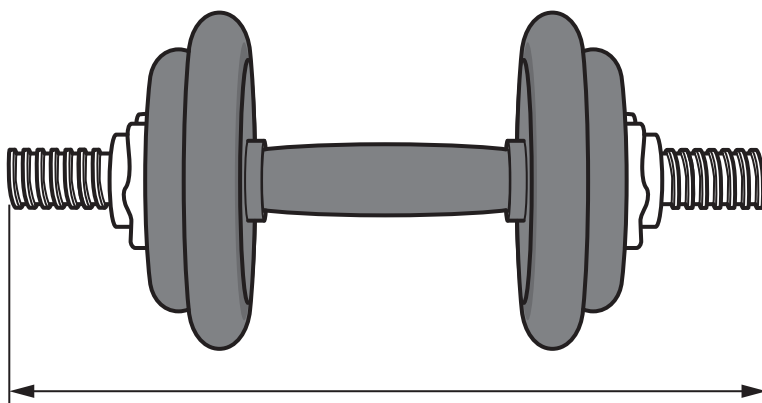
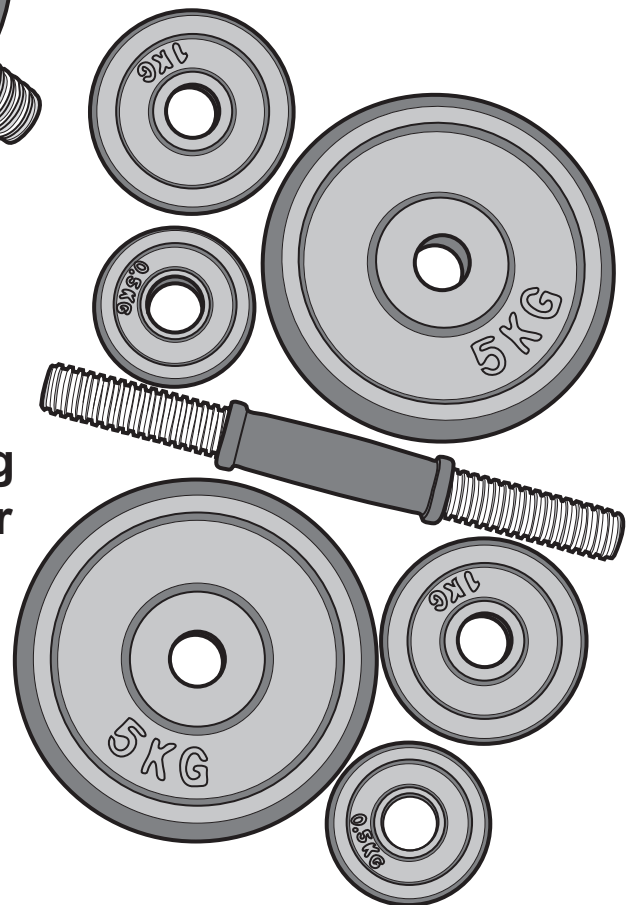
<b>Item</b>	<b>Material</b>	<b>Other information</b>
<b>Weight plate</b>	<b>Cast iron</b>	<b>Hammertone finish</b>
<b>Bar</b>	<b>Stainless steel</b>	<b>Threaded at both ends</b> <b>Secure spin-lock collars</b>

**threaded spin-lock collar**

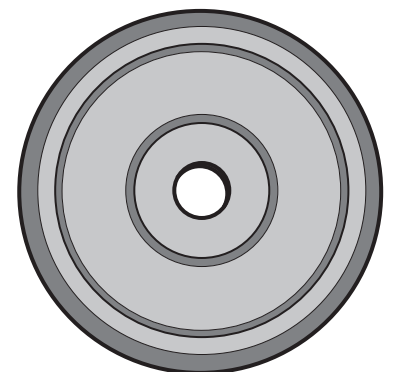


**bar with grip and  
screw thread**

**set of 5 kg,  
1 kg and 0.5 kg  
plates and bar**



**400**



**weight plate**

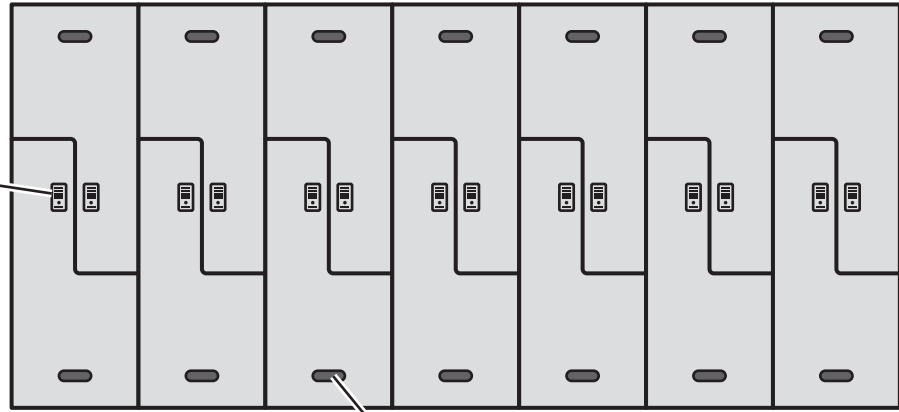
**All dimensions in mm**

## **PRODUCT 6: Locker (timbers)**

The changing room lockers have a laminate finish and can be assembled on site. Doors are supplied in different colours and have a ventilation hole for air circulation. Gym users store their outdoor clothes and shoes in the lockers whilst they use the gym facilities.

<b>Item</b>	<b>Material</b>	<b>Other information</b>
<b>Locker door</b>	<b>MDF</b>	<b>18 mm with laminate finish</b>
<b>Locker cabinet</b>	<b>MDF</b>	<b>18 mm with laminate finish</b>

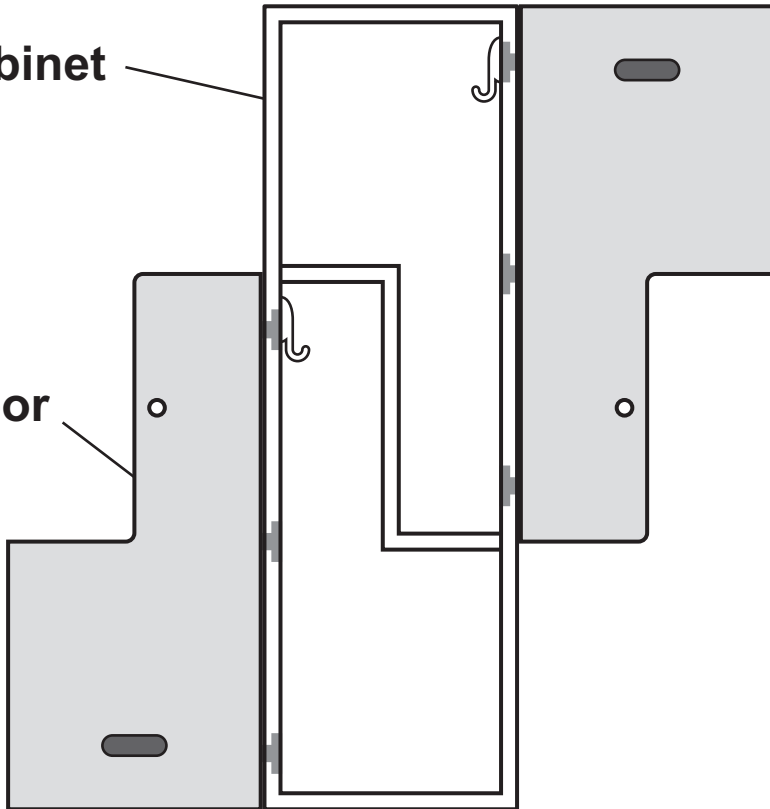
**door  
lock**



**ventilation hole**

**cabinet**

**door**



**The complete  
cabinet is  
1835mm tall,  
400mm wide and  
500mm deep.**

**All dimensions in mm**

Information on this page is required to answer  
QUESTION 4.



IMAGE A



IMAGE B



**IMAGE C**



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