

**Modified Enlarged 24pt
OXFORD CAMBRIDGE AND RSA EXAMINATIONS**

Friday 22 May 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 when closed

80

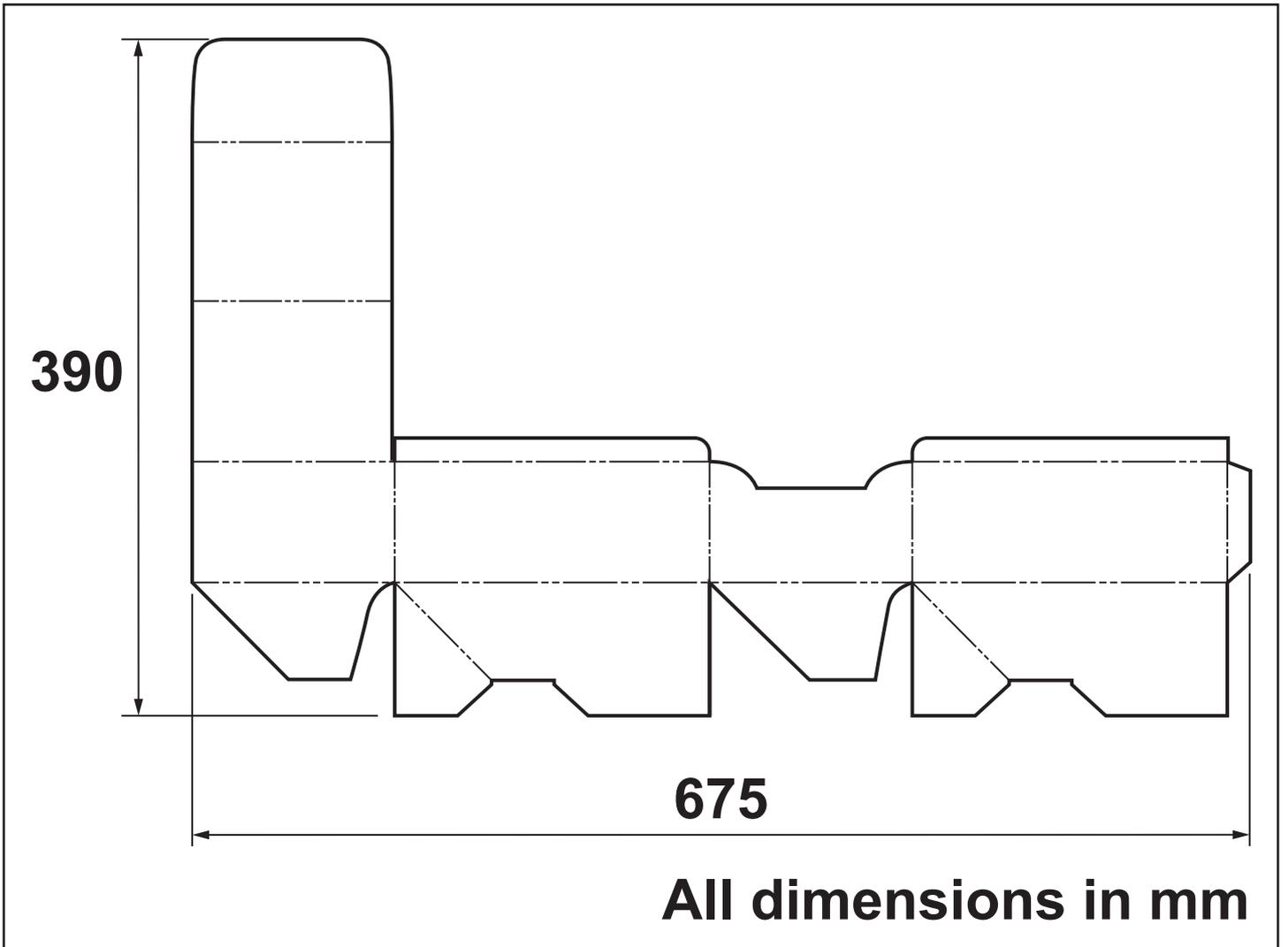
200

130

**lid folded
to create
the display**



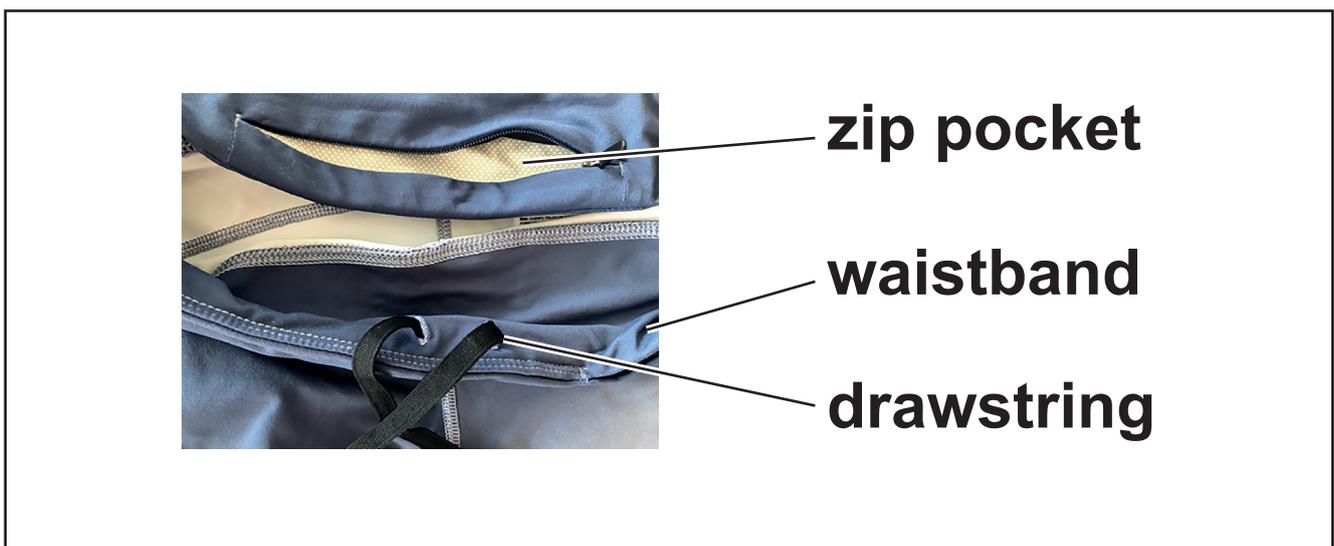
wrapper



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.

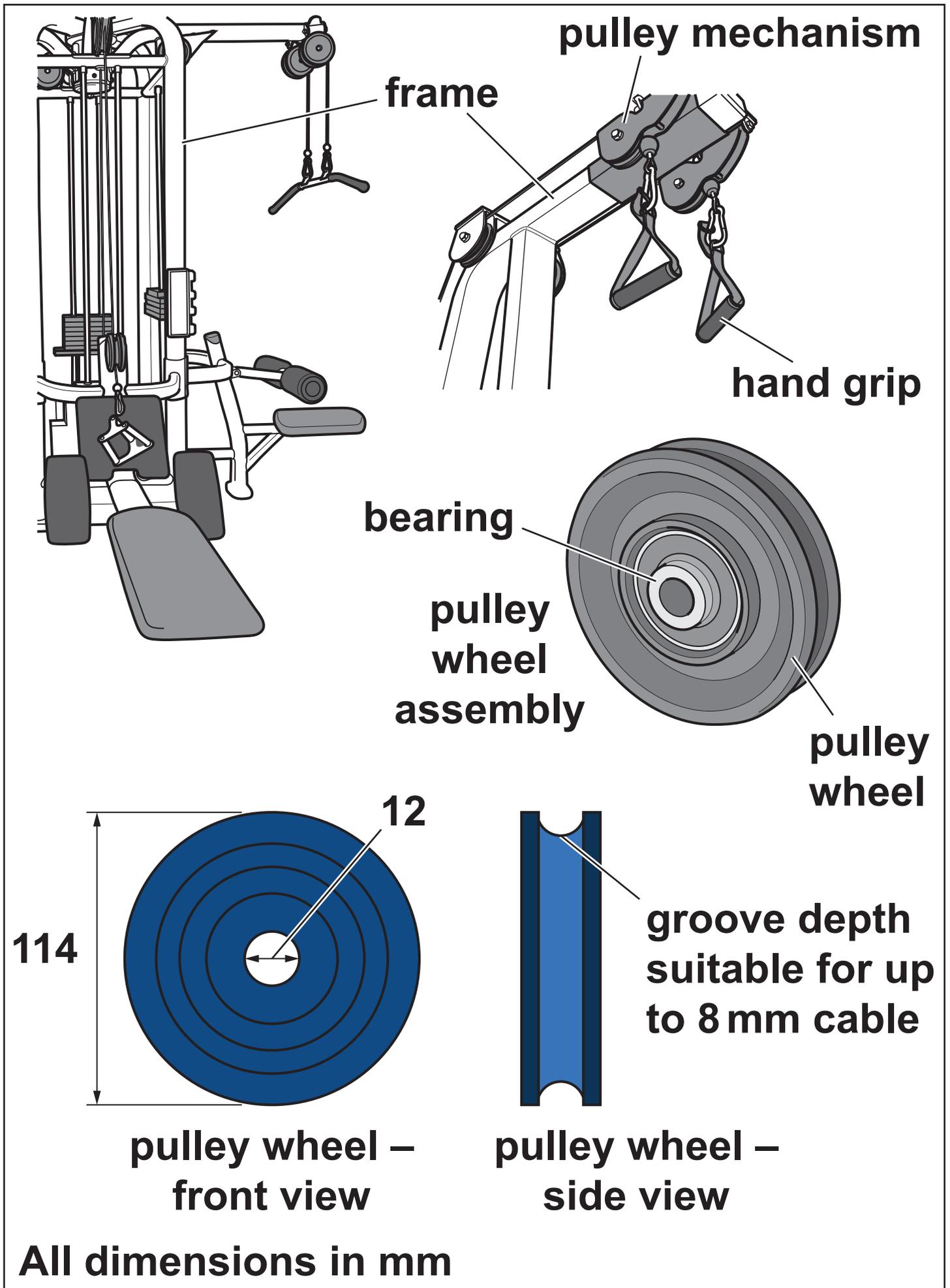
Item	Material	Other information
Leggings	Nylon with elastane	Logo applied to left ankle
Drawstring waistband lining	Nylon with elastane and polyester	The waistband has a small zip pocket



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.

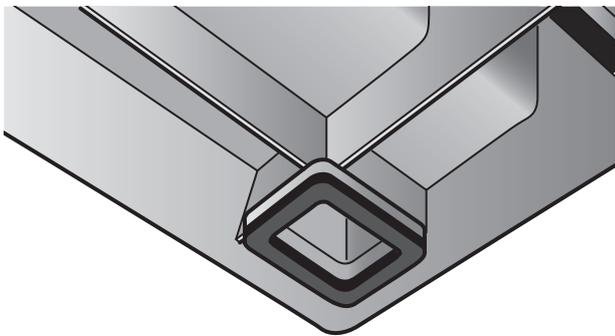
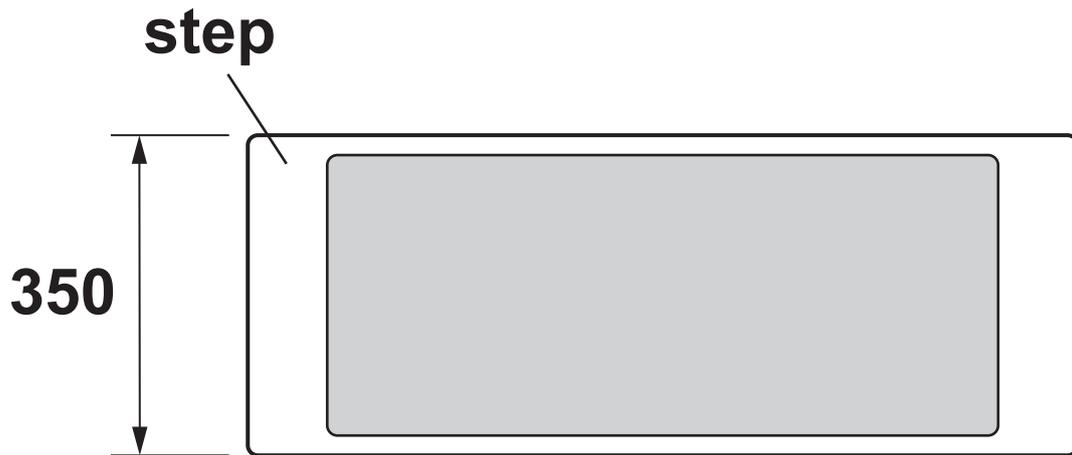
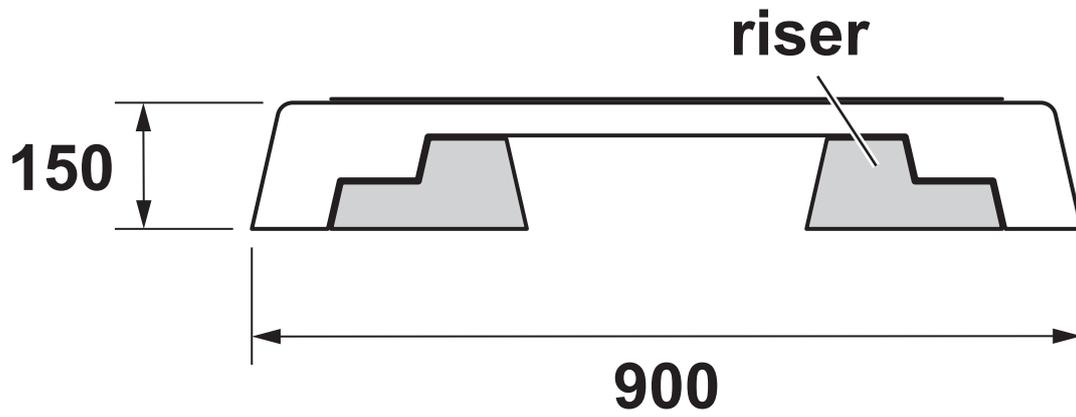
Item	Material	Other information
Pulley wheel	Nylon	Fitted with a standard bought-in bearing
Frame	Steel – box section and tube	Powder coated finish



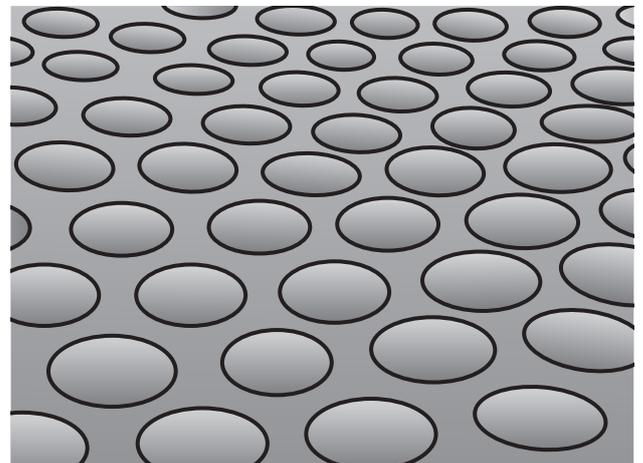
PRODUCT 4: Step block (polymers)

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.

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



close up of
the underside
of the step



surface pad

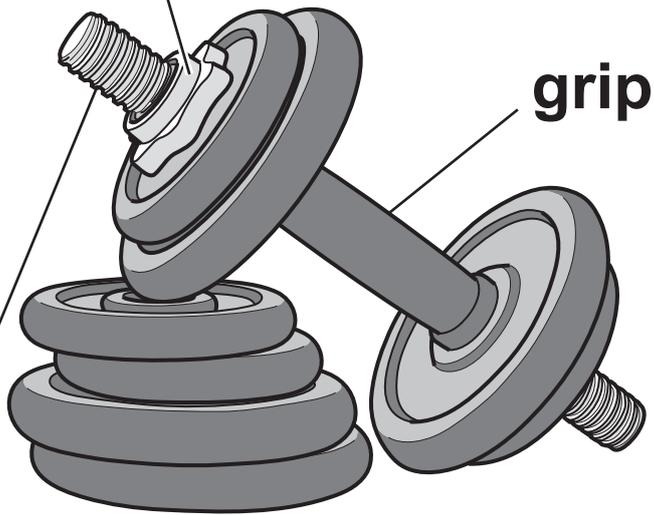
All dimensions in mm

PRODUCT 5: Dumbbell (metals)

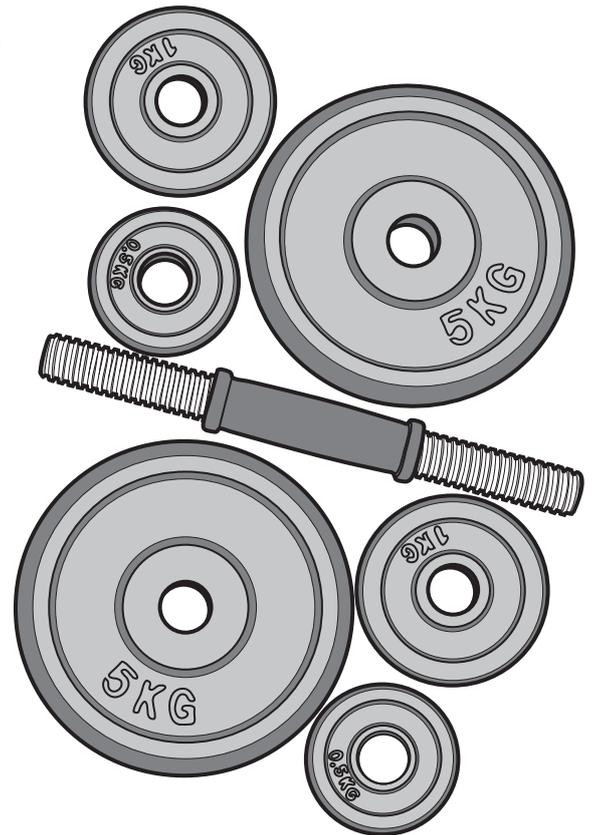
The dumbbell is a hand weight. The user grips the bar in the middle and lifts the weight(s) which are at either end of the bar. The weight of the dumbbell can be adjusted using three different weighted plates; 0.5 kg, 1 kg and 5 kg. Spin-lock collars are used to secure the weights once they are on the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

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

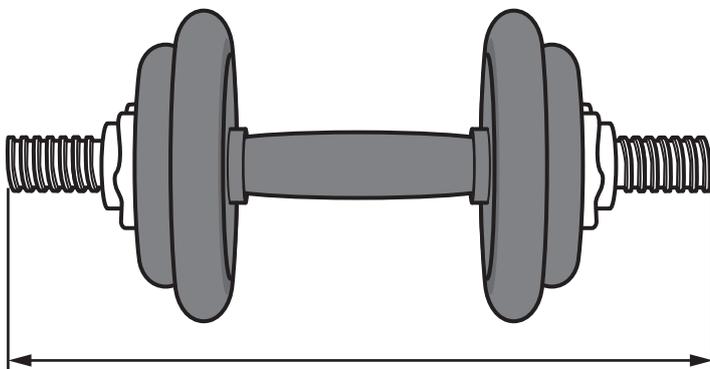
threaded spin-lock collar



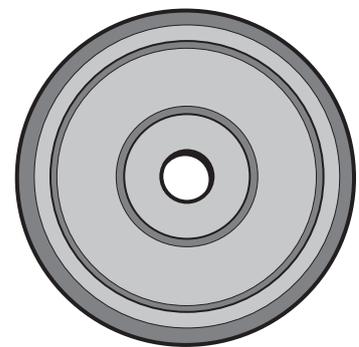
**bar with grip and
screw thread**



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



400



weight plate

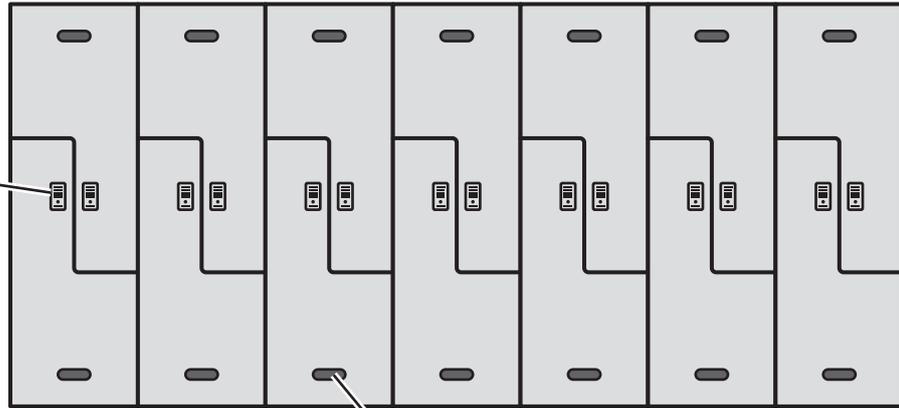
All dimensions in mm

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.

Item	Material	Other information
Locker door	MDF	18 mm with laminate finish
Locker cabinet	MDF	18 mm with laminate finish

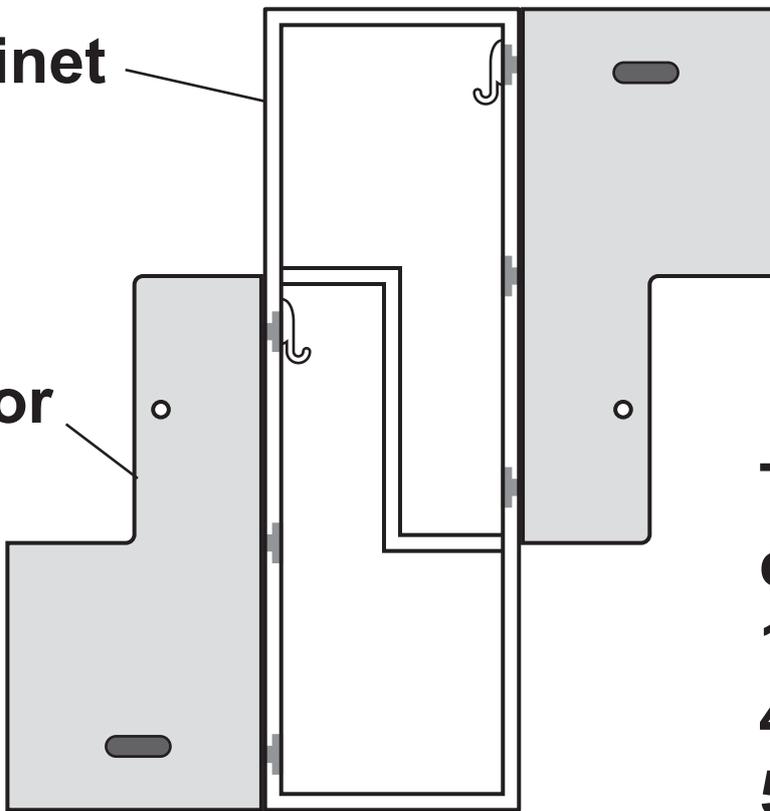
**door
lock**



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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