

The Part Measurement Pack

Everything for identifying and measuring a part you cannot name, and checking the replacement before you fit it. Six sheets with true-size scales throughout.

Six sheets for the same situation: a part in your hand, no catalogue that covers your machine, and a listing quoting numbers without saying what they measure.

PRINT THIS AT ACTUAL SIZE

Several sheets in this pack carry scales, rings and bars printed at true size that you lay a part against. Those are only correct if the pack is printed at 100%. In the print dialog choose “Actual size” or “100%”, not “Fit to page”. Each sheet that needs it carries its own millimetre rule — check one with a steel rule before you trust any dimension in the pack.

WHAT IS IN THIS PACK

- | | | |
|-----------|---|-----------|
| 01 | Mystery Part Measurement Sheet
You are holding a part. Nobody knows what it is called. This sheet records everything a supplier needs in order to find it for you. | TSP-ME-01 |
| 02 | Bolt, Thread And Spanner Card
Why an 8mm bolt sometimes takes a 12mm spanner and sometimes a 13mm, how to identify a thread without a gauge, and a true-size thread pitch scale. | TSP-ME-05 |
| 03 | Bearing Size Chart And Reverse Lookup
Measure bore, outside diameter and width, read the bearing number off the table. Works without knowing what the machine is. | TSP-ME-09 |
| 04 | Brake Pad Measurement And Tracing Card
Chinese scooter pads are sold by shape, not by model. Trace yours, measure four dimensions, and compare against the listing photograph before you buy. | TSP-ME-04 |
| 05 | Before You Order A Part — Checklist
Twelve checks that take ten minutes and prevent the single most common expensive mistake these machines produce. | TSP-BU-02 |
| 06 | Old Part Versus New Part Comparison Sheet
The five minutes that stop a return. Check the new part against the old one before you fit anything, while it is still returnable. | TSP-ME-08 |

THE ONE RULE UNDERNEATH ALL SIX SHEETS

The certification record can prove that two machines share an engine factory. It can never prove they share a part number, because these machines are assembled from several component suppliers and those suppliers change, sometimes inside a single model year. So a shared factory is a research lead — a list of other badges worth searching under — and the measurement in your hand is the only thing that settles it.

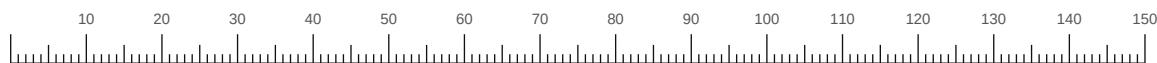
FREE TO PRINT, COPY AND PASS ON

This pack costs nothing and always will. Print it, photocopy it, hand it to somebody in a club or a forum, leave a copy in a workshop. If you find a mistake in it, tell us and it gets corrected — every sheet carries a document number and a version so you can say exactly which one you mean.

MYSTERY PART MEASUREMENT SHEET

One sheet per part. If you send a seller a photograph of this filled in, you have given them more to work with than most professional enquiries.

PRINT CALIBRATION — CHECK BEFORE MEASURING



Lay a steel rule along this scale. The 150mm mark must fall at exactly 150mm. If it does not, reprint at 100% / "Actual size" with page scaling off — every measurement you take from a scaled sheet will be wrong.

WHERE IT CAME FROM

MACHINE MAKE AND MODEL

ENGINE SIZE

 CC

YEAR

WHERE ON THE MACHINE IT FITS

WHAT YOU THINK IT DOES

DATE MEASURED

THE EIGHT MEASUREMENTS

OVERALL LENGTH

 mm

OVERALL WIDTH

 mm

OVERALL THICKNESS

 mm

OUTSIDE DIAMETER

 mm

INSIDE DIAMETER

 mm

BOLT HOLE DIAMETER

 mm

BOLT HOLE SPACING

 mm

WEIGHT IF IT MATTERS

 g

MEASURING WITHOUT A CALIPER

For an outside diameter, lay the part on the grid below and read across its widest point. For an inside diameter, measure the outside and subtract twice the wall thickness. For a bolt circle on an even number of holes, measure centre to centre across opposite holes. For an odd number, trace it and measure the drawing.

TRACE THE PART HERE — 5MM GRID

Draw round the outline. Mark every hole centre with a cross and number them.

FASTENERS AND FITTINGS

NUMBER OF MOUNTING HOLES

THREAD SIZE IF THREADED

e.g. M6

SPANNER SIZE THAT FITS

NUMBER OF SPLINES OR TEETH

SHAFT DIAMETER IT FITS ON

mm

KEYWAY OR FLAT PRESENT

ELECTRICAL CONNECTOR, IF IT HAS ONE

NUMBER OF PINS

CONNECTOR SHAPE

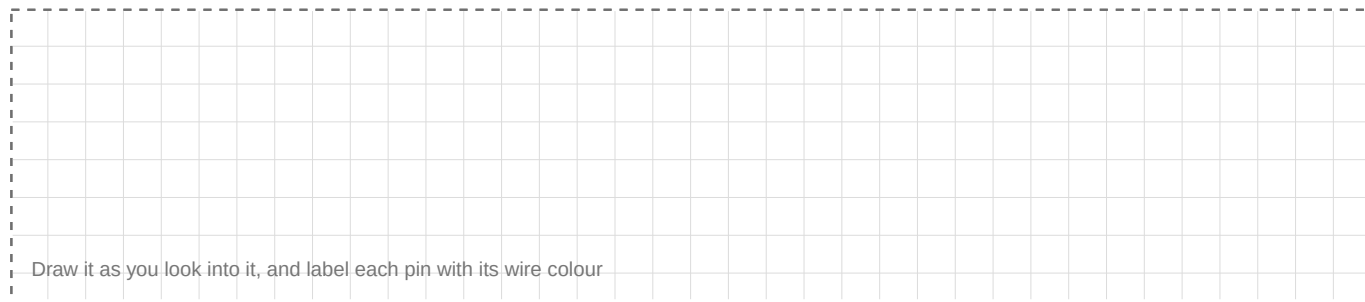
Rectangular, round, bullet

CONNECTOR COLOUR

MALE OR FEMALE

WIRE COLOURS

SKETCH THE CONNECTOR FACE



Draw it as you look into it, and label each pin with its wire colour

EVERY MARKING ON THE PART

Copy them character for character, including ones that look meaningless. Cast and stamped numbers on Chinese components are frequently the manufacturer's own part number, and searching one of those finds the part when no description ever will.

MARKINGS — EXACT CHARACTERS, INCLUDING SPACES AND DASHES



NOTES FOR THE SELLER

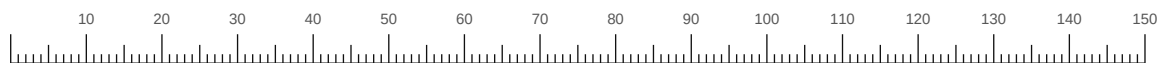
**MEASURE, DO NOT ASSUME**

Two machines that look identical, carry the same badge and were sold in the same year can still take different parts. These vehicles are assembled from several component suppliers, and suppliers change — sometimes inside a single model year. Nothing on this sheet is a statement that a part will fit. It is a record of what you actually have, so that you can compare it against what you are about to buy.

BOLT, THREAD AND SPANNER CARD

The thread on a Chinese scooter fastener is a standard ISO metric thread. The head is often not the size a European chart predicts. Both facts matter, and they are the reason this card exists.

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THREAD PITCH AND HEAD SIZE

ISO metric coarse thread pitches, with hex head sizes under both conventions in common use

THREAD	COARSE PITCH	HEAD ACROSS FLATS — DIN/ISO	HEAD ACROSS FLATS — JIS
M5	0.80 mm	8 mm	8 mm
M6	1.00 mm	10 mm	10 mm
M8	1.25 mm	13 mm	12 mm
M10	1.50 mm	17 mm	14 mm
M12	1.75 mm	19 mm	17 mm
M14	2.00 mm	22 mm	19 mm

WHY THE SAME BOLT TAKES TWO DIFFERENT SPANNERS

The thread is identical either way — an M8 is an M8. What differs is how big the head is. European practice (DIN 933 / ISO 4014) uses a larger head than Japanese practice (JIS B1180), and Chinese powersports fasteners follow the Japanese sizes far more often than the European ones. That is why a chart tells you 13mm and the bolt on your scooter takes a 12mm. Pitches are ISO 261 coarse series. Always try the smaller spanner first: a 13mm on a 12mm head is how heads get rounded off.

MEASURING A BOLT PROPERLY

Diameter

Measure across the outside of the thread crests. An M8 bolt measures very close to 8.0mm across the thread — if you measure 7.8mm you still have an M8, worn or rolled slightly under.

Length

From under the head to the tip for a hex or flanged bolt. For a countersunk or flat-head bolt, from the top of the head, because the head sits inside the part.

Pitch without a gauge

Lay a steel rule along the threads, line the zero up with a crest, and count how many crests fall in 10mm. Divide 10 by that count. Six crests in 10mm is roughly a 1.5mm pitch.

The quick check

If a nut you know the size of runs freely down the thread by hand for its full depth, the diameter and pitch match. If it goes on two turns and stiffens, they do not — stop before you damage the thread.

FASTENER RECORD FOR A JOB IN PROGRESS

Bodywork on these machines is held together by a mix of sizes, and self-tapping screws sit next to machine screws in the same panel. Writing down where each one came from is the difference between a two-hour job and a four-hour one.

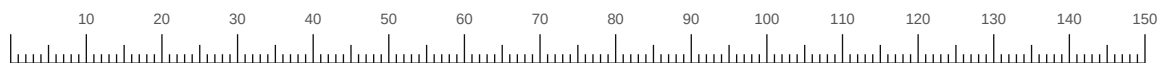
A BAG AND A LABEL BEATS A GOOD MEMORY

Put the fasteners for each panel into their own bag and write the row number from this sheet on it. Reassembly then becomes a matter of reading rather than remembering.

BEARING SIZE CHART AND REVERSE LOOKUP

Unlike almost everything else on one of these machines, a bearing can be identified with complete confidence from three measurements and nothing else. No model, no year, no brand.

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READING A BEARING NUMBER

Reading a deep-groove ball bearing number, using 6203-2RS as the example

PART OF THE NUMBER	IN 6203-2RS	MEANS
First digit	6	Type — 6 is a single-row deep groove ball bearing
Second digit	2	Dimension series — how heavy-duty it is for a given bore
Last two digits	03	Bore code. From 04 upward, multiply by 5 for the bore in mm; 00, 01, 02 and 03 mean 10, 12, 15 and 17mm
Suffix	2RS	Seals and shields — ZZ or 2Z are metal shields, RS or 2RS are rubber seals, open has neither

THE REVERSE LOOKUP

ISO 15 boundary dimensions for the three series used on small powersports wheels and shafts. Measure your old bearing and read the row.

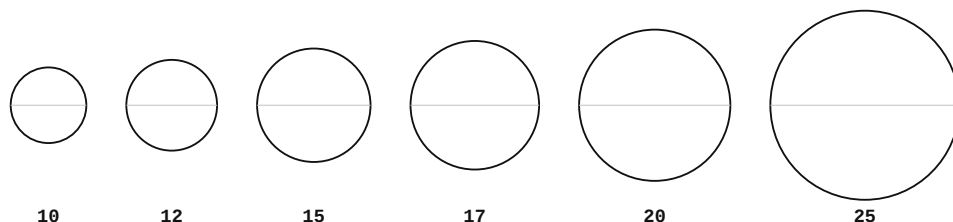
NUMBER	BORE	OUTSIDE DIA	WIDTH
6000	10 mm	26 mm	8 mm
6001	12 mm	28 mm	8 mm
6002	15 mm	32 mm	9 mm
6003	17 mm	35 mm	10 mm
6004	20 mm	42 mm	12 mm
6005	25 mm	47 mm	12 mm
6200	10 mm	30 mm	9 mm
6201	12 mm	32 mm	10 mm
6202	15 mm	35 mm	11 mm
6203	17 mm	40 mm	12 mm
6204	20 mm	47 mm	14 mm
6205	25 mm	52 mm	15 mm
6300	10 mm	35 mm	11 mm
6301	12 mm	37 mm	12 mm
6302	15 mm	42 mm	13 mm
6303	17 mm	47 mm	14 mm
6304	20 mm	52 mm	15 mm
6305	25 mm	62 mm	17 mm

WHERE THESE DIMENSIONS COME FROM

Bore, outside diameter and width for these series are fixed by ISO 15, which is why a 6203 from any maker measures $17 \times 40 \times 12$ mm. That is what makes the reverse lookup on this sheet work: you do not need to know what the machine is, only what the old bearing measures. Seal type, internal clearance and load rating are NOT fixed by the number alone — match the suffix as well as the digits.

TRUE-SIZE BORE CIRCLES

Stand the bearing on the circles and find the one its bore matches. This gives you the last two digits of the number without calipers.

BORE DIAMETERS**SEALS AND SHIELDS ARE PART OF THE SPECIFICATION**

An open bearing, a 2Z shielded one and a 2RS sealed one all measure the same and are all called 6203. They do not last the same length of time in a wheel that sees rain. Match the suffix on the old bearing, and if you cannot read it, a fully sealed 2RS is the conservative choice for a wheel.

EVERY BEARING ON THE MACHINE

WHERE IT FITS	BORE	OD	WIDTH	NUMBER	SUFFIX	REPLACED ON

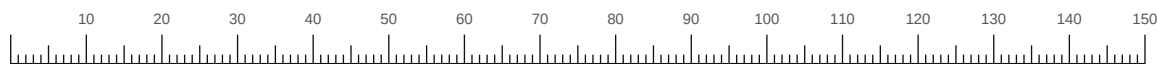
- ☐ Bearing turns roughly or notchily by hand
- ☐ Play felt when rocking the wheel at twelve and six o'clock
- ☐ Rumble or growl that changes with road speed, not engine speed
- ☐ Seal split, missing or pushed out
- ☐ Discoloured — blue or brown — which means it has been hot

BRAKE PAD MEASUREMENT AND TRACING CARD

BRAKES

This sheet helps you record what you have. It is not a repair procedure and it does not tell you whether a pad is safe or a part will fit. Brake work done wrong does not fail gently. If you are not confident doing it, have it done.

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THE FOUR DIMENSIONS

OVERALL HEIGHT

 mm

Backing plate, top to bottom

OVERALL WIDTH

 mm

Left to right

BACKING PLATE THICKNESS

 mm

FRICTION MATERIAL THICKNESS

 mm

Remaining, at thinnest point

Height and width are taken across the steel backing plate, not across the friction material — the material is worn and the plate is not. Measure the friction thickness at its thinnest point, which is usually one end rather than the middle.

TRACE THE BACKING PLATE

5MM GRID — DRAW ROUND THE PAD AND MARK EVERY HOLE CENTRE

Trace the steel plate outline, then cross-mark each pin hole and number it

BACKING PLATE FEATURES

- ☐ Pin hole through the plate
How many, and what diameter?
- ☐ Slot rather than a hole
- ☐ Ears or tabs standing proud of the outline
- ☐ A notch or step in one edge
- ☐ Mechanical wear indicator tab
- ☐ Anti-rattle spring clip fitted to the pad
- ☐ Shim or backing plate behind the pad
- ☐ Markings stamped or printed on the plate

PIN HOLE DIAMETER

 mm

PIN HOLE SPACING

 mm

Centre to centre

NUMBER OF PINS

THE CALIPER AND DISC

FRONT OR REAR

NUMBER OF CALIPER PISTONS

DISC OUTSIDE DIAMETER

 mm

DISC THICKNESS

 mm

DISC BOLT COUNT

DISC BOLT CIRCLE

 mm

MARKINGS ON THE OLD PAD

COPY EVERY CHARACTER, INCLUDING CODES THAT LOOK LIKE NOISE

THE MACHINE

MAKE AND MODEL

ENGINE SIZE

 cc

YEAR

THIS SHEET RECORDS, IT DOES NOT RECOMMEND

Nothing here tells you which part to buy. It tells you what you currently have, in the units a seller works in. Machines built to the same nominal specification were fitted with different components by different suppliers, sometimes inside one model year, so the only reliable reference is the item in your hand.

BEFORE YOU ORDER A PART — CHECKLIST

Ten minutes with this sheet costs nothing. The alternative costs the part, the postage both ways, and the weekend you had set aside for the job.

THE ONE THING TO UNDERSTAND BEFORE THE LIST

The badge on your bodywork almost always belongs to the company that imported the machine, not the company that built it. The same engine is sold under many American names, and one American name may cover engines from more than one factory across different years. Searching by badge and model is searching by the weakest evidence you have.

THE TWELVE CHECKS

KNOW WHAT YOU HAVE

- ☐ Photograph the old part from three angles, including how it mounts
The single most useful thing you can do
- ☐ Measure the old part and write the measurements down
Use the mystery part measurement sheet
- ☐ Copy every marking off the old part, character for character
Cast numbers are often the real part number
- ☐ Count the mounting holes and measure the spacing between them
- ☐ Note the connector type, pin count and wire colours if it is electrical

KNOW WHAT THE MACHINE IS

- ☐ Record the VIN
- ☐ Record the engine number off the crankcase
- ☐ Record the engine family number off the emission label
- ☐ Look the machine up and note the factory and related machines
Other badges are worth searching under

BEFORE YOU CLICK BUY

- ☐ Check the listing gives dimensions, not just a model list
- ☐ Ask the seller for the dimension you care about if it is missing
A seller who cannot answer is a seller to avoid
- ☐ Check the return policy before ordering, not after

HOW TO DESCRIBE YOUR MACHINE TO A SELLER

Sellers who know these machines are working from the engine, not the badge. Give them this, in this order, and you will get a useful answer:

- 1. The engine family number from the emission label, if you have it.
- 2. The engine code stamped on the crankcase, exactly as stamped.
- 3. The displacement and whether it is two or four stroke, air or liquid cooled.
- 4. The measurement of the part you need, with what you measured.
- 5. A photograph of the old part next to a ruler.
- 6. The badge and model — last, because it is the least useful thing you can tell them.

PRE-ORDER RECORD

PART WANTED	KEY MEASUREMENT	MARKING ON OLD PART
	mm	
ENGINE FAMILY NUMBER	ENGINE CODE ON CASE	FACTORY IF KNOWN
SELLER	PRICE	RETURN WINDOW

WHAT YOU ASKED THE SELLER, AND WHAT THEY SAID

WHEN IT ARRIVES

Do not fit it straight away. Compare it against the old part on the bench first — the old-part-versus-new-part sheet on this site is built for exactly that, and the comparison is only useful while the new part is still returnable.

OLD PART VERSUS NEW PART COMPARISON SHEET

Fill the left column in from the old part and the right column from the new one, then read across. Any row where the mounting or connection differs is a stop.

THE ORDER

PART NAME	SELLER	ORDER NUMBER
ORDERED ON	ARRIVED ON	RETURN WINDOW CLOSES

DIMENSIONS

[illegible]

Suggested rows: overall length, overall width, thickness, outside diameter, inside diameter, bolt hole diameter, bolt hole spacing, shaft diameter, spline count, tooth count, weight, thread size.

THE CHECKS THAT ACTUALLY DECIDE IT

MOUNTING

- ☐ Same number of mounting holes
- ☐ Holes in the same positions, not just the same count
- ☐ Same hole diameter
- ☐ Mounting face is flat in the same plane
- ☐ Nothing on the new part fouls a casting or bracket that the old one cleared

CONNECTION

- ☐ Same connector shape and pin count
- ☐ Same connector gender
- ☐ Wire colours match, or you have written down what goes where if they do not
- ☐ Same hose barb diameters and the same number of them
- ☐ Same thread on any fitting

ROTATION AND DIRECTION

- ☐ Turns the same way
- ☐ Any arrow or direction marking points the same way once fitted
- ☐ Offset or dish faces the same way

CONDITION

- ☐ New part is undamaged in transit
- ☐ Any seal, gasket or O-ring that should be included is present
- ☐ Part matches the listing photograph, not just the listing title

DECISION

- ☐ FIT IT — everything that mounts or connects is identical
- ☐ ASK FIRST — something differs and I do not know whether it matters
- ☐ RETURN IT — a mounting or connection feature is different

WHAT DIFFERED, IN CASE YOU NEED TO EXPLAIN IT TO THE SELLER

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Need to work out what you actually own?

The Scooter Parts Registry is a free public record of the Chinese factories behind US-market scooters, ATVs and go-karts — brand, engine family, VIN prefix, factory and related machines. No account, no email.

thescooterparts.com/identify