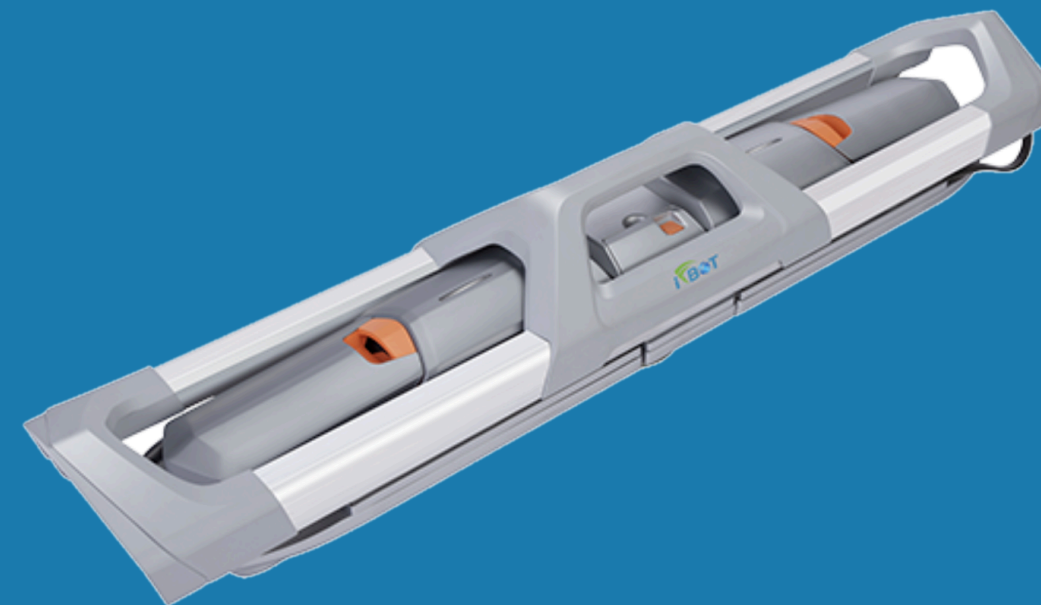




IFBOT M20 & X3 • SOLAR PANEL CLEANING ROBOTS

**Clean panels.**  
**Limitless reach.**



WET CLEAN • FLAT AND LOW-TILT INSTALLATIONS

# IFBOT M20



Dual-brush wet clean

Remote control and Bluetooth app

Triple-layer fall protection

Watch the M20 in action: [youtu.be/PoFpXejiQCK](https://youtu.be/PoFpXejiQCK)

**12.7 kg**

One piece, nothing to assemble

**1,000 m<sup>2</sup>/h**

About 0.17 MW cleaned per hour

**8 h**

Continuous run, hot-swap dual battery

**0-15°**

Panel tilt range

**20 cm**

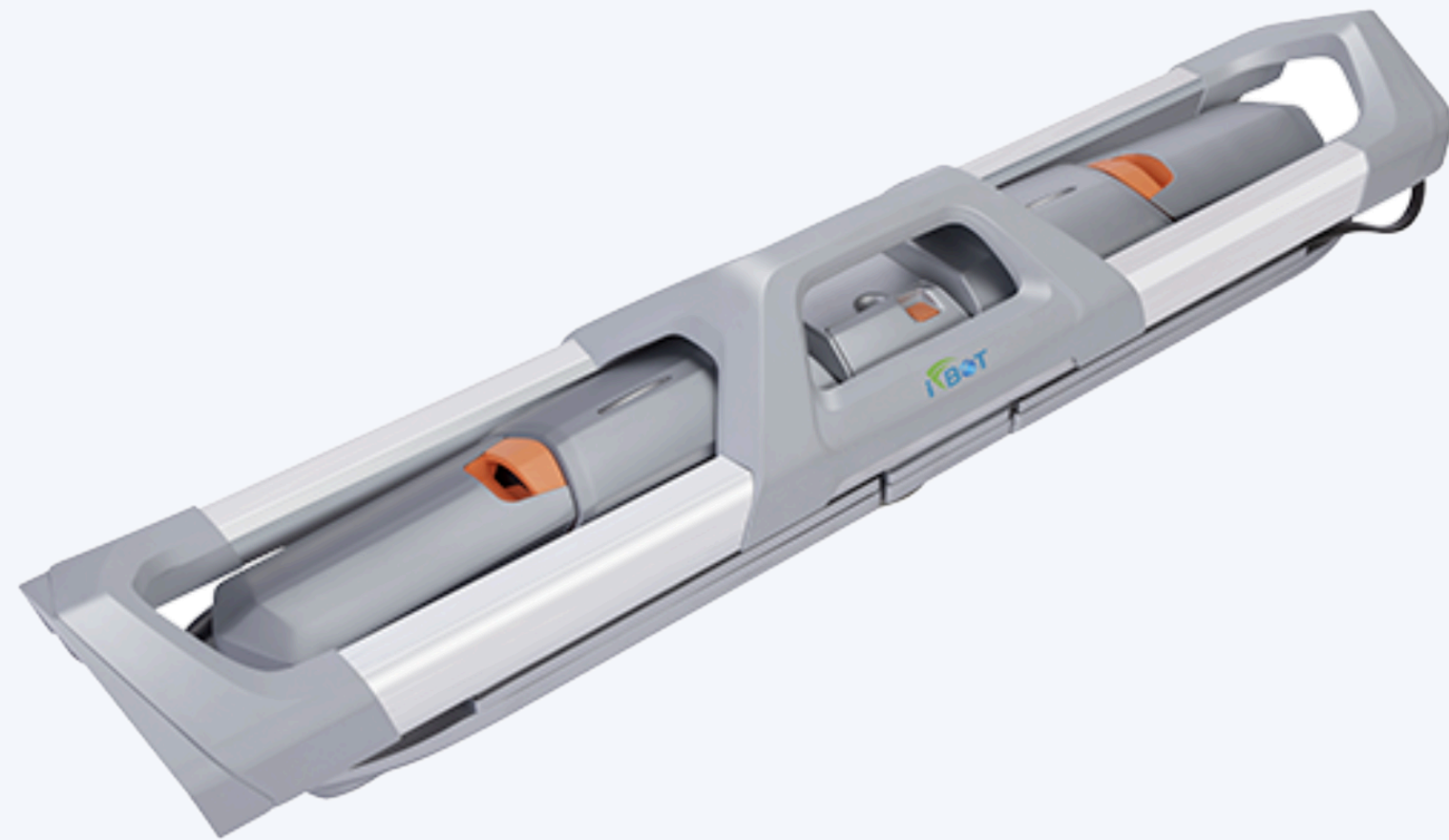
Gap between panels it crosses

**13 L/min**

Water use, 4-5 bar supply

DRY CLEAN • STEEP, TIGHT AND WATERLESS SITES

# IFBOT X3



Nano-brush dry clean

Autonomous run

Bluetooth app remote

Returns to lowest position on low battery

Dust tank keeps brushes clean

**6.2 kg**

Light enough to carry  
anywhere

**30 m<sup>2</sup>/h**

About 0.005 MW cleaned  
per hour

**8 h**

Continuous run, hot-swap  
dual battery

**0-45°**

Panel tilt range

**10 cm**

Gap between panels it  
crosses

**0 water**

No water line, tank or truck

Watch the X3 in action: [youtu.be/ySQ0\\_MhP02Q](https://youtu.be/ySQ0_MhP02Q).

# Two robots, side by side

| Spec         | IFBOT M20                                                          | IFBOT X3                                                                        |
|--------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Cleaning     | Wet, dual brush                                                    | Dry, nano brushes, dust tank cleans the brushes                                 |
| Weight       | 12.7 kg                                                            | 6.2 kg                                                                          |
| Throughput   | 1,000 m²/h (~0.17 MW)                                              | 30 m²/h (~0.005 MW)                                                             |
| Tilt range   | 0-15°                                                              | 0-45°                                                                           |
| Gap crossing | Up to 20 cm                                                        | Up to 10 cm                                                                     |
| Runtime      | 8 h, hot-swap dual battery                                         | 8 h, hot-swap dual battery                                                      |
| Water        | 13 L/min at 4-5 bar                                                | None                                                                            |
| Operation    | Own remote control and Bluetooth app, triple-layer fall protection | Autonomous run, returns to lowest position on low battery, Bluetooth app remote |

Specifications from IFBOT; M20 water use and gap-crossing distances confirmed by the factory.

# The right robot for every PV site



## **M20: cover the ground**

Large flat and low-tilt PV installations, from commercial sites to utility rows. 1,000 m<sup>2</sup>/h, wet clean.



## **X3: go where others can't**

Steep arrays up to 45°, sites with no water, residential installations and large arrays.

WHY IFBOT

# Light. Ready. All-day. Affordable.

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## 6.2-12.7 kg

X3 6.2 kg, M20 12.7 kg: carry either one anywhere on site

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## 0 parts

Nothing to assemble on either robot: unpack, place, clean

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## 8 hours

Dual hot-swap battery, standard on both robots

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## US\$1,300-8,000

X3 US\$1,300, M20 US\$8,000, ex-works: a fraction of comparable robots



IFBOT M20 • WEIGHT

**M20: 12.7 kg.**  
**One person.**  
**One trip.**

The M20 straps on like a backpack. A two-person crew becomes one person plus a robot. The X3 is lighter still, at 6.2 kg.

IFBOT M20 • PRODUCTIVITY

# The M20 empowers your crew to do 6x more

The M20 does the washing. The same crew covers six times the ground, one person and one robot at a time.



**1,000  
m<sup>2</sup>/h**

M20 throughput: about 0.17 MW  
cleaned every hour

**~6x**

The ground one person covers  
with the M20, against 150 m<sup>2</sup>/h  
by hand

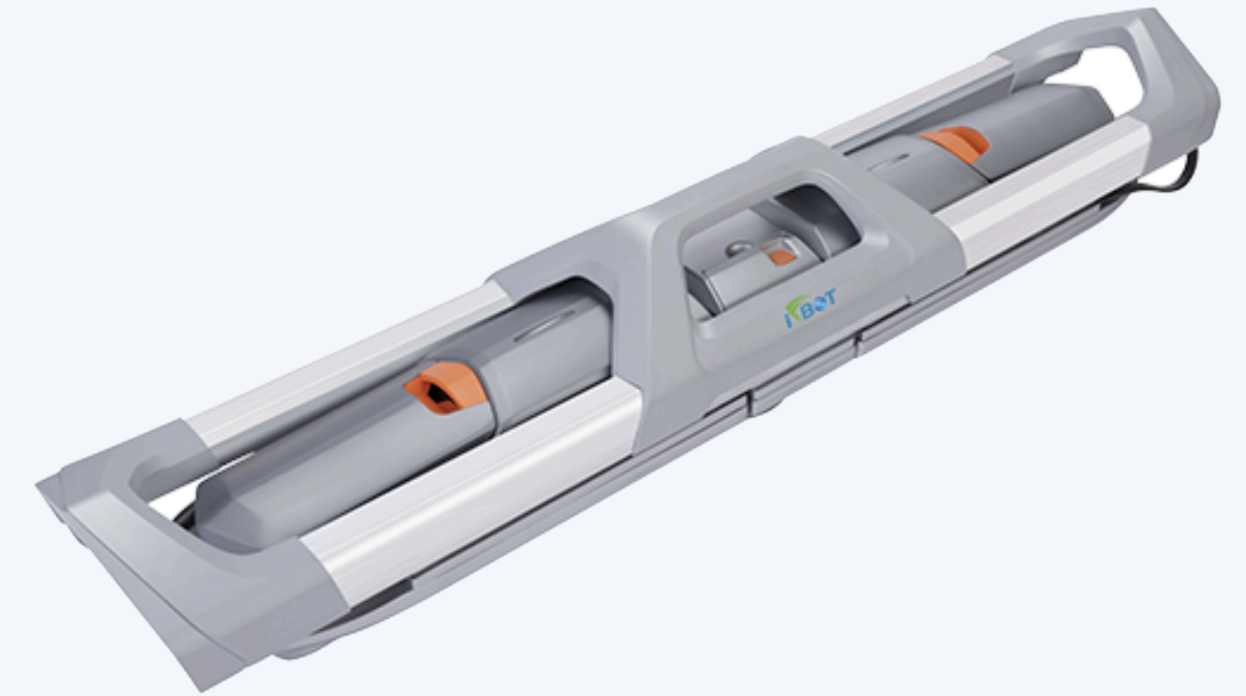
**8-12 wks**

Typical M20 payback in Australia,  
from the labor time it frees up

IFBOT X3 • REACH

# The X3 reaches the panels others can't

6.2 kg, dry clean, no water line. Steep arrays, residential installations and large arrays, all within reach of one light robot.



## 0-45°

X3 tilt range, for panels too steep for safe manual access

## 0 water

Nano-brush dry clean: no water line, tank or truck on site

## Autonomous

X3 cleans on its own and returns to the lowest position when the battery runs low

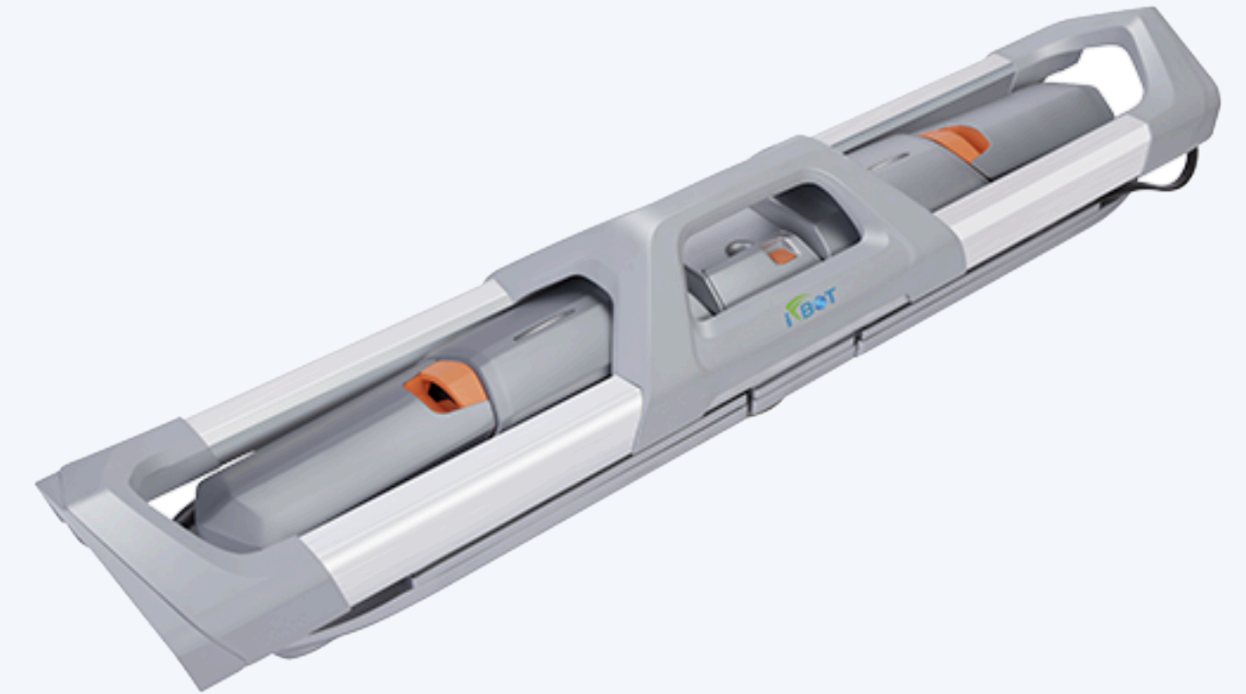
## Dust tank

A dedicated tank cleans the brushes, so dust never lands back on the panels

IFBOT X3 • SCALE

# One operator. **Many X3s.**

Each X3 cleans 30 m<sup>2</sup>/h by itself, so capacity grows one robot at a time. IFBOT designs for one operator to manage dozens of robots at once.



5 X3

**150 m<sup>2</sup>/h**

About 0.025 MW cleaned an hour

10 X3

**300 m<sup>2</sup>/h**

About 0.05 MW cleaned an hour

20 X3

**600 m<sup>2</sup>/h**

About 0.1 MW cleaned an hour



# Keep people out of harm's way

## **M20: triple-layer fall protection**

Stays on the panels near edges; run by remote control from a safe spot.

## **X3: steep arrays up to 45°**

Reaches panels too steep for safe manual access.

## **Both robots: less time at height**

Light, nothing to assemble, so fewer people spend less time at height.

# X3 US\$1,300. M20 US\$8,000. A fraction of **comparable robots.**



M20 costs about **US\$8** per m<sup>2</sup>/h of throughput, against about US\$25 and US\$39 for two competing wet-clean models.

Prices are **US\$, ex-works, Fujian factory**. Ask for a quotation delivered to your door.



# IFBOT builds robots that free people from dangerous cleaning work

**IFBOT's mission:** keep people safe, panels clean and solar plants producing.

Watch our introduction video: [youtu.be/AXDA3lmNwv0](https://youtu.be/AXDA3lmNwv0)

## 2018

Founded on one belief:  
robots, not people, should  
do the dangerous cleaning

## SJTU

Research partner Shanghai  
Jiao Tong University; core  
technologies patented

## Dozens

of robots managed by one  
operator, with no physical  
effort

## Red Dot

Best of the Best, Product  
Design 2022, for the IFBOT  
X3

### The team

Serial entrepreneurs, academics, robotic  
and software engineers

### Safety first

Returns to the panel's lowest point  
when power runs low; cleans at night

### Next: drones

Drones that launch and retrieve robots,  
working in China; pending regulatory  
approval outside China

# Some of IFBOT's references

A base built in the Americas, now expanding in Australia, New Zealand and Southeast Asia.

| Company                                 | Country                     | Region   |
|-----------------------------------------|-----------------------------|----------|
| Empresas GTC                            | Chile                       | Americas |
| Rio Yaqui Solar                         | Mexico (Sonora)             | Americas |
| Solarrow                                | United States (Fremont, CA) | Americas |
| Union Solar Pte Ltd                     | Singapore                   | Asia     |
| AMSOLAR SDN BHD                         | Malaysia                    | Asia     |
| Sustainergy Global Tech Co., Ltd. (SGT) | Thailand                    | Asia     |
| Solar Electric Vietnam (SEV)            | Vietnam                     | Asia     |

**2,000 MW**

About 12 million m<sup>2</sup> of solar surface under cleaning by IFBOT robots: the equivalent of 20 large solar farms



IFBOT M20 & X3

# Let's get in touch.

Tell us about your PV installation and we will match the right robot.

**CLICK BELOW TO START THE CONVERSATION**

**[luca@foundcoo.com](mailto:luca@foundcoo.com)**