

SUS

# Ready Solution Catalog **2018** vol.1





S

Us

# 「からくり革命」

現場改善のソリューションを探し、進化と改革を加速させる。

SUSでは、からくりをシンプルに、もっと簡単に、さらに多機能にをコンセプトに、からくり電動化「からくり革命」を提案し好評をいただきました。  
このコンセプトがもっとお客様の課題のお役に立てるよう提案し、改善につながるようより一層のシステム充実に力を注いでいきます。



# Automation *Revolution*

Continuous improvement at a revolutionary speed.

The simplicity of low-cost automation is now easier than ever as customers hail the versatile SiO Controller as an “Automation Revolution.” Made specifically to address daily challenges, SiO is designed to couple seamlessly with low-cost automation *karakuri* designs and power every step in your own revolution.



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# SUS Ready Solution Catalog

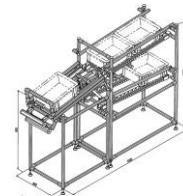
Absolute ease is our goal with this catalog. Everything listed can be ordered in the specifications noted. Here are a few things to keep in mind as you use the **SUS Ready Solution Catalog**:

- Units are shipped as a kit, ready for assembly. If you'd like a pre-assembled structure, please note this in your order as additional fees will apply.
- When placing your order, be sure to include your preferred shipping terms and carrier if you have one.
- Average lead times are noted with each item or at the beginning of each section. For large quantities, please contact SUS America, Inc. to confirm our inventory status before placing your order.
- All photos used in this catalog are representations only. Actual structures may vary as designs are continuously improved.
- To place an order, contact SUS America, Inc. (see p.103).
- If you have questions about this catalog or its contents, please contact us. We are happy to assist you.



## Standard Units

Basic structures for any work space.



## Custom Structures

Details on how to order built-to-suit structures.



## Traditional Karakuri

Low-cost automation solutions without electricity.



## Automated Karakuri

Full- and semi-automated karakuri structures.



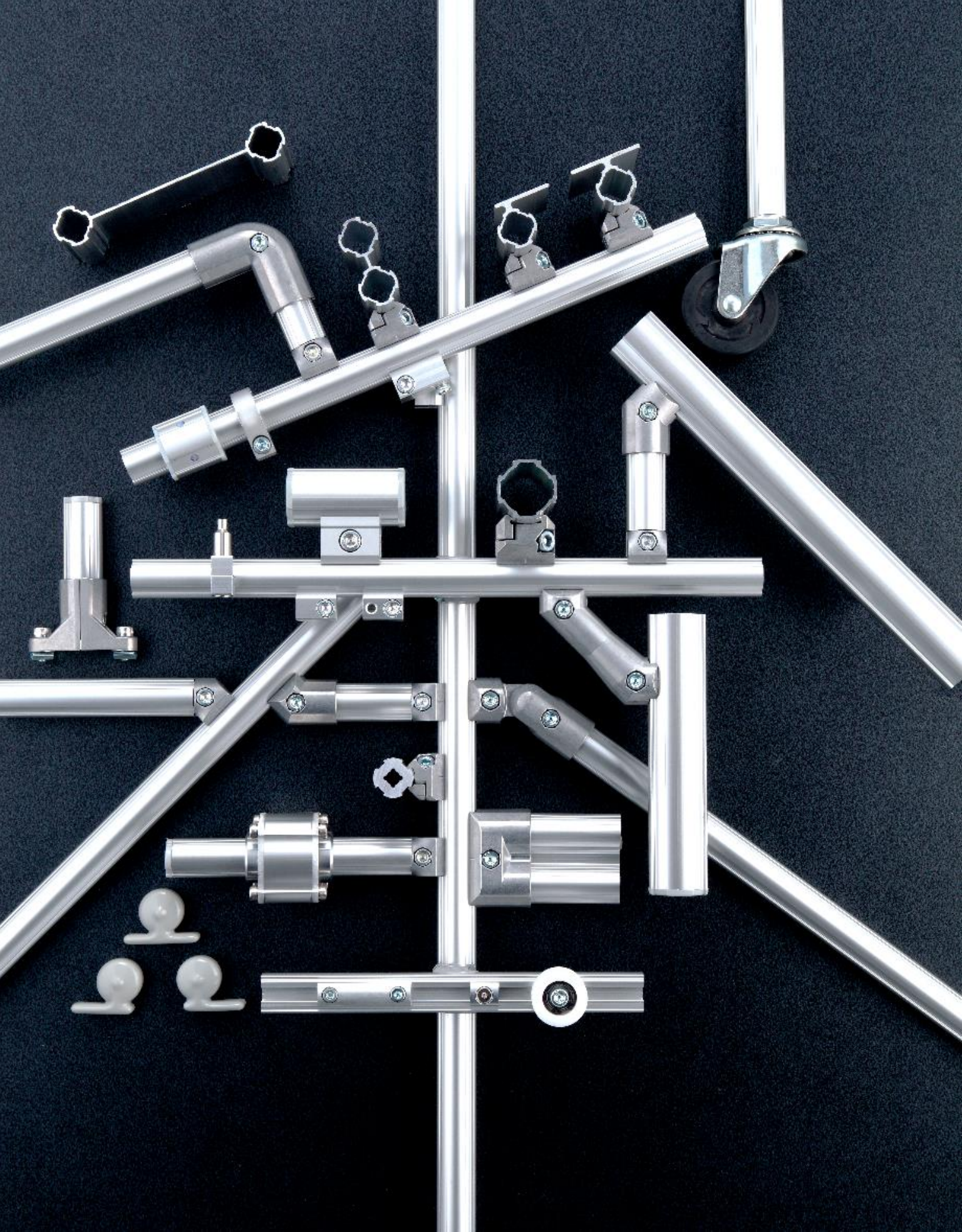
## Miniature Karakuri

Mechanisms and structures for karakuri training.



## SiO Controller

Simple electric automation for small-scale improvements.

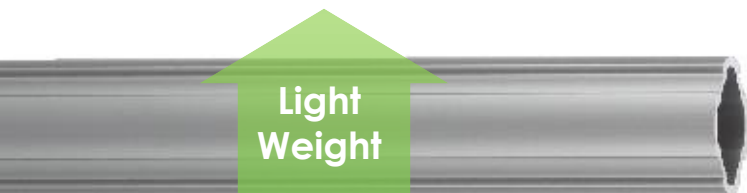




**GF** *Green Frame*

# Green Frame

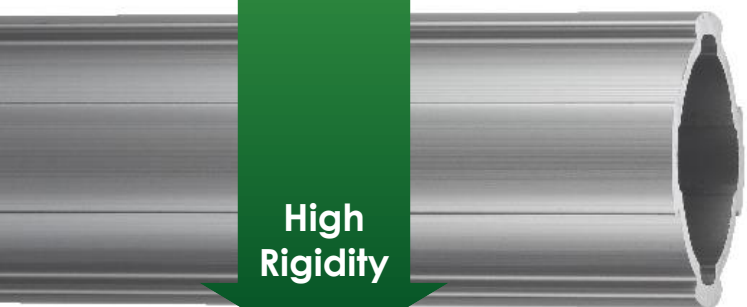
Green Frame is the basic material used to build all of the structures found in the Ready Solution Catalog. It optimizes the balance between rigidity and weight, making it 60% lighter than welded steel and 20% stronger than resin coated steel piping. Thanks to an alumite treatment, Green Frame is also highly resistant to rust, scratches, and dust.



**GF S**  
**19**<sub>mm</sub> / 0.74"  
10.8 kgf / 24 lbf



**GF N**  
**28**<sub>mm</sub> / 1.1"  
48.7 kgf / 108 lbf



**GF G**  
**43**<sub>mm</sub> / 1.69"  
108.7 kgf / 240 lbf

# Advanced Connections

Each connector is affixed with a single, dedicated bolt designed to produce a right angle and parallel lines along the notched profile. In trials, new users assembled a Green Frame structure up to 67% faster than the same structure using another modular system. Green Frame connectors make minor or major adjustments quick and easy, saving time and manpower.

**90° angles**  
**Parallel lines**  
**Full modularity**  
**Dedicated bolt**  
**Total confidence**



# Truly Green

Green Frame is the ideal choice for work sites seeking to reduce their impact on our environment. SUS's Fukushima location recycles retired frames and connectors back into new extrusions, saving energy and resources. In addition, the material's inherent light weight compared to steel means less impact during transport, and its resistance to rust and scratches combined with its high modularity means more repurposing and less waste.

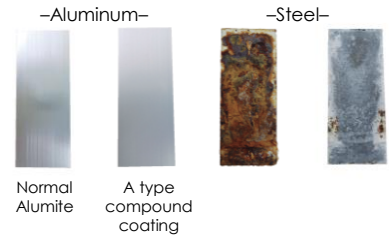
## Lightweight

Aluminum is approximately 33% the mass of steel. Because many of the connectors are also aluminum, GF structures are easy to build and maneuver, reducing strain on operators and improving ergonomics.



## Lasting Finish

The alumite-coated GF Series was tested by exposing it to water and keeping the components in high-humidity. In the test, GF far outlasted steel exposed to the same conditions.



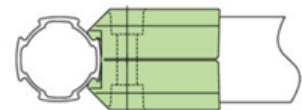
## Reduced Carbon Footprint

The amount of electricity used to refine a recycled aluminum ingot is only 3% of that needed for a new one. GF frames and connectors are 99% recyclable, minimizing energy consumption and environmental impact.



## Reusable

GF frames and connectors easily answer the demands of evolving work environments. Change a structure's orientation, adjust it to suit different operators, or completely repurpose it for a new use.



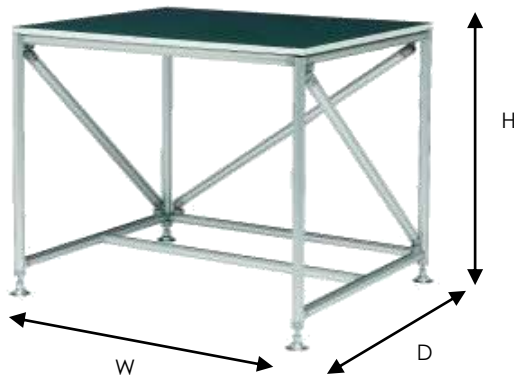
# Standard Units

# Work Tables

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- Automated Karakuri
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## Work Table A (seated work)

Ready to ship in 5-10 business days



Payload: 100kg/220lbs  
Includes 16.5mm/0.6" thick MDF panel with non-static green top and finished sides

Item #	GFM-001	GFM-002	GFM-003
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm 29.5"		
H	740mm 29.1"		
<b>Price</b>	<b>239.35</b>	<b>242.55</b>	<b>273.66</b>
DWG	GFU 2804536-4	GFU 2804537-4	GFU 2804538-4
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Work Table A, Heavy-Duty Type (seated work)

Ready to ship in 5-10 business days



Payload: 130kg/286lbs  
Includes 16.5mm/0.6" thick MDF panel with non-static green top and finished sides

Item #	GFM-201	GFM-202	GFM-203
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm 29.5"		
H	740mm 29.1"		
<b>Price</b>	<b>283.70</b>	<b>290.30</b>	<b>331.02</b>
DWG	GFU 4300148-2	GFU 4300149-3	GFU 4300150-1
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

# Work Tables

## Work Table A (standing work)

Ready to ship in 5-10 business days



Payload: 100kg/220lbs  
Includes 16.5mm/0.6" thick MDF panel with non-static green top and finished sides

Item #	GFM-004	GFM-005	GFM-006
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm 29.5"		
H	900mm 35.4"		
<b>Price</b>	<b>243.71</b>	<b>230.24</b>	<b>277.90</b>
DWG	GFU 2804539-5	GFU 2804540-5	GFU 2804541-5
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Work Table A, Heavy-Duty Type (standing work)

Ready to ship in 5-10 business days



Payload: 130kg/286lbs  
Includes 16.5mm/0.6" thick MDF panel with non-static green top and finished sides

Item #	GFM-204	GFM-205	GFM-206
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm 29.5"		
H	900mm 35.4"		
<b>Price</b>	<b>291.16</b>	<b>297.20</b>	<b>333.95</b>
DWG	GFU 4300151-1	GFU 4300152-1	GFU 4300153-1
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

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## Work Table A (mobile work)

Ready to ship in 5-10 business days



Payload: 100kg/220lbs  
Includes 16.5mm/0.6" thick MDF panel with non-static green top and finished sides

Item #	GFM-007	GFM-008	GFM-009
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm 29.5"		
H	840mm 33"		
<b>Price</b>	<b>251.36</b>	<b>254.54</b>	<b>285.61</b>
DWG	GFU 2804542-7	GFU 2804543-3	GFU 2804544-3
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Work Table A, Heavy-Duty Type (mobile work)

Ready to ship in 5-10 business days



Payload: 130kg/286lbs  
Includes 16.5mm/0.6" thick MDF panel with non-static green top and finished sides

Item #	GFM-207	GFM-208	GFM-209
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm 29.5"		
H	840mm 33"		
<b>Price</b>	<b>314.69</b>	<b>320.76</b>	<b>357.60</b>
DWG	GFU 4300154-4	GFU 4300155-3	GFU 4300156-3
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		



# Work Tables

## Work Table A with Rack (seated work)

Ready to ship in 5-10 business days



Payload: 100kg/220lbs  
Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-010	GFM-011	GFM-012
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm 29.5"		
H	740mm 29"		
<b>Price</b>	<b>306.00</b>	<b>309.20</b>	<b>351.29</b>
DWG	GFU 2804545-5	GFU 2804475-5	GFU 2804546-4
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Work Table A with Rack, Heavy-Duty Type (seated work)

Ready to ship in 5-10 business days



Payload: 130kg/286lbs  
Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-210	GFM-211	GFM-212
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm 29.5"		
H	740mm 29"		
<b>Price</b>	<b>357.48</b>	<b>363.59</b>	<b>411.34</b>
DWG	GFU 4300157-2	GFU 4300158-2	GFU 4300159-2
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

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## Work Table A with Rack (standing work)

Ready to ship in 5-10 business days



Payload: 100kg/220lbs  
Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-013	GFM-014	GFM-015
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm 29.5"		
H	900mm 35.4"		
<b>Price</b>	<b>310.36</b>	<b>313.53</b>	<b>355.46</b>
DWG	GFU 2804547-5	GFU 2804548-5	GFU 2804315-6
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Work Table A with Rack, Heavy-Duty Type (standing work)

Ready to ship in 5-10 business days



Payload: 130kg/286lbs  
Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-213	GFM-214	GFM-215
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm 29.5"		
H	900mm 35.4"		
<b>Price</b>	<b>364.94</b>	<b>370.98</b>	<b>418.64</b>
DWG	GFU 4300160-2	GFU 4300161-2	GFU 4300162-2
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

# Work Tables

## Work Table A with Rack (mobile work)

Ready to ship in 5-10 business days



Payload: 100kg/ 220lbs  
Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-016	GFM-017	GFM-018
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm 29.5"		
H	840mm 33"		
<b>Price</b>	<b>318.01</b>	<b>321.19</b>	<b>361.26</b>
DWG	GFU 2804549-4	GFU 2804550-3	GFU 2804551-3
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Work Table A with Rack, Heavy-Duty Type (mobile work)

Ready to ship in 5-10 business days



Payload: 130kg/286lbs  
Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-216	GFM-217	GFM-218
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm 29.5"		
H	840mm 33"		
<b>Price</b>	<b>388.46</b>	<b>394.54</b>	<b>442.29</b>
DWG	GFU 4300163-3	GFU 4300164-3	GFU 4300165-3
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

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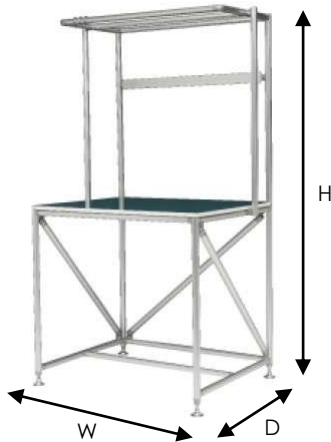
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## Work Station B (standing work)

Ready to ship in 5-10 business days



Payload: 100kg/220lbs  
Includes 16.5mm/0.6" thick MDF panel with non-static green top and finished sides

Item #	GFM-019	GFM-020	GFM-021
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm / 29.5"		
H	Table 900mm / 35.4"	Overhead 1800mm / 77.9"	
<b>Price</b>	<b>356.81</b>	<b>338.86</b>	<b>408.63</b>
DWG	GFU 2804565-5	GFU 2804566-4	GFU 2804567-4
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Impact Holder Kits (GFK-803/802) p.45 Frame Cushion (GFA-819) p.45 Connector Piece Compact (GFJ-B09/B18) p.46 Parts Holder (GFA-000) p.46 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Parts Containers (GFA-A81/A07) p.51		

## Work Station B, Heavy-Duty Type (standing work)

Ready to ship in 5-10 business days



Payload: 130kg/286lbs  
Includes 16.5mm/0.6" thick MDF panel with non-static green top and finished sides

Item #	GFM-219	GFM-220	GFM-221
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm / 29.5"		
H	Table 900mm / 35.4"	Overhead 1800mm / 77.9"	
<b>Price</b>	<b>413.60</b>	<b>423.16</b>	<b>466.91</b>
DWG	GFU 4300166-1	GFU 4300167-2	GFU 4300168-1
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Impact Holder Kits (GFK-803/802) p.45 Frame Cushion (GFA-819) p.45 Connector Piece Compact (GFJ-B09/B18) p.46 Parts Holder (GFA-000) p.46 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Parts Containers (GFA-A81/A07) p.51		

# Work Stations

## Work Station B (mobile work)

Ready to ship in 5-10 business days



Payload: 100kg/220lbs  
Includes 16.5mm/0.6" thick MDF panel with non-static green top and finished sides

Item #	GFM-022	GFM-023	GFM-024
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm / 29.5"		
H	Table 900mm / 35.4"		Overhead 1800mm / 77.9"
Price	<b>368.85</b>	<b>375.49</b>	<b>415.40</b>
DWG	GFU 2804568-3	GFU 2804569-4	GFU 2804570-4
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Impact Holder Kits (GFK-803/802) p.45 Frame Cushion (GFA-819) p.45 Connector Piece Compact (GFJ-B09/B18) p.46 Parts Holder (GFA-000) p.46 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Parts Containers (GFA-A81/A07) p.51		

## Work Station B, Heavy-Duty Type (mobile work)

Ready to ship in 5-10 business days



Payload: 130kg/286lbs  
Includes 16.5mm/0.6" thick MDF panel with non-static green top and finished sides

Item #	GFM-222	GFM-223	GFM-224
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm / 29.5"		
H	Table 900mm / 35.4"		Overhead 1800mm / 77.9"
Price	<b>439.40</b>	<b>449.01</b>	<b>492.78</b>
DWG	GFU 4300169-2	GFU 4300170-3	GFU 4300171-3
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Impact Holder Kits (GFK-803/802) p.45 Frame Cushion (GFA-819) p.45 Connector Piece Compact (GFJ-B09/B18) p.46 Parts Holder (GFA-000) p.46 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Parts Containers (GFA-A81/A07) p.51		

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## Work Station B with Racks (standing work)

Ready to ship in 5-10 business days



Payload: 100kg/220lbs  
Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-025	GFM-026	GFM-027
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm / 29.5"		
H	Table 900mm / 35.4"	Overhead 1800mm / 77.9"	
<b>Price</b>	<b>505.78</b>	<b>527.51</b>	<b>594.93</b>
DWG	GFU 2804571-4	GFU 2804572-5	GFU 2804573-5
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Impact Holder Kits (GFK-803/802) p.45 Frame Cushion (GFA-819) p.45 Connector Piece Compact (GFJ-B09/B18) p.46 Parts Holder (GFA-000) p.46 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Parts Containers (GFA-A81/A07) p.51		

## Work Station B with Racks, Heavy-Duty Type (standing work)

Ready to ship in 5-10 business days



Payload: 130kg/286lbs  
Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-225	GFM-226	GFM-227
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm / 29.5"		
H	Table 900mm / 35.4"	Overhead 1800mm / 77.9"	
<b>Price</b>	<b>574.35</b>	<b>598.15</b>	<b>648.69</b>
DWG	GFU 4300172-2	GFU 4300173-3	GFU 4300174-2
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Impact Holder Kits (GFK-803/802) p.45 Frame Cushion (GFA-819) p.45 Connector Piece Compact (GFJ-B09/B18) p.46 Parts Holder (GFA-000) p.46 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Parts Containers (GFA-A81/A07) p.51		

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## Work Station B with Racks (mobile work)

Ready to ship in 5-10 business days



Payload: 100kg/220lbs  
Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-028	GFM-029	GFM-030
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm / 29.5"		
H	Table 900mm / 35.4"		Overhead 1800mm / 77.9"
Price	<b>512.53</b>	<b>536.54</b>	<b>611.19</b>
DWG	GFU 2804574-4	GFU 2804444-4	GFU 2804575-4
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Impact Holder Kits (GFK-803/802) p.45 Frame Cushion (GFA-819) p.45 Connector Piece Compact (GFJ-B09/B18) p.46 Parts Holder (GFA-000) p.46 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Parts Containers (GFA-A81/A07) p.51		

## Work Station B with Racks, Heavy-Duty Type (mobile work)

Ready to ship in 5-10 business days



Payload: 130kg/286lbs  
Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-228	GFM-229	GFM-230
W	750mm 29.5"	900mm 35.4"	1200mm 47.25"
D	750mm / 29.5"		
H	Table 900mm / 35.4"		Overhead 1800mm / 77.9"
Price	<b>590.28</b>	<b>622.89</b>	<b>689.30</b>
DWG	GFU 4300175-3	GFU 4300176-4	GFU 4300177-2
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Board Level Kit (GFK-900) p. 44 Board Lifter Kit (GFK-901~903) p. 44 Impact Holder Kits (GFK-803/802) p.45 Frame Cushion (GFA-819) p.45 Connector Piece Compact (GFJ-B09/B18) p.46 Parts Holder (GFA-000) p.46 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Parts Containers (GFA-A81/A07) p.51		

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## Work Station C (standing work)

Ready to ship in 15 business days

Height adjustment up to 200mm/7.9"



Payload: 100kg/220lbs  
Includes 16.5mm/0.6" thick MDF panel with non-static green top and finished sides

Item #	GFM-031	GFM-032
W	750mm / 29.5"	900mm / 35.4"
D	750mm / 29.5"	
H	Table 740~940mm 29.1~37"	Overhead 1800mm 77.9"
<b>Price</b>	<b>622.48</b>	<b>678.59</b>
DWG	GFU2804925-4	GFU2804932-1
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Impact Holder Kits (GFK-803/802) p.45 Frame Cushion (GFA-819) p.45 Connector Piece Compact(GFJ-B09/B18) p.46 Parts Holder (GFA-000) p.46 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Parts Containers (GFA-A81/A07) p.51	

## Work Station C (mobile work)

Ready to ship in 15 business days

Height adjustment up to 200mm/7.9"



Payload: 100kg/220lbs  
Includes 16.5mm/0.6" thick MDF panel with non-static green top and finished sides

Item #	GFM-033	GFM-034
W	750mm / 29.5"	900mm / 35.4"
D	750mm / 29.5"	
H	Table 740~940mm 29.1~37"	Overhead 1800mm 77.9"
<b>Price</b>	<b>631.68</b>	<b>687.88</b>
DWG	GFU2804936-1	GFU2804937-1
Options	Drawer Kit (GFM-X01) p.43 Slide Table Kit (GFM-X02) p.43 Impact Holder Kits (GFK-803/802) p.45 Frame Cushion (GFA-819) p.45 Connector Piece Compact(GFJ-B09/B18) p.46 Parts Holder (GFA-000) p.46 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Parts Containers (GFA-A81/A07) p.51	



## Trolley A with Work Boards

Ready to ship in 5-10 business days



Unit Payload: 60kg/132lbs  
 Single Level Payload: 50kg/110lbs  
 Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-401	GFM-402	GFM-403
W	600mm 23.6"		900mm 35.4"
D	400mm 15.7"		600 23.6"
H	600mm 23.6"	810mm 32"	880mm 34.6"
<b>Price</b>	<b>416.40</b>	<b>420.16</b>	<b>472.75</b>
DWG	GFU 2804632-1	GFU 2804633	GFU 2804634
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Trolley A with Work Boards and Hammer Lock

Ready to ship in 5-10 business days



Unit Payload: 60kg/132lbs  
 Single Level Payload: 50kg/110lbs  
 Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-407	GFM-408	GFM-409
W	600mm 23.6"		900mm 35.4"
D	400mm 15.7"		600 23.6"
H	600mm 23.6"	810mm 32"	880mm 34.6"
<b>Price</b>	<b>455.10</b>	<b>456.63</b>	<b>507.41</b>
DWG	GFU 2804635	GFU 2804636-1	GFU 2804317-2
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

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## Trolley A with Stainless Steel Panels

Ready to ship in 15 business days



Unit Payload: 60kg/132lbs  
 Single Level Payload: 50kg/110lbs  
 Includes 1.5mm/0.05" thick stainless steel panels

Item #	GFM-404	GFM-405	GFM-406
W	600mm 23.6"		900mm 35.4"
D	400mm 15.7"		600 23.6"
H	600mm 23.6"	810mm 32"	880mm 34.6"
<b>Price</b>	<b>501.99</b>	<b>505.75</b>	<b>689.98</b>
DWG	GFU 2804637-1	GFU 2804638	GFU 2804639
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Trolley A with Stainless Steel Panels and Hammer Lock

Ready to ship in 15 business days



Unit Payload: 60kg/132lbs  
 Single Level Payload: 50kg/10lbs  
 Includes 1.5mm/0.05" thick stainless steel panels

Item #	GFM-410	GFM-411	GFM-412
W	600mm 23.6"		900mm 35.4"
D	400mm 15.7"		600 23.6"
H	600mm 23.6"	810mm 32"	880mm 34.6"
<b>Price</b>	<b>538.45</b>	<b>542.21</b>	<b>737.13</b>
DWG	GFU 2804640	GFU 2804641	GFU 2804642
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Trolley B with Work Boards

Ready to ship in 5-10 business days



Unit Payload: 60kg/132lbs  
 Single Level Payload: 110lbs/50kg  
 Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-413	GFM-414	GFM-415
W	600mm 23.6"		900mm 35.4"
D	400mm 15.7"		600 23.6"
H	600mm 23.6"	810mm 32"	880mm 34.6"
<b>Price</b>	<b>439.36</b>	<b>413.29</b>	<b>532.34</b>
DWG	GFU 2804658-1	GFU 2804659-1	GFU 2804660
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Trolley B with Work Boards and Hammer Lock

Ready to ship in 5-10 business days



Unit Payload: 60kg/132lbs  
 Single Level Payload: 50kg/110lbs  
 Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-419	GFM-420	GFM-421
W	600mm 23.6"		900mm 35.4"
D	400mm 15.7"		600 23.6"
H	600mm 23.6"	810mm 32"	880mm 34.6"
<b>Price</b>	<b>475.83</b>	<b>479.61</b>	<b>564.74</b>
DWG	GFU 2804661-1	GFU 2804662-1	GFU 2804663-1
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

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## Trolley B with Stainless Steel Panels

Ready to ship in 15 business days



Unit Payload: 60kg/132lbs  
 Single Level Payload: 50kg/110lbs  
 Includes 1.5mm/0.05" thick stainless steel panels

Item #	GFM-416	GFM-417	GFM-418
W	600mm 23.6"		900mm 35.4"
D	400mm 15.7"		600 23.6"
H	600mm 23.6"	810mm 32"	880mm 34.6"
<b>Price</b>	<b>515.65</b>	<b>523.50</b>	<b>687.99</b>
DWG	GFU 2804664	GFU 2804665	GFU 2804666
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Trolley B with Stainless Steel Panels and Hammer Lock

Ready to ship in 15 business days



Unit Payload: 60kg/132lbs  
 Single Level Payload: 50kg/110lbs  
 Includes 1.5mm/0.05" thick stainless steel panels

Item #	GFM-422	GFM-423	GFM-424
W	600mm 23.6"		900mm 35.4"
D	400mm 15.7"		600 23.6"
H	600mm 23.6"	810mm 32"	880mm 34.6"
<b>Price</b>	<b>522.11</b>	<b>559.96</b>	<b>753.28</b>
DWG	GFU 2804643	GFU 2804644	GFU 2804645
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Trolley C with Work Boards

Ready to ship in 5-10 business days



Unit Payload: 60kg/132lbs  
 Single Level Payload: 50kg/110lbs  
 Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-425	GFM-426	GFM-427
W	600mm 23.6"		900mm 35.4"
D	400mm 15.7"		600 23.6"
H	600mm 23.6"	810mm 32"	880mm 34.6"
<b>Price</b>	<b>466.41</b>	<b>472.94</b>	<b>556.23</b>
DWG	GFU 2804646	GFU 2804647-1	GFU 2804648
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Trolley C with Work Boards and Hammer Lock

Ready to ship in 5-10 business days



Unit Payload: 60kg/132lbs  
 Single Level Payload: 50kg/110lbs  
 Includes 16.5mm/0.6" thick MDF panels with non-static green top and finished sides

Item #	GFM-431	GFM-432	GFM-433
W	600mm 23.6"		900mm 35.4"
D	400mm 15.7"		600 23.6"
H	600mm 23.6"	810mm 32"	880mm 34.6"
<b>Price</b>	<b>502.89</b>	<b>506.68</b>	<b>539.35</b>
DWG	GFU 2804649-2	GFU 2804650-1	GFU 2804651-1
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

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## Trolley C with Stainless Steel Panels

Ready to ship in 15 business days



Unit Payload: 60kg/132lbs  
 Single Level Payload: 50kg/110lbs  
 Includes 1.5mm/0.05" thick stainless steel panels

Item #	GFM-428	GFM-429	GFM-430
W	600mm 23.6"		900mm 35.4"
D	400mm 15.7"		600 23.6"
H	600mm 23.6"	810mm 32"	880mm 34.6"
<b>Price</b>	<b>533.40</b>	<b>537.19</b>	<b>723.21</b>
DWG	GFU 2804652	GFU 2804653	GFU 2804654
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Trolley C with Stainless Steel Panels and Hammer Lock

Ready to ship in 15 business days

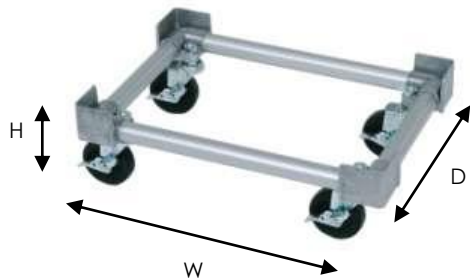


Unit Payload: 60kg/132lbs  
 Single Level Payload: 50kg/110lbs  
 Includes 1.5mm/0.05" thick stainless steel panels

Item #	GFM-434	GFM-435	GFM-436
W	600mm 23.6"		900mm 35.4"
D	400mm 15.7"		600 23.6"
H	600mm 23.6"	810mm 32"	880mm 34.6"
<b>Price</b>	<b>565.80</b>	<b>569.59</b>	<b>755.61</b>
DWG	GFU 2804655	GFU 2804656	GFU 2804657
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49		

## Box Roller A

Ready to ship in 5-10 business days



Unit Payload: 300kg/730lbs

Item #	<b>GFM-437</b>
W	438mm 17.25"
D	305mm 12"
H	129mm 5"
Price	<b>50.01</b>
DWG	GFTR2880032
Options	Leak Plate (GFK-E00) p.49

## Box Roller B

Ready to ship in 5-10 business days



Item #	<b>GFM-438</b>
W	1354mm 53.3"
D	349mm 13.75"
H	129mm 5"
Price	<b>71.70</b>
DWG	GFU2880033
Options	Leak Plate (GFK-E00) p.49

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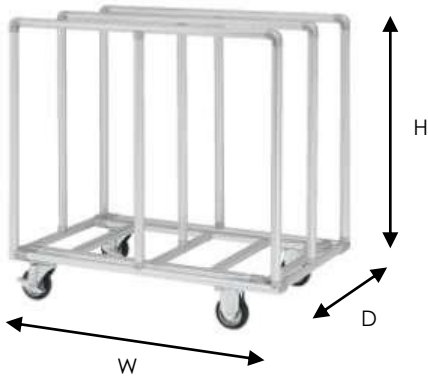
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## Trolley for Long Items

Ready to ship in 5-10 business days



Unit Payload: 60kg/132lbs  
Moment Load: 4-5kg/9-11lbs

Item #	GFM-439
W	900mm 35.4"
D	600mm 23.6"
H	880mm 34.6"
<b>Price</b>	<b>260.68</b>
DWG	GFU2804750-1
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49

## Trolley for Long Items with Hammer Lock

Ready to ship in 5-10 business days



Example Application



Unit Payload: 60kg/132lbs  
Moment Load: 4-5kg/9-11lbs  
Price includes only one Trolley for Long Items w/HL

Item #	GFM-440
W	900mm 35.4"
D	600mm 23.6"
H	880mm 34.6"
<b>Price</b>	<b>327.69</b>
DWG	GFU2804442-2
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49



## Flip-Up Trolley

Ready to ship in 15 business days



Unit Payload: 60kg/132lbs  
 Single Level Payload: 50kg/110lbs  
 Includes 3mm/0.11" thick aluminum panel  
 Price includes only one Flip-up Trolley

Item #	GFM-441
W	900mm 35.4"
D	600mm 23.6"
H	880mm 34.6"
<b>Price</b>	<b>625.49</b>
DWG	GFU2804749-2
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49

## Flip-Up Trolley with Hammer Lock

Ready to ship in 15 business days



Unit Payload: 60kg/132lbs  
 Single Level Payload: 50kg/110lbs  
 Includes 3mm/0.11" thick aluminum panel

Item #	GFM-442
W	900mm 35.4"
D	600mm 23.6"
H	880mm 34.6"
<b>Price</b>	<b>684.01</b>
DWG	GFU2804441-3
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49

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## Cage Trolley

Ready to ship in 15 business days

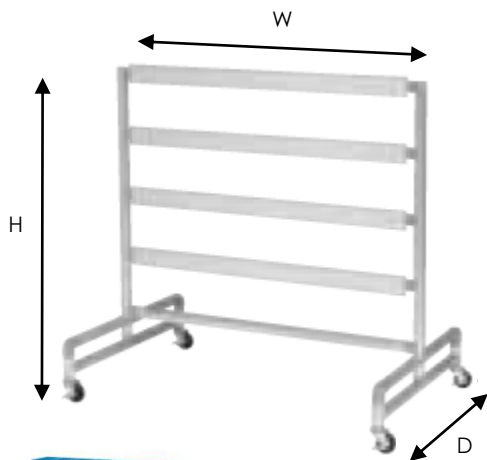


Unit Payload: 60kg/132lbs  
Includes 3mm/0.11" thick aluminum panel

Item #	GFM-443
W	600mm 23.6"
D	800mm 31.5"
H	1700mm 67"
<b>Price</b>	<b>770.06</b>
DWG	GFU2804327-4
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49

## Mobile Parts Container Stand

Ready to ship in 5-10 business days



Example Application using GFA-A07 (p.51)

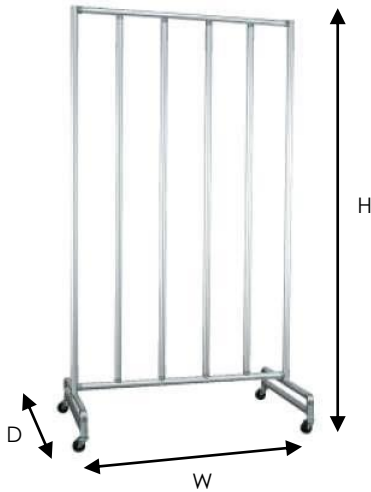
Price includes only one Mobile Parts Container Stand

Item #	GFM-J00	GFM-J01	GFM-J02
W	900mm / 35.4"		
D	600mm / 23.6"		
H	600mm 23.6"	900mm 35.4"	1200mm 47.2"
No. of Shelves	2	4	6
<b>Price</b>	<b>135.50</b>	<b>166.51</b>	<b>198.24</b>
DWG	GFU 2804668-1	GFU 2804440-3	GFU 2804667-1
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Base Stand (GFN-E08) p.49 Parts Containers (GFA-A81/A07) p.51 Small Diameter Adjuster (GFN-000/002) p.52 Adjuster B (SFK-933) p.52		

# Partitions

## Mobile Partition with Gratings

Ready to ship in 5-10 business days



Distance Between Lattices: 166mm/6.5"

Item #	GFM-801	GFM-802
W	1000mm 39.4"	
D	560mm 22"	
H	1800mm 70.8"	1000mm 39.4"
<b>Price</b>	<b>176.10</b>	<b>154.50</b>
DWG	GFU2803302-1	GFU2803305-1
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Small Diameter Adjuster (GFN-000/002) p.52 Adjuster B (SFK-933) p.52	

## Mobile Partition with Aluminum Composite Panel

Ready to ship in 5-10 business days



Includes 3mm/0.11" thick aluminum composite panel

Item #	GFM-803	GFM-804
W	1000mm 39.4"	
D	560mm 22"	
H	1800mm 70.8"	1000mm 39.4"
<b>Price</b>	<b>251.40</b>	<b>178.45</b>
DWG	GFU2803304-1	GFU2803307-1
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Small Diameter Adjuster (GFN-000/002) p.52 Adjuster B (SFK-933) p.52	

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## Mobile Partition with Transparent PET and Aluminum Composite Panel

Ready to ship in 5-10 business days



Includes 3mm/0.11" thick aluminum composite panels

Item #	GFM-805
W	1000mm 39.4"
D	560mm 22"
H	1800mm 70.8"
<b>Price</b>	<b>254.10</b>
DWG	GFU2803303-1
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Small Diameter Adjuster (GFN-000/002) p.52 Adjuster B (SFK-933) p.52

## Mobile Partition with Transparent PET Panel

Ready to ship in 5-10 business days



Includes 3mm/0.11" thick PET panel

Item #	GFM-806
W	1000mm 39.4"
D	560mm 22"
H	1000mm 39.4"
<b>Price</b>	<b>168.85</b>
DWG	GFU2803306-1
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Small Diameter Adjuster (GFN-000/002) p.52 Adjuster B (SFK-933) p.52

# Partitions

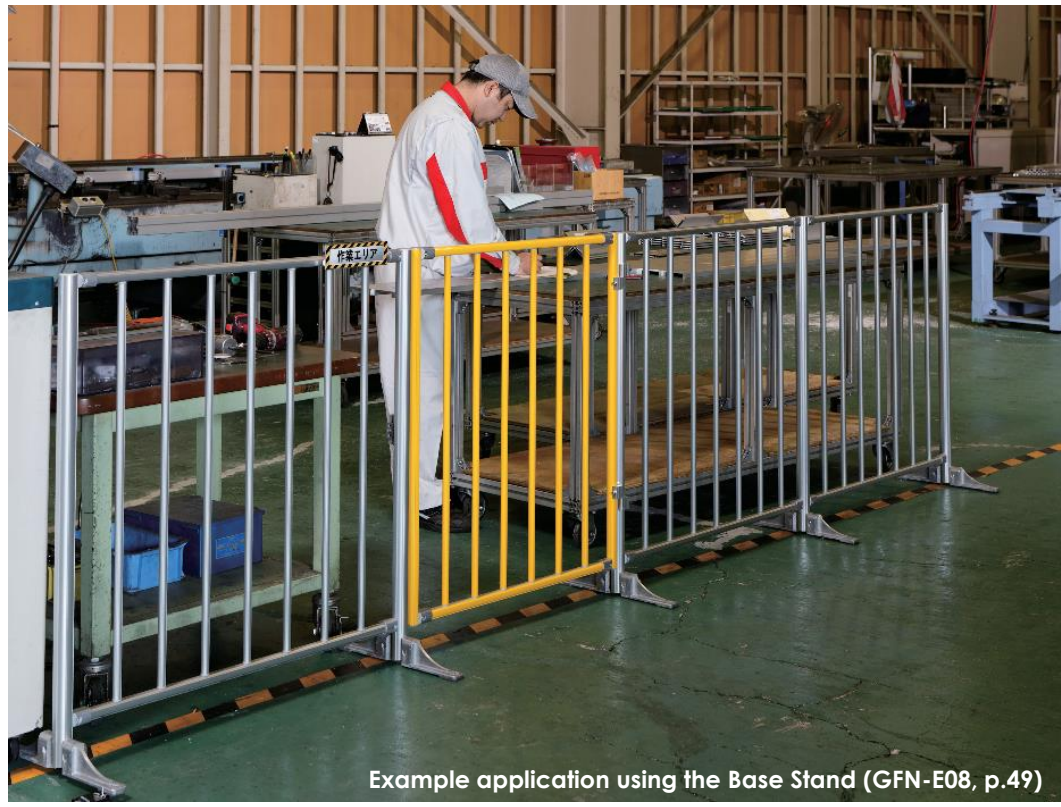
## Area Guard and Support

Ready to ship in 5-10 business days



Price includes only one Area Guard or Support

Item #	GFM-807	GFM-807Y	GFK-909	GFK-909Y
Color	Silver	Yellow	Silver	Yellow
W	1000mm 39.4"		-	
H	1100mm 43.3"			
Price	95.19	119.45	9.81	12.81
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Pipe Stand A (GFN-E15), p.49 Base Stand (GFN-E08) p.49 GF Slip-joint Hinge (GFP-012/013) p.50 Door Lock for Area Guard (GFQ-016) p.50 Catch for Area Guard (GFQ-013) p.50 Small Diameter Adjuster (GFN-000/002) p.52 Adjuster B (SFK-933) p.52			



Example application using the Base Stand (GFN-E08, p.49)

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## Area Guard (500mm) and Support

Ready to ship in 5-10 business days



Price includes only one Area Guard (500mm) or Support

Item #	GFM-810	GFM-810Y	GFK-909	GFK-909Y
Color	Silver	Yellow	Silver	Yellow
W	500mm 19.7"		-	
H	1100mm 43.3"			
<b>Price</b>	<b>67.91</b>	<b>92.19</b>	<b>9.81</b>	<b>12.81</b>
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p.48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Pipe Stand A (GFN-E15), p.49 Base Stand (GFN-E08) p.49 GF Slip-joint Hinge (GFP-012/013) p.50 Door Lock for Area Guard (GFQ-016) p.50 Catch for Area Guard (GFQ-013) p.50 Small Diameter Adjuster (GFN-000/002) p.52 Adjuster B (SFK-933) p.52			

## Area Guard Gate

Ready to ship in 5-10 business days

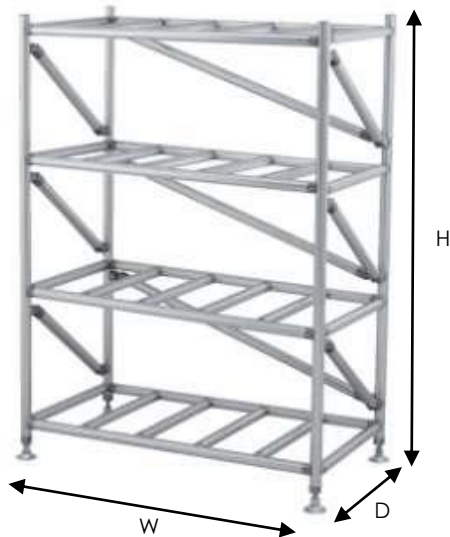


Price includes only one Area Guard Gate

Item #	GFM-808	GFM-809	GFM-808Y	GFM-809Y
Color	Silver		Yellow	
Opens	Left	Right	Left	Right
W	800mm 31.5"			
H	952.5mm 37.5"			
<b>Price</b>	<b>108.28</b>		<b>132.55</b>	
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p.48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 GF Slip-joint Hinges (GFP-012/013) p.52 Door Lock for Area Guard (GFQ-016) p.52 Catch for Area Guard (GFQ-013) p.52			

## Rack

Ready to ship in 5-10 business days



Unit Payload: 80kg/176.4lbs  
Single Level Payload: 40kg/88lbs

Item #	GFM-A00	GFM-A01
W	875mm 34.4"	
D	300mm 11.8"	450mm 17.7"
H	1200mm 47.2"	
<b>Price</b>	<b>449.84</b>	<b>469.23</b>
DWG	GFU2804576-2	GFU2804580-2
Options	Frame Cushion (GFA-819) p.45 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Pipe Stand A (GFN-E15) p.49 Base Stand (GFN-E08) p.49	

## Rack with Melamine Boards

Ready to ship in 5-10 business days



Unit Payload: 80kg/176.4lbs  
Single Level Payload: 40kg/88lbs  
Includes 17mm/0.6" thick melamine panels

Item #	GFM-A02	GFM-A03
W	875mm 34.4"	
D	300mm 11.8"	450mm 17.7"
H	1200mm 47.2"	
<b>Price</b>	<b>778.66</b>	<b>854.31</b>
DWG	GFU2804577-3	GFU2804581-3
Options	Frame Cushion (GFA-819) p.45 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Pipe Stand A (GFN-E15) p.49 Base Stand (GFN-E08) p.49	

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## Tall Rack

Ready to ship in 5-10 business days



Unit Payload: 80kg/176.4lbs  
Single Level Payload: 40kg/88lbs

Item #	GFM-A04	GFM-A05
W	875mm 34.4"	
D	300mm 11.8"	450mm 17.7"
H	1500mm 59"	
<b>Price</b>	<b>455.24</b>	<b>442.64</b>
DWG	GFU2804578-2	GFU2804582-2
Options	Frame Cushion (GFA-819) p.45 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Pipe Stand A (GFN-E15) p.49 Base Stand (GFN-E08) p.49	

## Tall Rack with Melamine Boards

Ready to ship in 5-10 business days



Unit Payload: 80kg/176.4lbs  
Single Level Payload: 40kg/88lbs  
Includes 17mm/0.6" thick melamine panels

Item #	GFM-A06	GFM-A07
W	875mm 34.4"	
D	300mm 11.8"	450mm 17.7"
H	1500mm 59"	
<b>Price</b>	<b>840.33</b>	<b>801.78</b>
DWG	GFU2804579-2	GFU2804318-4
Options	Frame Cushion (GFA-819) p.45 Ring Runner (GFA-A06) p.47 Name Plate Kit (GFK-J00) p.47 Aluminum Name Plate (GFA-A12) p.47 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p. 48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Pipe Stand A (GFN-E15) p.49 Base Stand (GFN-E08) p.49	



## Chuter with One Line and One Tier

Ready to ship in 5-10 business days

Individual Line Payload: 70kg/154.3lbs

Item #	GFM-C00		
W	Overall 533mm / 21"	Line 477mm / 18.75"	
D	1065mm 41.9"		
H	Overall 800mm 31.5"	Input 740mm 29.1"	Dispense 640mm 25.2"
<b>Price</b>	<b>188.78</b>		
DWG	GFU2804891-2		
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p.48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Small Diameter Adjuster (GFN-000/002) p.52 Adjuster B (SFK-933) p.52		

## Chuter with One Line and Two Tiers

Ready to ship in 5-10 business days

Individual Line Payload: 70kg/154.3lbs

Item #	GFM-C01	
W	Overall 1300mm / 51.2"	Line 477mm / 18.75"
D	533mm / 21"	
H	Overall 1100mm / 43.3"	
	Upper Input 1040mm / 40.9"	Upper Dispense 940mm / 39"
	Lower Input 640mm / 25.2"	Lower Dispense 540mm / 21.25"
<b>Price</b>	<b>349.66</b>	
DWG	GFU2804892-2	
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p.48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Small Diameter Adjuster (GFN-000/002) p.52 Adjuster B (SFK-933) p.52	

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## Chuter with Two Lines and Three Tiers

Ready to ship in 5-10 business days



Individual Line Payload: 70kg/154.3lbs

Item #	GFM-C02	
W	Overall 1620mm / 63.8"	Line 335mm / 13.1"
D	753mm / 29.6"	
H	Overall	1500mm / 59"
	Upper Input 1440mm / 56.7"	Upper Dispense 1340mm / 52.7"
	Middle Input 940mm / 37"	Middle Dispense 840mm / 33"
	Lower Input 440mm / 17.3"	Lower Dispense 340mm / 13.4"
Price	935.14	
DWG	GFU2804893-1	
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p.48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Small Diameter Adjuster (GFN-000/002) p.52 Adjuster B (SFK-933) p.52	

## Chuter with Three Lines and Three Tiers

Ready to ship in 5-10 business days



Individual Line Payload: 70kg/154.3lbs

Item #	GFM-C03	
W	Overall 1620mm / 63.8"	Line 335mm / 13.1"
D	1116mm / 43.9"	
H	Overall	1500mm / 59"
	Upper Input 1440mm / 56.7"	Upper Dispense 1340mm / 52.7"
	Middle Input 940mm / 37"	Middle Dispense 840mm / 33"
	Lower Input 440mm / 17.3"	Lower Dispense 340mm / 13.4"
Price	1328.56	
DWG	GFU2804894-1	
Options	Frame Cushion (GFA-819) p.45 Frame Bumper (GFA-804) p.48 Cable Duct (GFA-801) p.48 Cable Lock (GFE-010) p.48 Leak Plate (GFK-E00) p.49 Small Diameter Adjuster (GFN-000/002) p.52 Adjuster B (SFK-933) p.52	

## Drawer Kit

Ready to ship in 15 business days



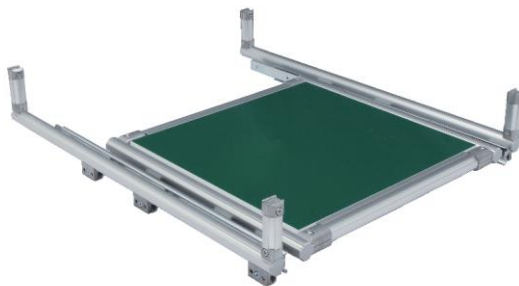
Example Application

Maximum Side Extension: 430mm/16.9"  
Includes 3mm/0.11" thick aluminum composite panel  
Price includes only one Drawer Kit

Item #	GFM-X01
W	617mm 24.3"
D	750mm 29.5"
H	110mm 4.3"
<b>Price</b>	<b>216.33</b>
DWG	GFU2804342-6
Notes	Drawer Table Size W 500mm/19.7" D 500mm/19.7" Compatible with units from W 900mm/35.4" ~ 1200mm/47.25"

## Slide Table Kit

Ready to ship in 15 business days



Maximum Side Extension: 430mm/16.9"  
Includes 16.5mm/0.6" thick MDF panel with non-static green top and finished sides

Item #	GFM-X02
W	612mm 24.3"
D	750mm 29.5"
H	110mm 4.3"
<b>Price</b>	<b>176.61</b>
DWG	GFU2804343-5
Notes	Drawer Table Size W 500mm/19.7" D 500mm/19.7" Compatible with units from W 900mm/35.4" ~ 1200mm/47.25"

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## Board Level Kit

Ready to ship in 15 business days



<b>Item #</b>	<b>GFK-900</b>
<b>Price</b>	<b>215.45</b>
<b>Notes</b>	Height adjustment: 200mm/7.9" Compatible with Work Tables and Work Stations.



Example Application

## Board Lifter Kit

GFK-903 is ready to ship in 5-10 business days  
GFK-901 and GFK-902 are ready to ship in 15 business days



Payload while stationary: 100kg/220lbs  
Payload during height adjustment: 20kg/44lbs

<b>Item #</b>	<b>GFK-901</b>	<b>GFK-902</b>	<b>GFK-903</b>
<b>W</b>	400mm 15.75"	600mm 23.6"	800mm 31.5"
<b>Price</b>	<b>214.09</b>	<b>233.19</b>	<b>232.73</b>
<b>Notes</b>	Height adjustment: 200mm/7.9" Compatible with Work Tables and Work Stations.		



Example Application  
GFM-031 (p.24)

## Impact Holder Horizontal Kit

Ready to ship in 3 business days



<b>Item #</b>	<b>GFK-803</b>
<b>Price</b>	<b>29.25</b>
Notes	Compatible with Green Frame N (GFF-000). Holds tools such as impact drivers and other items.

## Impact Holder Vertical Kit

Ready to ship in 3 business days



<b>Item #</b>	<b>GFK-802</b>
<b>Price</b>	<b>35.61</b>
Notes	Compatible with Green Frame N (GFF-000). Holds tools such as impact drivers and other items.

## Frame Cushion

Ready to ship in 3 business days



<b>Item #</b>	<b>GFA-819</b>
W	2000mm 78.75"
<b>Price</b>	<b>6.24</b>
Notes	Compatible with Green Frame N (GFF-000). Protects frames and operators from minor impacts.

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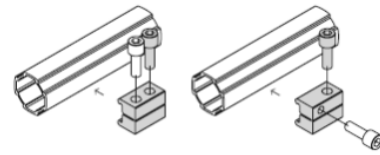
## Connector Piece Compact

Ready to ship in 3 business days



Price includes only one Connector Piece Compact

Item #	GFJ-B09 (Top bolt)	GFJ-B18 (Side bolt)
Price	2.36	2.38
Notes	Compatible with Green Frame N (GFF-000). For attaching parts and components using an M6 bolt.	



## Parts Holder

Ready to ship in 3 business days

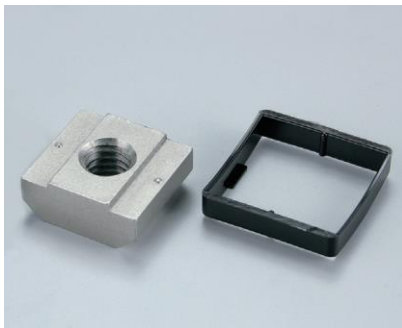


Item #	GFA-000
Price	2.40
Notes	Compatible with Green Frame N (GFF-000). Uses ST Nut S (SFK-T07S) to install components and equipment. ST Nut S not included.



## ST Nut S

Ready to ship in 3 business days



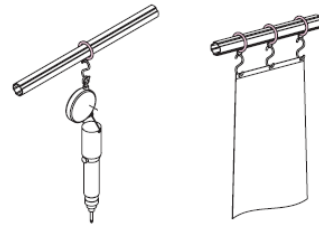
Item #	SFK-T07S
Price	0.55
Notes	Includes anti-skid cap. Used with the Parts Holder (GFA-000).

## Ring Runner

Ready to ship in 3 business days



<b>Item #</b>	<b>GFA-A06</b>
<b>Price</b>	<b>2.34</b>
Notes	For use with hanging tools, curtains, etc. Compatible with Green Frame N (GFF-000).



## Name Plate Kit

Ready to ship in 5-10 business days



<b>Item #</b>	<b>GFK-J00</b>	
H	Base 28mm 1.1"	Cover 30.6mm 1.2"
W	300mm 11.8"	
<b>Price</b>	<b>4.61</b>	
Notes	Includes base and cover. Compatible with Green Frame N (GFF-000).	

## Aluminum Name Plate

Ready to ship in 5-10 business days



<b>Item #</b>	<b>GFA-A12</b>	
W	205mm 8"	
H	60mm 2.3"	
<b>Price</b>	<b>5.89</b>	
Notes	Compatible with Green Frame N (GFF-000).	

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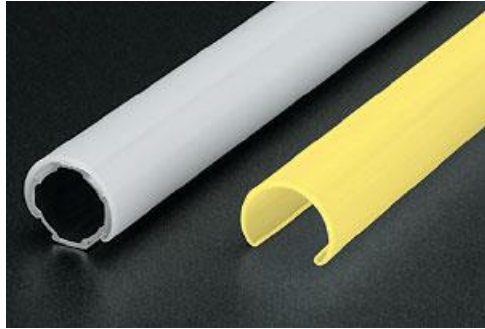
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## Frame Bumper

Ready to ship in 3 business days



Item #	GFA-804G	GFA-804Y
Color	White	Yellow
L	2000mm 78.75"	
Price	5.76	3.79
Notes	Low density polyethylene. Compatible with Green Frame N (GFF-000). Used to protect frames and identify lines.	

## Cable Duct

Ready to ship in 3 business days



Item #	GFA-801
L	2000mm 78.75"
Price	4.50
Notes	Polyethylene. Compatible with Green Frame N (GFF-000).

## Cable Lock

Ready to ship in 3 business days



Item #	GFE-010
Price	0.28
Notes	Polyethylene. Compatible with Green Frame N (GFF-000).



## Leak Plate

Ready to ship in 3 business days



<b>Item #</b>	<b>GFK-E00</b>
Qty	50 pieces per package
<b>Price</b>	<b>20.45</b>
Notes	For anti-static and ESD. Compatible with Green Frame N (GFF-000).

## Pipe Stand A

Ready to ship in 3 business days



<b>Item #</b>	<b>GFN-E15</b>
<b>Price</b>	<b>8.03</b>
Notes	Compatible with Green Frame N (GFF-000).

## Base Stand

Ready to ship in 3 business days



<b>Item #</b>	<b>GFN-E08</b>
<b>Price</b>	<b>9.98</b>
Notes	Compatible with Green Frame N (GFF-000). As seen with the Area Guard and Support (p.37).

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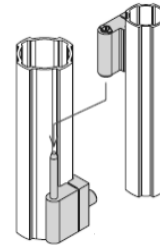
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## GF Slip-joint Hinge Left and Right

Ready to ship in 3 business days



Item #	GFP-012 (Left)	GFP-013 (Right)
Price	8.45	8.45
Notes	Compatible with Green Frame N (GFF-000). For use with an Area Guard Gate (p.38).	



## Door Lock for Area Guard

Ready to ship in 3 business days



Item #	GFQ-016
Price	6.28
Notes	Compatible with Green Frame N (GFF-000). Latch-style closure for an Area Guard Gate (p.38).

## Catch for Area Guard

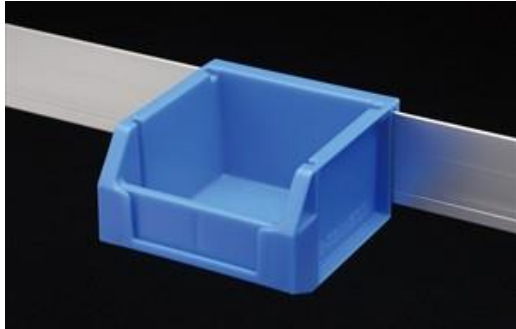
Ready to ship in 3 business days



Item #	GFQ-013
Price	6.28
Notes	Compatible with Green Frame N (GFF-000). Magnetic catch for an Area Guard Gate (p.38).

## Parts Container S

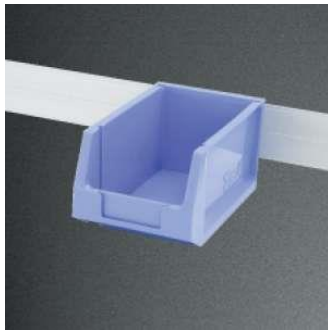
Ready to ship in 3 business days



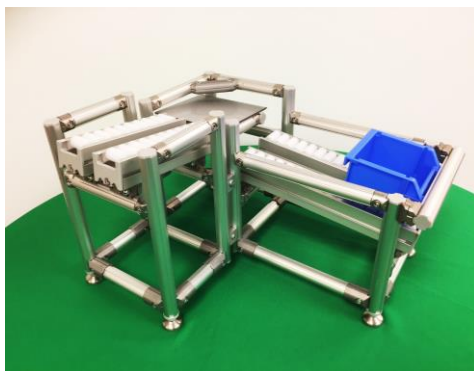
Item #	GFA-A81
W	89mm 3.5"
D	92.3mm 3.6"
H	55mm 2.1"
<b>Price</b>	<b>4.64</b>
Notes	Compatible with Green Frame F35 (GFF-014) & Green Frame F50 (GFF-005), and Green Frame S F22 (GFF-403) & Green Frame S F35 (GFF-402).

## Parts Container

Ready to ship in 3 business days



Item #	GFA-A07
W	100mm 4"
D	170mm 6.7"
H	85mm 3.3"
<b>Price</b>	<b>7.08</b>
Notes	Compatible with Green Frame F35 (GFF-014) & Green Frame F50 (GFF-005).



Example Application  
USM-006 (p.81)



Example Application  
GFM-J01 (p.34)

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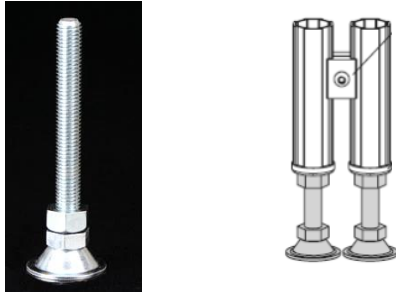
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## Small Diameter Adjuster

Ready to ship in 3 business days

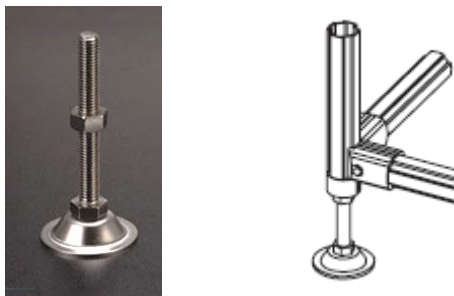


Price includes only one Small Diameter Adjuster

Item #	GFN-000	GFN-002
W	38mm 1.5"	
H	100mm 3.9"	60mm 2.3"
<b>Price</b>	<b>3.60</b>	<b>3.24</b>
Notes	Load capacity 2000N. Ideal for structures standing directly side-by-side. Compatible with Green Frame N (GFF-000). Used with Foot Connector (GFN-E05/E21).	

## Adjuster B

Ready to ship in 3 business days

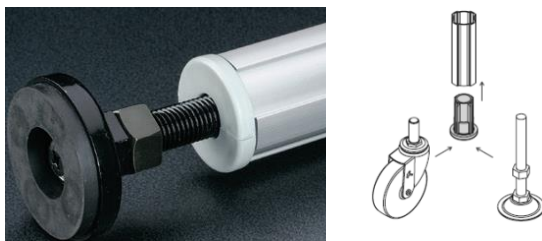


Price includes only one Adjuster B

Item #	SFK-933
W	55mm 2.1"
H	100mm 3.9"
<b>Price</b>	<b>2.66</b>
Notes	Load capacity 5000N. Compatible with Green Frame N (GFF-000). Used with Foot Connector (GFN-E05/E21).

## Foot Connector

Ready to ship in 3 business days



Price includes only one Foot Connector

Item #	GFN-E05 (Non-conductive)	GFN-E21 (Conductive)
<b>Price</b>	<b>2.16</b>	<b>3.05</b>
Notes	Compatible with Green Frame N (GFF-000). Used with Small Diameter Adjuster (GFN-000/GFN-002) and Adjuster B (SFK-933).	

# Custom Structures

# Custom Structures

Most of the structures in this catalog are ready to be modified to meet your needs, whether it's accommodating a different tote size or a different floor area. However, if your needs are especially distinct, our solutions team can work with you to design a completely new structure. The ordering process is outlined below.

## 1. Contact SUS

Contact SUS via email, phone, or directly through our website. Let us know about you and the situation you'd like help with. The more details you give us the more efficiently we can move towards a solution.

## 2. SUS Visits Your Site

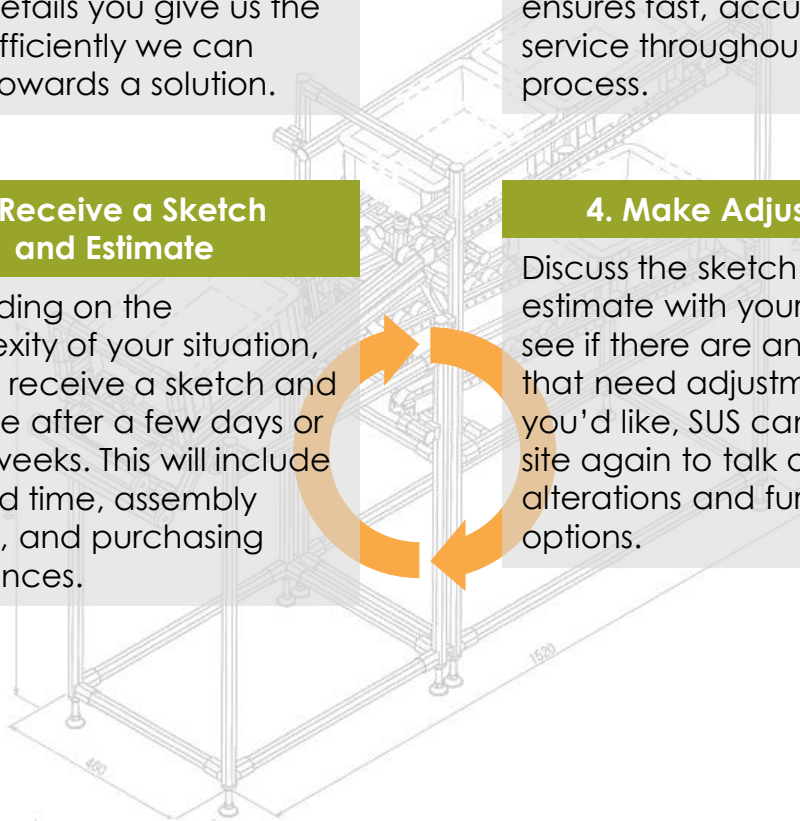
After seeing the area you want to improve, SUS will sit down with you to discuss possible solutions and build your company profile. This ensures fast, accurate service throughout the process.

## 3. Receive a Sketch and Estimate

Depending on the complexity of your situation, you will receive a sketch and estimate after a few days or a few weeks. This will include the lead time, assembly options, and purchasing preferences.

## 4. Make Adjustments

Discuss the sketch and estimate with your team to see if there are any features that need adjustment. If you'd like, SUS can visit your site again to talk about alterations and further options.



# Solution Service

SUS provides a full design service. It all starts with an on-site consultation. Our team visits your location and works with you to create concept sketches for expert drafting. From these initial drawings all the way through adjustments and assembly, SUS maintains full communication to provide the structure you need to achieve your goals.

## 5. Send in a Purchase Order

Once we receive your purchase order, SUS processes your request and begins working on your structure.

## 6. Cutting and Assembly

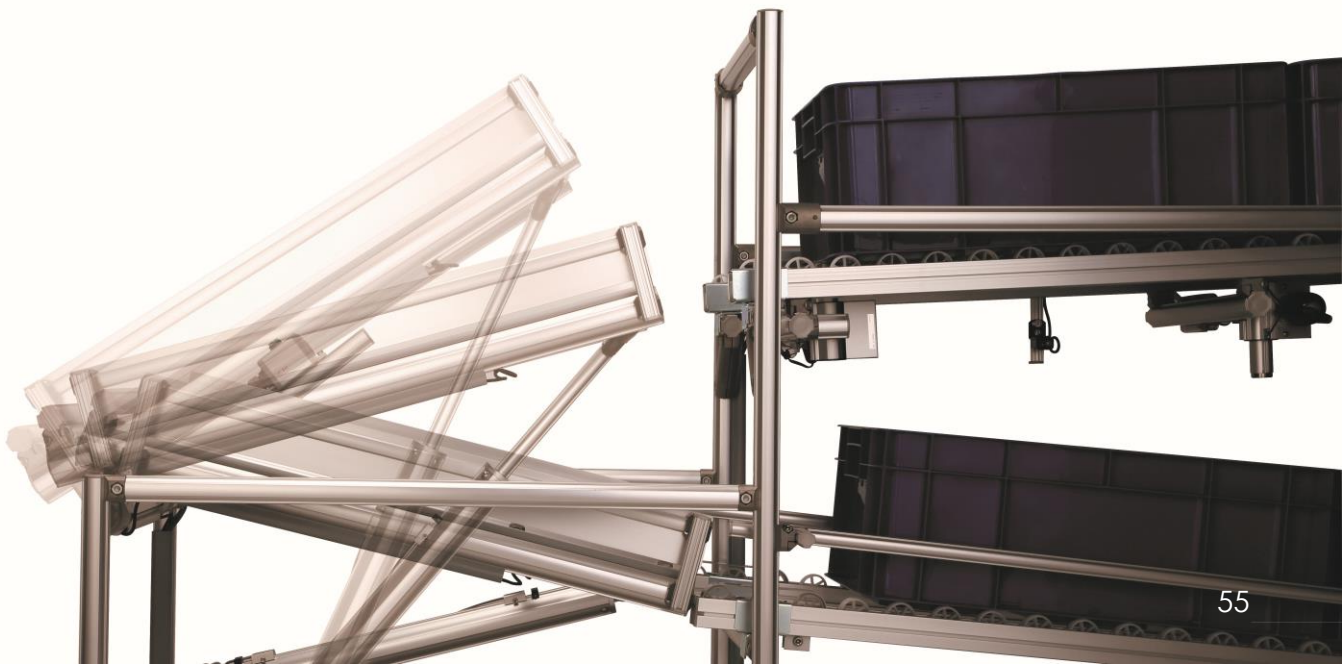
Frames and connectors are prepared to millimeter precision and assembled by expert technicians, or packed into a ready-to-assemble kit.

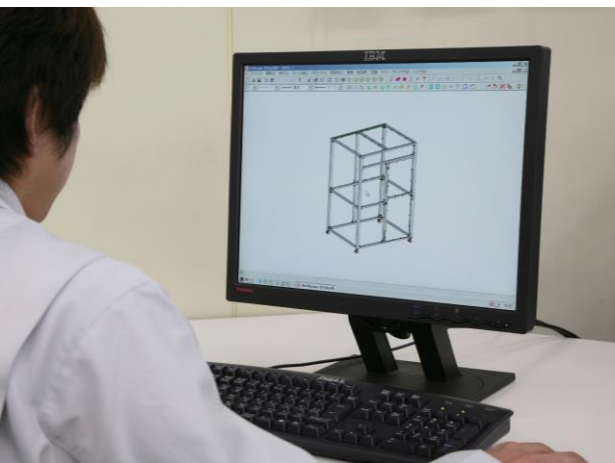
## 7. Shipping

The structure is carefully packaged and shipped to your location according to your instructions.

## 8. Check-up

SUS visits your site again to discuss any additional adjustments and continued improvements.





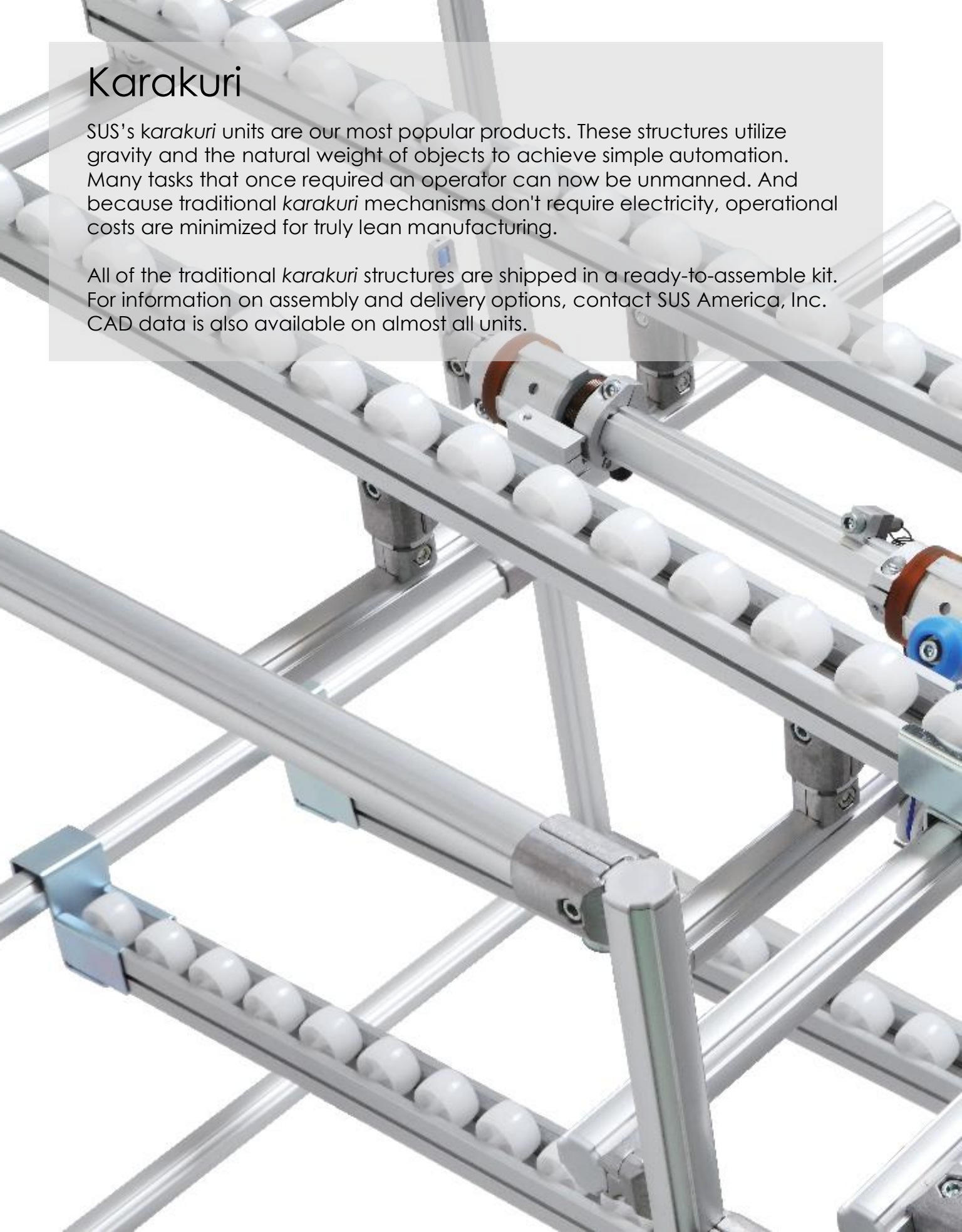


# Traditional Karakuri

# Karakuri

SUS's *karakuri* units are our most popular products. These structures utilize gravity and the natural weight of objects to achieve simple automation. Many tasks that once required an operator can now be unmanned. And because traditional *karakuri* mechanisms don't require electricity, operational costs are minimized for truly lean manufacturing.

All of the traditional *karakuri* structures are shipped in a ready-to-assemble kit. For information on assembly and delivery options, contact SUS America, Inc. CAD data is also available on almost all units.



# Benefits

*Karakuri* technology offers a wide range of incentives such as reduced manpower and shortened cycle times. Other benefits include improved product quality and a more efficient use of space. But this is only the beginning. *Karakuri* also offers quick assembly and simple maintenance so you can keep things moving by keeping interruptions to a minimum.



Manpower



Time



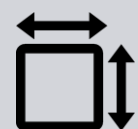
Cost



Safety



Quality


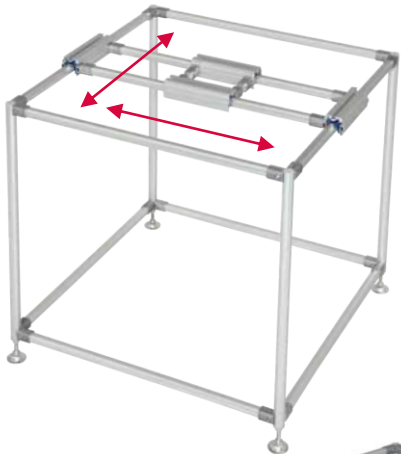


Space


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## XY Slide Table

Example Application


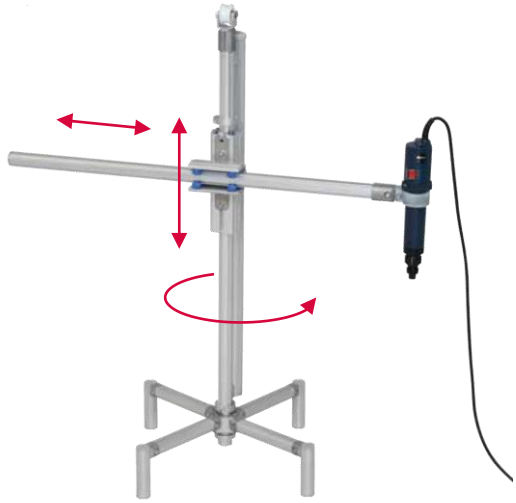


Ready to ship in 15-20 business days  
Price includes only one XY Slide Table

DWG	GFU28027136-1
W	840mm 33"
D	840mm 33"
H	820mm 32.25"
<b>Price</b>	<b>300.00</b>
Function	Using linear sliders, operators can position the table to any position along the X and Y axes. This structure improves operator ergonomics.



## Tool Balancer

Ready to ship in 15-20 business days  
Price includes only one Tool Balancer

DWG	GFU28027138-2
W	787mm 31"
D	480mm 18.9"
H	955mm 37.6"
<b>Price</b>	<b>300.00</b>
Function	Smoothly move the tool to the desired position using the linear slider and counterweight. This structure improves operator ergonomics.



# Traditional Karakuri

## Discharge Trolley



Ready to ship in 15-20 business days

DWG	<b>GFU28027158-2</b>
W	416mm 16.4"
D	745mm 29.3"
H	904mm 35.6"
Price	<b>550.00</b>
Function	A stopper and anti-back keep the tote securely in place. When the operator presses the pedal, the coroon rollers tilt up and the stopper releases, dispensing the tote.



## Level Lifter (Spring)



Ready to ship in 15-20 business days  
Price includes only one Level Lifter (Spring)

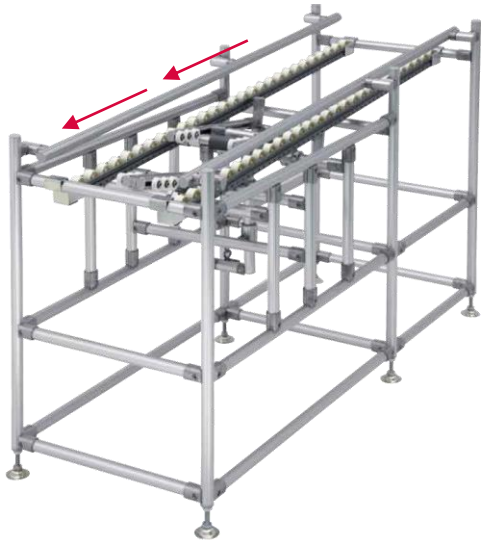
DWG	<b>GFU28017555-2</b>
W	470mm 18.5"
D	596mm 23.5"
H	1298mm 51.1"
Price	<b>600.00</b>
Function	Placing a tote on the table lowers its height, keeping the tote at the same relative level. This can be done with multiple totes so that the top tote is always at the same height. This structure improves operator ergonomics.

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# Traditional Karakuri

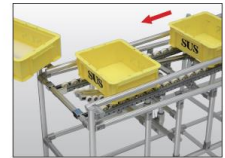
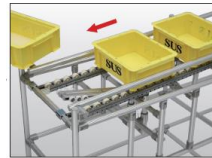
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## Stopper (See-saw)



Ready to ship in 15-20 business days

DWG	GFU28017558-1
W	550mm 21.6"
D	1500mm 59"
H	910mm 35.8"
<b>Price</b>	<b>700.00</b>
Function	When the front tote is removed, the see-saw mechanism allows the next tote to move forward, but keeps all totes behind it waiting on the chuter.



## Unstacker



Ready to ship in 15-20 business days  
Price includes only one Unstacker

DWG	GFU28017560-1
W	530mm 20.8"
D	540mm 21.25"
H	800mm 31.5"
<b>Price</b>	<b>850.00</b>
Function	Pulling the lever raises the table and releases the bottom tote from the stack. The tote then dispenses onto the lower line.



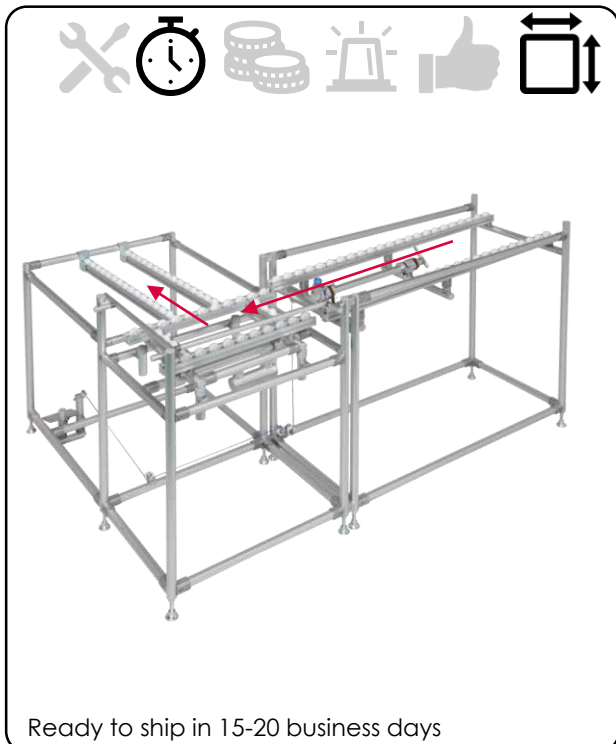
# Traditional Karakuri

## Flip-flop Chuter



DWG	GFU28027154-4
W	480mm 18.9"
D	1800mm 70.8"
H	950mm 37.4"
Price	900.00
Function	Pressing down on the handle releases a tote from the upper line onto the table. Pressing the handle again tilts the table downward, dispensing the tote onto the lower line. Intermittent stoppers keep waiting totes on the upper line in place.

## Horizontal Turn



DWG	GFU28027156-1
W	1780mm 70"
D	1200mm 47.2"
H	910mm 35.8"
Price	1000.00
Function	Pressing on the pedal dispenses the tote. When it reaches the turn, the table tilts, allowing the tote to continue around the corner. The table returns to its original position via counterweight. The orientation of the tote is changed during the turn. Intermittent stoppers keep waiting totes in place.

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# Traditional Karakuri

## Flip-up Trolley



Ready to ship in 15-20 business days  
Price includes only one Flip-up Trolley

DWG	GFU28017556-3
W	800mm 31.5"
D	640mm 25.2"
H	822.5mm 32.4"
<b>Price</b>	<b>1000.00</b>
Function	Multiple layers of items can be placed on the flip-up trolley. Once the top layer is empty, the operator lifts it up and locks it into place, giving access to the next layer below. There are a total of seven layers.

## Reel Up



Ready to ship in 15-20 business days  
Price includes only one Reel Up

DWG	GFU28027139-1
W	430mm 17"
D	440mm 17.3"
H	1150mm 45.25"
<b>Price</b>	<b>1000.00</b>
Function	Use the reel to adjust the table to the desired height. This structure improves operator ergonomics.



# Traditional Karakuri

## XYZ Slide Table


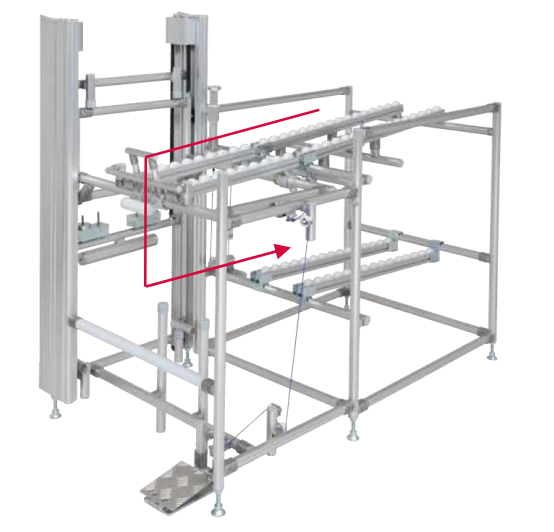



Ready to ship in 15-20 business days  
Price includes only one XYZ Slide Table

DWG	<b>GFU28027137-2</b>
W	2100mm 82.7"
D	1100mm 43.3"
H	2000mm 78.75"
Price	<b>1050.00</b>
Function	Using linear sliders, operators can position the table to any position along the X and Y and Z axes. This structure improves operator ergonomics.



## Elevator

Ready to ship in 15-20 business days

DWG	<b>GFU28027155-2</b>
W	819mm 32.2"
D	1385mm 54.5"
H	1272mm 50"
Price	<b>1050.00</b>
Function	The foot pedal releases the table lock, lowering the tote and dispensing it onto the lower line. Once the tote dispenses, a counterweight returns the table to the upper position and automatically releases the next tote onto the table.



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# Traditional Karakuri

## AGV Chuter and Trolley

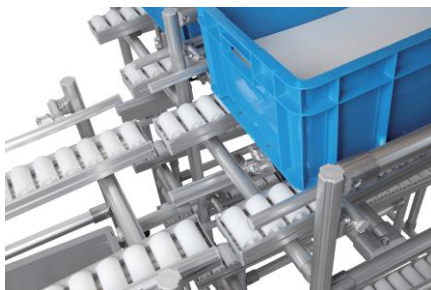


Ready to ship in 15-20 business days  
Price includes only one AGV Chuter and one AGV Trolley

DWG	GFU 28027148-2 (AGV Chuter)	GFU 28027149-1 (AGV Trolley)
W	970mm 38.2"	499mm 19.6"
D	800mm 31.5"	970mm 38.2"
H	1240mm 48.8"	1240mm 48.8"
<b>Price</b>	<b>1300.00</b>	<b>1300.00</b>
Function	Angled guides bring the AGV into position for exchange. When the trolley docks with the chuter, the stoppers are released. The totes on the upper line of the AGV trolley dispense onto the chuter. Simultaneously, the totes on the lower line of the chuter dispense onto the AGV trolley.	



Example Application



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# Automated Karakuri

# Electric Automation


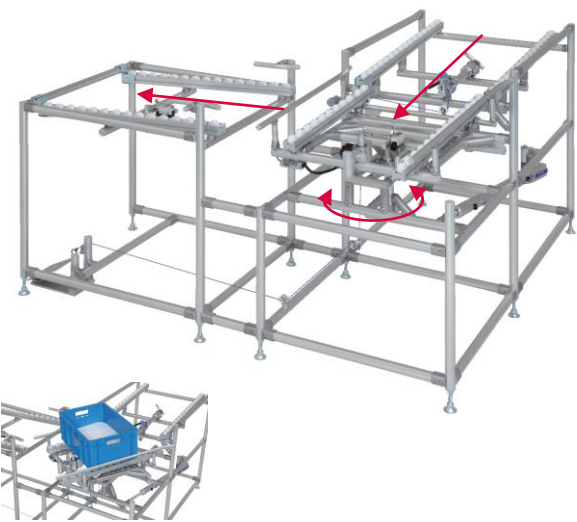
Thanks to SUS's SiO Controller, *karakuri* mechanisms are being used in new ways. In situations where the power of gravity isn't enough or a higher level of control is needed, SiO can combine with traditional *karakuri* concepts to meet new demands.

Because these structures contain numerous special parts, their lead times are variable. Please contact SUS America, Inc. for more information on delivery and assembly options. CAD data is also available on almost all units.



# Automated Karakuri


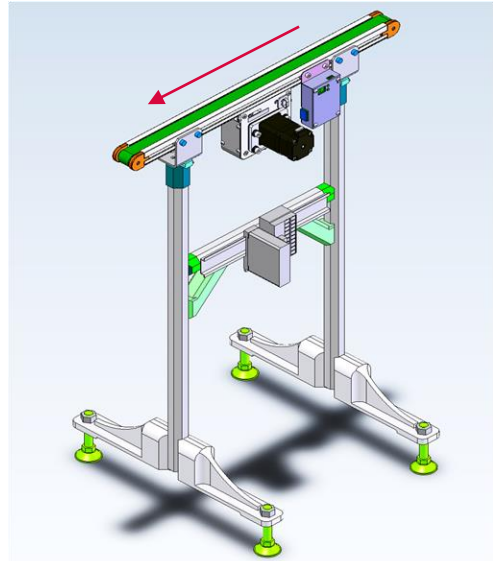
## Automated 90° Turn

Price includes only one Automated 90° Turn

<b>DWG</b>	<b>GFU28027140-4</b>	
W	1430mm 56.3"	
D	1550mm 61"	
H	900mm 35.4"	
<b>Price</b>	<b>1250.00</b>	
Function	Pressing on the pedal dispenses the tote. When it reaches the turn, the table rotates with the help of a power unit and further dispenses it down the remainder of the chuter. The table then returns to its original position. The orientation of the tote is maintained through the turn. Intermittent stoppers keep waiting totes in place.	

## Automated Conveyor Belt

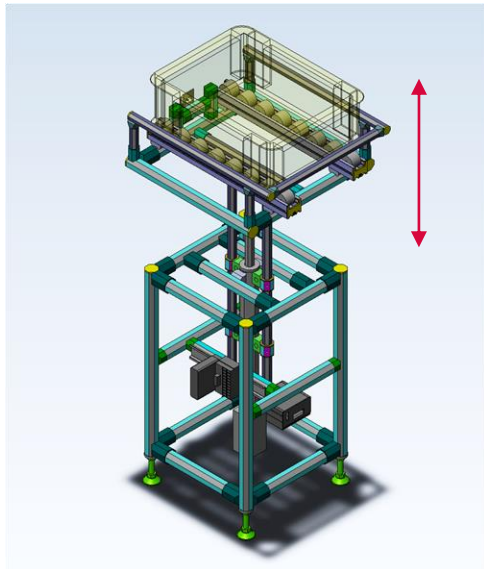
<b>DWG</b>	<b>GFU28034204 (ASW001738-00)</b>	
W	Base 344mm 13.5"	Belt 525mm 20.7"
D	388mm 15.25"	
H	702mm 27.6"	
<b>Price</b>	<b>1840.00</b>	
Function	Pressing the button activates the conveyor for a predetermined amount of time.	

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# Automated Karakuri

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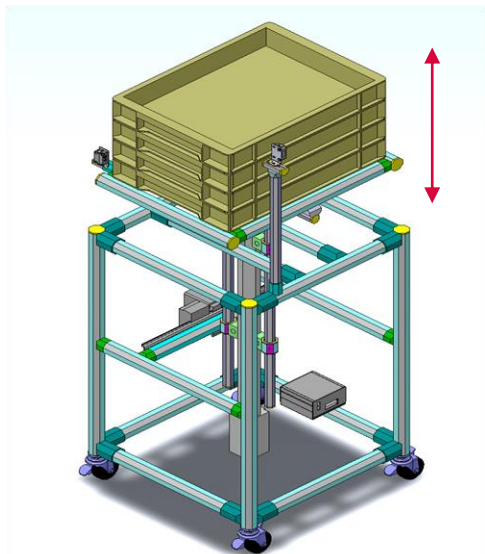
## Automated Timed Lifter



Price includes only one Automated Timed Lifter

DWG	GFU28034214 (ASW001730-00)	
W	300mm 11.8"	
D	300mm 11.8"	
H	862mm 33.9"	
<b>Price</b>	<b>1880.00</b>	
Function	The lifter is connected to a switch box with three buttons. Each button lifts the table for a different, predetermined amount of time, for example, 5, 12, or 20 seconds. Once the selected time has elapsed, the table returns to the original position. This structure improves operator ergonomics.	

## Automated Level Lifter

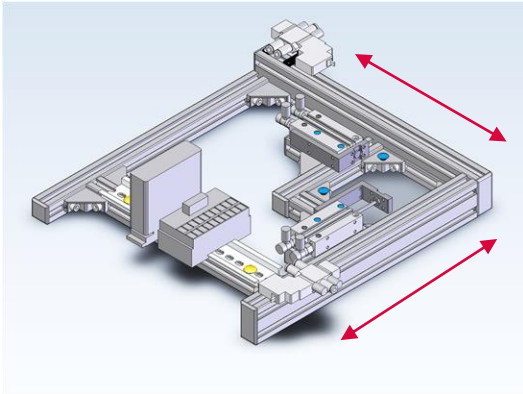


Price includes only one Automated Level Lifter

DWG	GFU28034220 (ASW001734-00)	
W	400mm 15.75"	
D	400mm 15.75"	
H	Lowest Point 635mm 25"	Highest Point 990mm 39"
<b>Price</b>	<b>1930.00</b>	
Function	The lifter keeps totes at the height of the sensor. When the top tote is removed, the sensor recognizes the vacancy and raises the remaining totes to the height of the sensor. When all of the totes are removed, the table lowers to the original position. This structure improves operator ergonomics. Compare to the Level Lifter (Spring) on p.61.	

# Automated Karakuri

## Automated Positioner with Air Cylinder



DWG	GFU28034211 (ASW001745-00)		
W	324mm 12.75"		
D	341mm 13.4"		
H	Base 55mm 2.1"	Overall 94mm 3.7"	
Price	2140.00		
Function	The positioner is connected to a switch box with two buttons. Pressing the SET button activates the air cylinders which push the work piece to a predetermined position. Pressing the RELEASE button returns the cylinders to their original position.		

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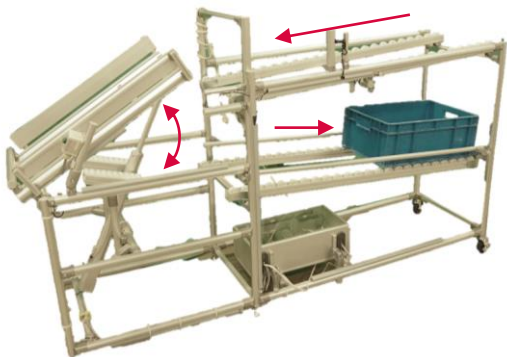
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## Automated Flip-flop Chuter



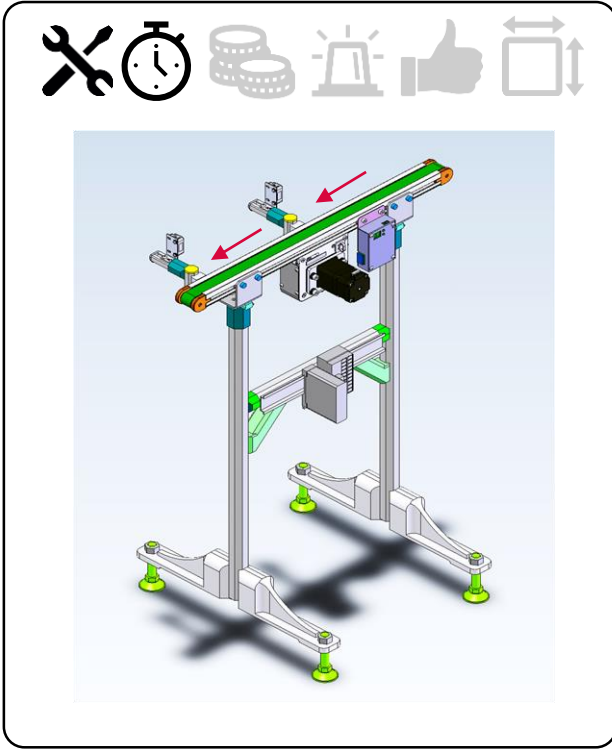
Price includes only one Automated Flip-flop Chuter

DWG	GFU28035505-2		
W	480mm 18.9"		
D	1860.5mm 73.25"		
H	Overall 1117.6mm 44"	Input 965.2mm 38"	Dispense 489mm 19.25"
Price	2200.00		
Function	The flip-flop chuter is connected to a switch box with one button. Pressing the button dispenses the tote on the table onto the lower line. After a predetermined amount of time, the table will tilt up, triggering a sensor on the upper line and dispensing the next tote onto the table. Any totes waiting on the upper line will move forward one position via an intermittent stopper. Compare to the Flip-flop Chuter on p.63.		

# Automated Karakuri

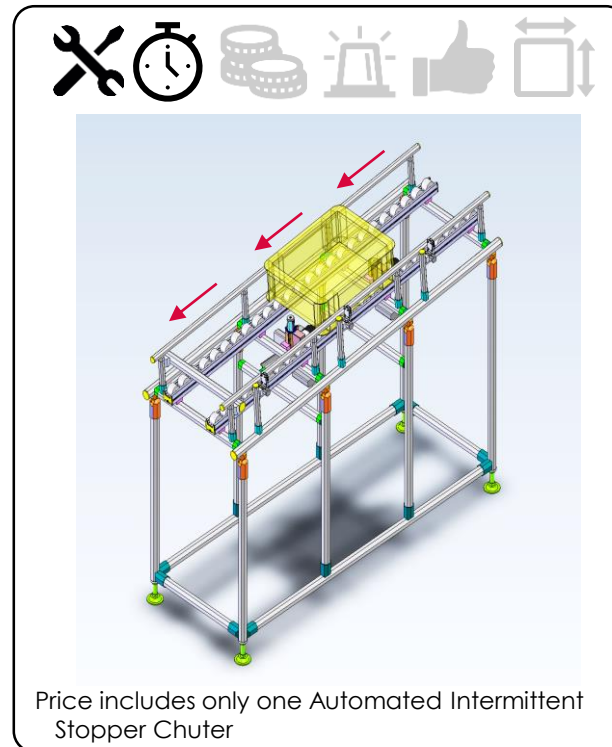
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## Automated Conveyor Belt with Sensor Stopper



DWG	GFU28034208 (ASW001739-00)	
W	Base 344mm 13.5"	Belt 525mm 20.7"
D	388mm 15.25"	
H	700mm 27.5"	
<b>Price</b>	<b>2274.00</b>	
Function	The conveyor is connected to a switch box with a button. Pushing the button turns on the conveyor after 2 seconds. If the work piece reaches the center sensor or the end sensor, the conveyor stops.	

## Automated Intermittent Stopper Chuter


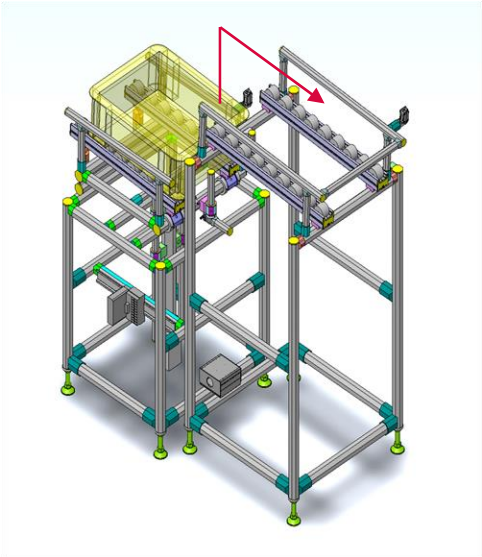


DWG	GFU28034219 (ASW001736-00)	
W	440mm 17.3"	
D	1200mm 47.25"	
H	Input 895mm 35.2"	Dispense 795mm 31.3"
<b>Price</b>	<b>2344.00</b>	
Function	This chuter utilizes three sensors. When the front sensor detects a vacancy, the middle and rear sensors confirm that a tote is present before lowering the stoppers in turn and allowing the totes to move forward one position on the chuter.	



# Automated Karakuri

## Automated Interlock Lifter


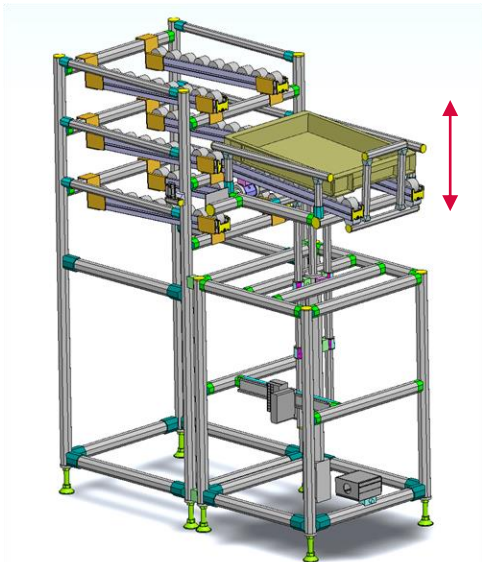



Price includes only one Automated Interlock Lifter

DWG	GFU28034215 (ASW001735-00)	
W	428mm 16.8"	
D	828mm 32.6"	
H	Input Line 688mm 27"	Dispense Line 844mm 33.2"
Price	2472.00	
Function	The lower sensor detects a tote. The upper sensor checks if a tote is present. The power unit will not move if a tote is present on the upper level.	

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## Automated Lifter (Middle → Upper → Lower Lines)

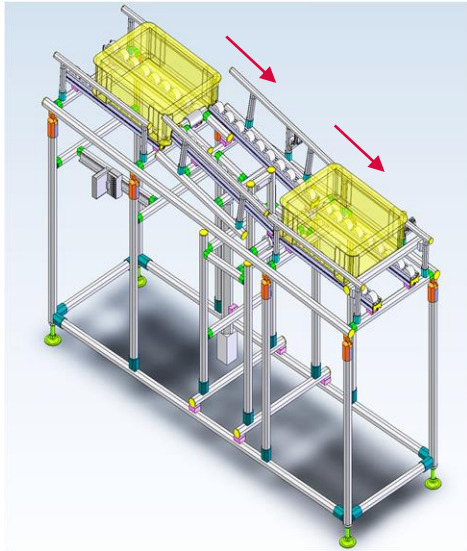
Price includes only one Automated Lifter (M>U>L)

DWG	GFU28034217 (ASW001732-00)		
W	428mm 16.8"		
D	875mm 34.4"		
H	Lower Line 747mm 29.4"	Mid. Line 897mm 35.3"	Upper Line 1047mm 41.2"
Price	2646.00		
Function	The lifter is connected to a switch box with two buttons. Pressing the LIFT button raises the table to the middle line. Pressing the LIFT button a second time raises the table to the upper line. Pressing the LIFT button a third time lowers the table to the lower line. The RETURN button can be pressed at any time to return the table to the starting position on the lowest level.		

# Automated Karakuri

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- S/O Controller

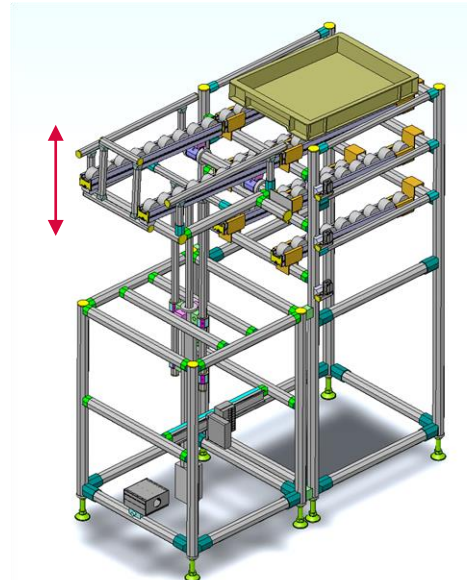
## Automated Intermittent Chuter



Price includes only one Automated Intermittent Chuter

DWG	GFU28034219 (ASW001736-00)		
W	467mm 18.4"		
D	1477mm 58"		
H	Input 894.5mm 35.2"	Dispense 802mm 31.6"	
<b>Price</b>	<b>2732.00</b>		
Function	When the middle sensor detects a tote, the front sensor confirms that there is not a tote. If there is no tote, the power unit tilts the center table and dispenses the tote forward. After a predetermined amount of time, the power unit lowers to the original position.		

## Automated Lifter (Selectable Height)


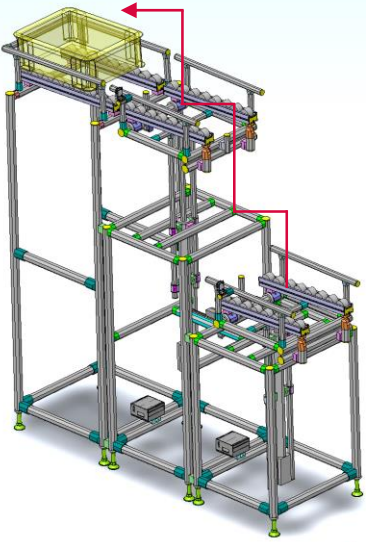


Price includes only one Automated Lifter (SH)

DWG	GFU28034218 (ASW001733-00)		
W	428mm 16.8"		
D	875mm 34.4"		
H	Lower Line 747mm 29.4"	Mid. Line 897mm 35.3"	Upper Line 1047mm 41.2"
<b>Price</b>	<b>3068.00</b>		
Function	The lifter is connected to a switch box with three buttons, UPPER, MIDDLE, and LOWER. The power unit raises the table to the level of the selected button.		

# Automated Karakuri

## Automated Staircase Lifter


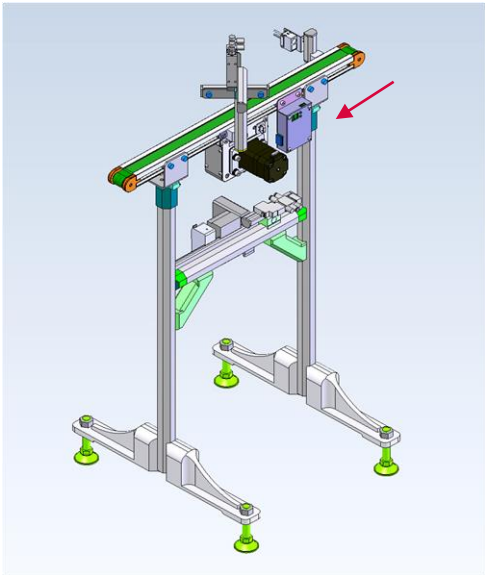



Price includes only one Automated Staircase Lifter

DWG	GFU28034216 (ASW001731-00)	
W	428mm 16.8"	
D	1228mm 48.3"	
H	Input 787mm 31"	Dispense 1321mm 52"
Price	3714.00	
Function	When the sensor detects a tote on the lower level, the first power unit lifts the table and dispenses the tote on the middle level. When the sensor on the middle level detects the tote, the second power unit raises the table and dispenses the tote on the upper level. Once the tote is dispensed, each table returns to its original position.	

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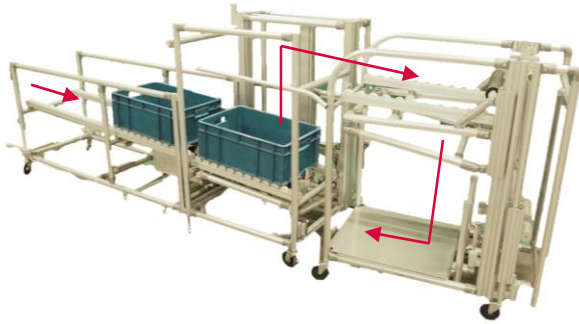
## Automated Quality Control Conveyor with Air Cylinder

DWG	GFU28034212 (ASW001743-00)	
W	Base 344mm 13.5"	Belt 525mm 20.7"
D	388mm 15.25"	
H	Belt 702mm 27.6"	Overall 870.5mm 34.25"
Price	3784.00	
Function	The sensor detects the errant items. After three seconds, the air cylinder moves the barrier forward. After five seconds the air cylinder returns the barrier to the original position.	

# Automated Karakuri

## Automated Lifter with Elevator Trolley



Price includes only one Automated Lifter and one Elevator Trolley  
Units depicted have been modified to suit

DWG	GFU 28035616-2 (Lifter)	GFU 28036500 (Elev. Trolley)
W	705mm 27.75"	481mm 19"
D	3364mm 132.4"	833mm 32.8"
H	Overall 998mm/39.3"	Overall 996mm/39.2"
	Input 501.3mm/19.7"	Input 879.1mm/34.6"
	Dispense 879.1mm/34.6"	Dispense 501.3mm/19.7"
<b>Price</b>	<b>3600.00</b>	<b>1400.00</b>
Function	<p>The lifter detects a tote and raises the table. Docking the trolley with the front of the lifter engages a sensor that dispenses the tote onto the trolley. The table then returns to the original position. An anti-back keeps the tote in place on the trolley during transport. Docking the trolley with the rear of the lifter lowers the table on the trolley and dispenses the tote back onto the lifter. The table on the trolley then returns to the original (elevated) position.</p>	



# Miniature Karakuri

# Miniature Karakuri

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## Karakuri Training

*Miniature karakuri* are the perfect training tool for lean engineers, maintenance technicians, and operators. Easy to build, these kits teach how and why *karakuri* works.

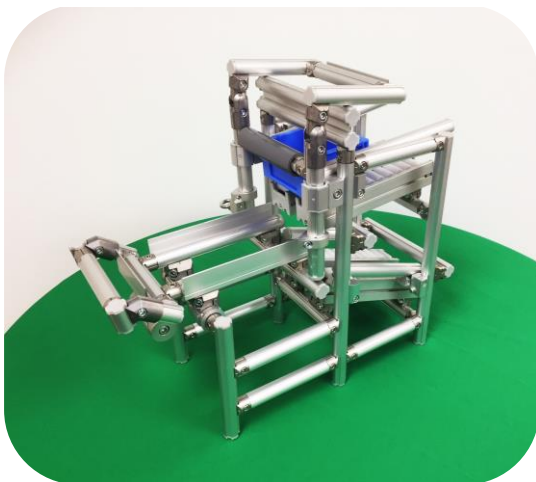
SUS offers two types of training units: key mechanisms and full miniatures.

Key mechanisms focus on a single *karakuri* element such as a stopper or turn. These are ideal for individuals with experience building whole structures who want to focus on training in *karakuri* basics.

Full miniatures are scaled-down replicas of traditional *karakuri* units, many of which appear in this catalog. Building and rebuilding these structures provides both *karakuri* and structural assembly training.

## Miniature Flip-Flop Chuter

Ready to ship in 3 business days



Item #	USM-001
W	173mm 6.8"
D	316mm 12.4"
H	306mm 12"
Price	350.00
DWG	GFU19000274-1
Notes	Includes detailed parts list and assembly instructions. Actual structure may vary as designs are continually improved Assembly video available at <a href="https://youtu.be/th1wVedRhm8">https://youtu.be/th1wVedRhm8</a> Compare to the Flip-flop Chuter (p.63).

# Miniature Karakuri

## Miniature 90° Turn Mechanism

Ready to ship in 3 business days



Item #	<b>USM-002</b>
W	204mm 8"
D	281mm 11"
H	330mm 13"
<b>Price</b>	<b>200.00</b>
DWG	GFU19000156
Notes	Includes detailed parts list and assembly instructions. Actual structure may vary as designs are continually improved. Assembly video available at <a href="https://youtu.be/gZ2ktlRe-gw">https://youtu.be/gZ2ktlRe-gw</a> Compare to the Automated 90° Turn (p.69).

## Miniature Horizontal Turn Mechanism

Ready to ship in 3 business days



Item #	<b>USM-003</b>
W	178mm 7"
D	278mm 11"
H	134.5mm 5.25"
<b>Price</b>	<b>200.00</b>
DWG	GFU19000158
Notes	Includes detailed parts list and assembly instructions. Actual structure may vary as designs are continually improved. Assembly video available at <a href="https://youtu.be/Qv1b7JkbAyg">https://youtu.be/Qv1b7JkbAyg</a> Compare to the Horizontal Turn (p.63).

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# Miniature Karakuri

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## Miniature Stopper (See-saw) Mechanism

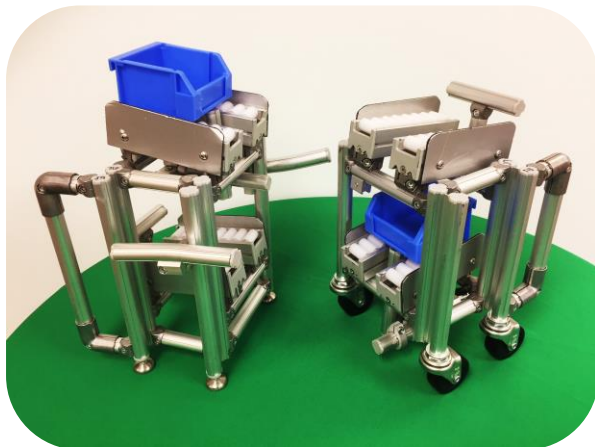
Ready to ship in 3 business days



Item #	USM-004	
W	253mm 10"	
D	306mm 12"	
H	291mm 11.5"	
Price	<b>200.00</b>	
DWG	GFU19000157	
Notes	Includes detailed parts list and assembly instructions. Actual structure may vary as designs are continually improved. Assembly video available at <a href="https://youtu.be/B60hGuL3wyQ">https://youtu.be/B60hGuL3wyQ</a> Compare to the Stopper (See-saw) (p.62).	

## Miniature AGV Tote Transfer

Ready to ship in 3 business days



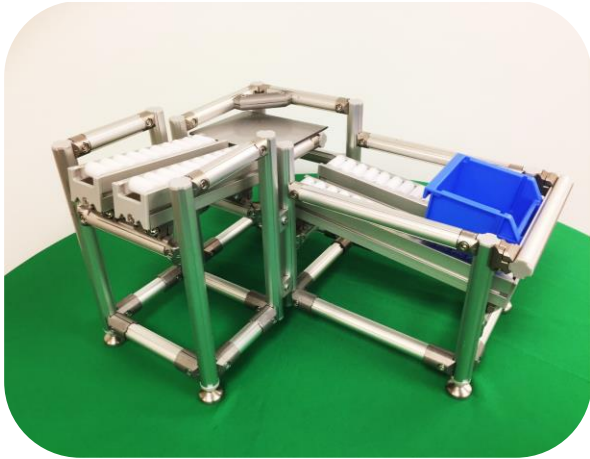
Item #	USM-005	
W	188mm 7.4"	188mm 7.4"
D	119mm 4.7"	119mm 4.7"
H	311.5mm 12.25"	311.5mm 12.25"
Price	<b>550.00</b>	
DWG	GFU19000171-1	
Notes	Includes detailed parts list and assembly instructions. Actual structure may vary as designs are continually improved. Assembly videos available at <a href="https://youtu.be/IsC6md8Eq9E">https://youtu.be/IsC6md8Eq9E</a> (Unit A) <a href="https://youtu.be/ZzOywHhcl2o">https://youtu.be/ZzOywHhcl2o</a> (Unit B) Compare to the AGV Chuter and Trolley (p.66).	



# Miniature Karakuri

## Miniature Horizontal Turn Chuter

Ready to ship in 3 business days



Item #	<b>USM-006</b>
W	323.85mm 12.75"
D	406.4mm 16"
H	241.3mm 9.5"
Price	<b>450.00</b>
DWG	GFU19000273-1
Notes	Includes detailed parts list and assembly instructions. Actual structure may vary as designs are continually improved. Assembly video available at <a href="https://youtu.be/Ek19tkE-b3k">https://youtu.be/Ek19tkE-b3k</a> Compare to the Horizontal Turn (p.63).

## Miniature Intermittent Stopper Chuter

Ready to ship in 3 business days



Item #	<b>USM-007</b>
W	165.1mm 6.5"
D	425.45mm 16.75"
H	171.45mm 6.75"
Price	<b>400.00</b>
DWG	GFU19000276-1
Notes	Includes detailed parts list and assembly instructions. Actual structure may vary as designs are continually improved. Assembly video available at <a href="https://youtu.be/XnrpM36MtnU">https://youtu.be/XnrpM36MtnU</a> Compare to the Stopper (See-saw) (p.62).

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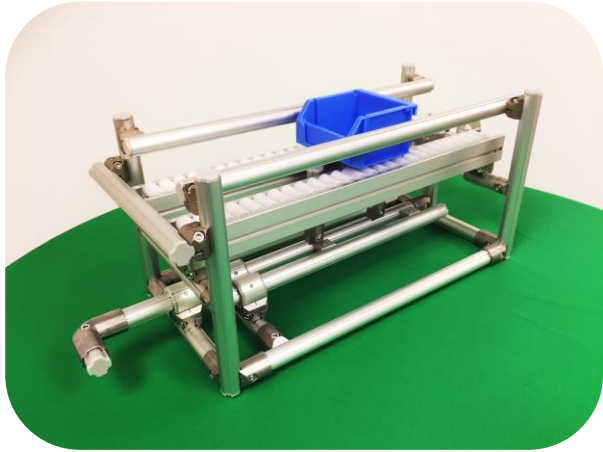
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## Miniature Incremental Conveyor

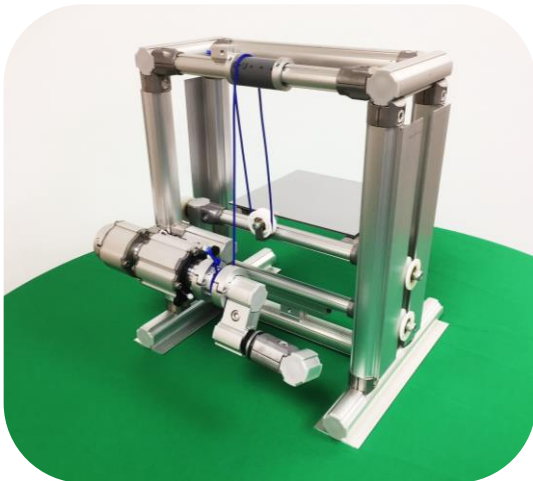
Ready to ship in 3 business days



Item #	USM-008
W	203.2mm 8"
D	520.7mm 20.5"
H	203.2mm 8"
<b>Price</b>	<b>300.00</b>
DWG	GFU19000278-1
Notes	Includes detailed parts list and assembly instructions. Assembly video available at <a href="https://youtu.be/MIQNwaYsyiQ">https://youtu.be/MIQNwaYsyiQ</a> Actual structure may vary as designs are continually improved.

## Miniature Reel Lifter Mechanism

Ready to ship in 3 business days



Item #	USM-009
W	306mm 12"
D	254mm 10"
H	340.36mm 13.4"
<b>Price</b>	<b>500.00</b>
DWG	GFU28036425
Notes	Includes detailed parts list and assembly instructions. Actual structure may vary as designs are continually improved. Assembly video available at <a href="https://youtu.be/8TfSvAIfM7k">https://youtu.be/8TfSvAIfM7k</a> Compare to the Reel Up (p.64).

SiO Controller

# SiO Controller

The Simple Input Output Controller is designed for people using electric automation for the first time. Keeping things simple, SiO utilizes the world standard e-CON connector so you can join input/output devices just by plugging them in. And the software is multiple-choice, making the operating system easier than ever.

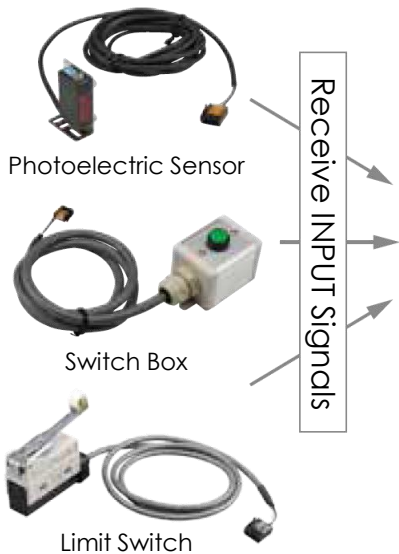
SiO controllers and accessories are special items. For details on lead times and shipping options, please contact SUS America, Inc.



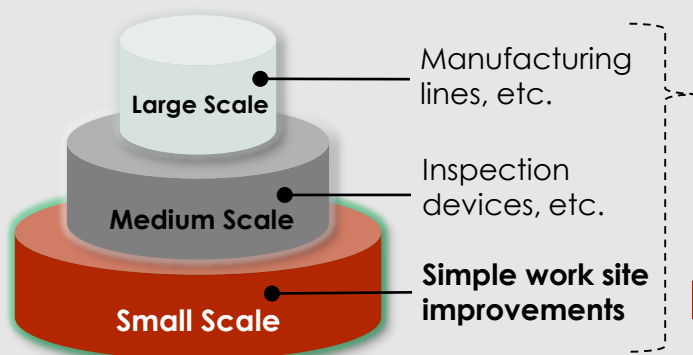
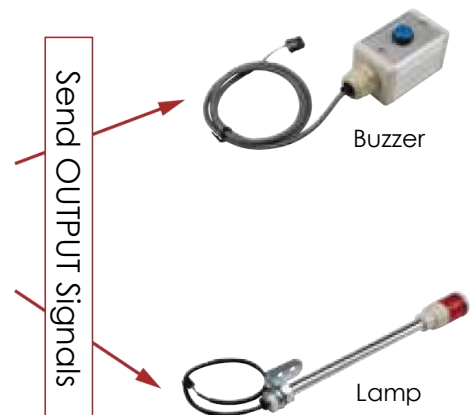
# Simple Solution

SiO Controller is ideal for making simple worksite improvements or automating *karakuri* mechanisms, especially in cases where a Programmable Logic Controller (PLC) would be considered "overengineering." By using SiO Controller, you can easily achieve automation on a small scale to meet your daily goals more efficiently.

## Input Device



## Output Device



When commands are entered with the same specifications...



PLC

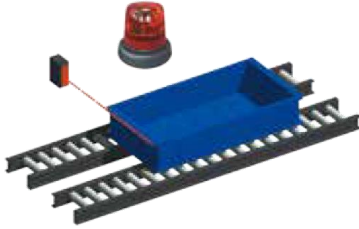
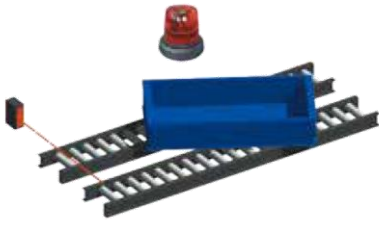
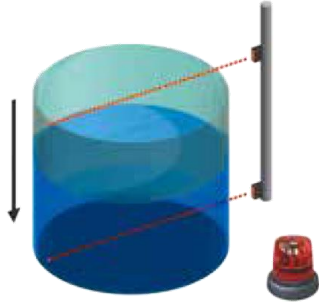






- Control program + Debug
- 8 hours labor/\$480




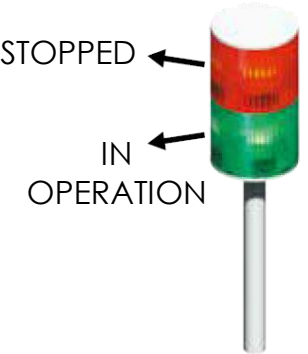
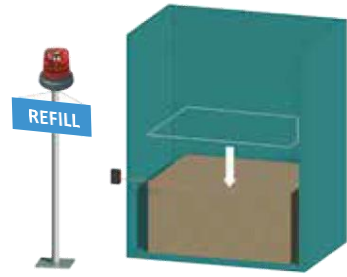
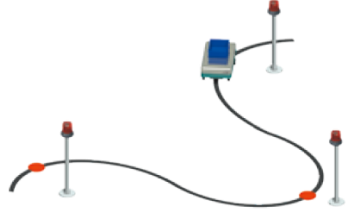
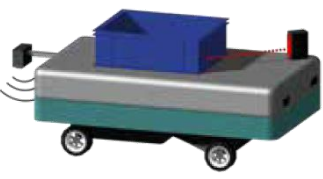
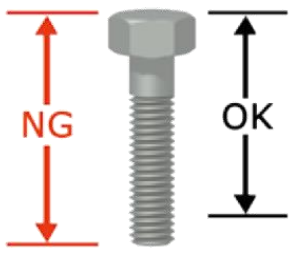
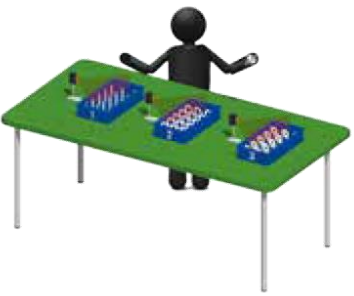


SiO

- SiO program + Debug
- 5 hours labor/\$200

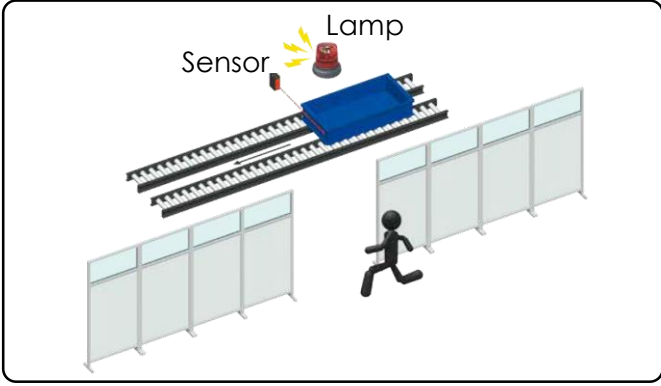
# SiO and Kaizen

Index	<b>1</b> Detect & indicate work piece	<b>2</b> Detect & indicate problem	<b>3</b> Detect & indicate tank level
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Automated Karakuri	<b>7</b> Warn before collision	<b>8</b> Visitors' bell	<b>9</b> Call for assistance
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<p><b>10</b> Detect &amp; indicate open door</p>	<p><b>11</b> Detect &amp; indicate visitor</p>	<p><b>12</b> Display time elapsed</p>
		
<p><b>13</b> Indicate activity status</p>	<p><b>14</b> Detect &amp; indicate out of stock item</p>	<p><b>15</b> Detect &amp; indicate current location</p>
		
<p><b>16</b> Detect &amp; indicate items for AGV</p>	<p><b>17</b> Detect &amp; indicate for quality control</p>	<p><b>18</b> Indicate correct procedure</p>
	<p>Check !</p> 	

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## Case 1 Detect & indicate work piece



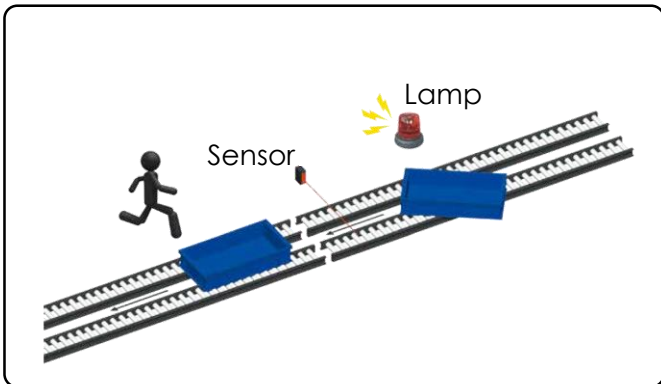
**Work Flow**

- 1) Sensor detects work piece
- 2) Lamp turns ON
- 3) After 10 seconds, lamp turns OFF

**Program**

OUT	Condition 1					Condition 2		Duration Time (Until)								
OUT1 (Lamp)	IN1 (Sensor)	ON	---	---	---	THEN	DELAY TIME	0.0	Sec later	DELAY TIME	10.0	Sec	---	---	---	---

## Case 2 Detect & indicate problem



**Work Flow**

- 1) Sensor does not detect work piece for 60 seconds
- 2) Lamp turns ON
- 3) After 10 seconds, lamp turns OFF

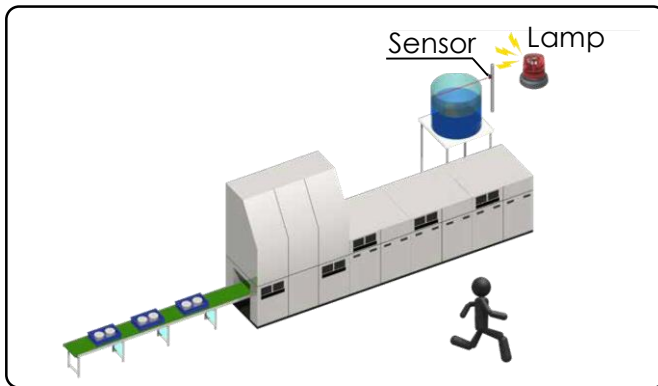
**Program**

OUT	Condition 1					Condition 2		Duration Time (Until)								
OUT1 (Sensor)	IN1 (Sensor)	OFF	---	---	---	DELAY TIME	60.0	Sec	CONTINUES	DELAY TIME	10.0	Sec	---	---	---	---



## Case 3

### Detect & indicate tank level



#### Work Flow

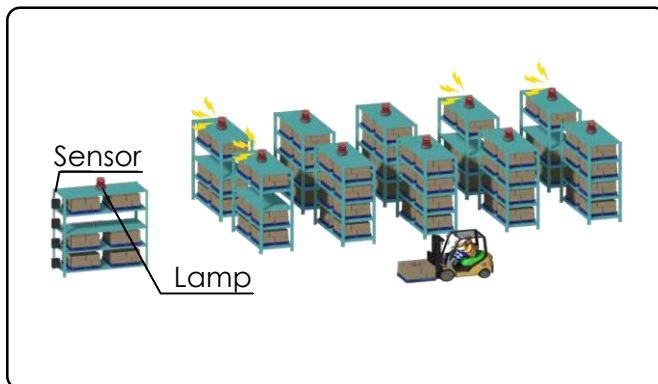
- 1) Sensor does not detect material for 10 seconds
- 2) Lamp turns ON
- 3) After ten seconds, lamp turns OFF

#### Program

OUT	Condition 1				Condition 2				Duration Time (Until)							
OUT1 (Lamp)	IN1 (Sensor)	OFF	---	---	---	DELAY TIME	10.0	Sec	CONTINUES	DELAY TIME	10.0	Sec	---	---	---	---

## Case 4

### Detect & indicate empty rack



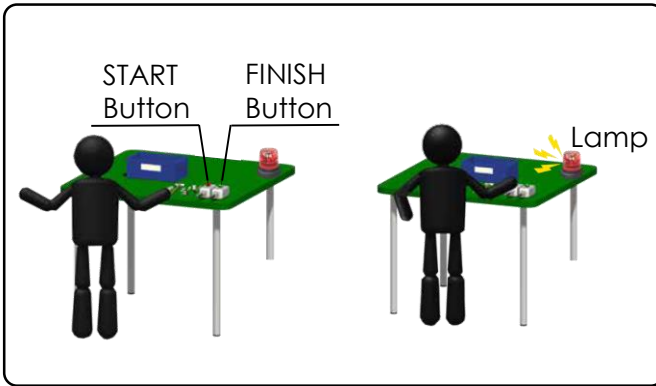
#### Work Flow

- 1) Sensor does not detect items
- 2) Lamp turns ON
- 3) When sensor detects items, lamp turns OFF

#### Program

OUT	Condition 1				Condition 2				Duration Time (Until)						
OUT1 (Lamp)	FLAG1 (Top)	ON	OR	FLAG2 (Bottom)	ON	DELAY TIME	0.0	Sec	CONTINUES	CONDITION 1	OFF	---	---	---	---
FLAG1 (TOP)	IN1 (Sensor1)	OFF	OR	IN2 (Sensor2)	OFF	THEN	DELAY TIME	0.0	Sec later	CONDITION 1	OFF				
FLAG2 (Bottom)	IN3 (Sensor3)	OFF	OR	IN4 (Sensor4)	OFF	THEN	DELAY TIME	0.0	Sec later	CONDITION 1	OFF				

## Case 5 Check assembly time



**Work Flow**

- 1) Operator presses START Button
- 2) Operator presses FINISH Button
- 3) Assembly time is recorded

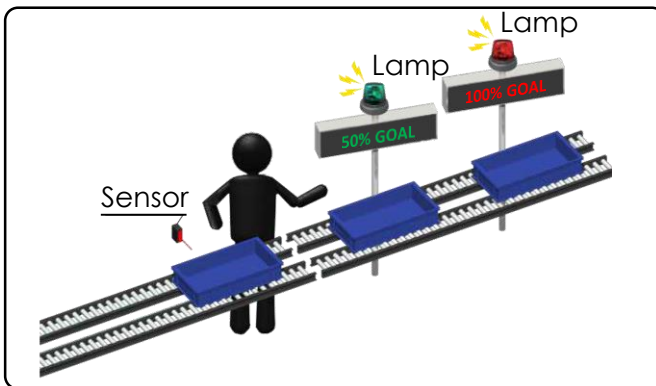
or

- 1) Operator presses START Button
- 2) Lamp turns ON after 3 minutes
- 3) Assembly time is recorded

### Program

OUT	Condition 1					Condition 2			Duration Time (Until)						
OUT1 (Lamp)	FLAG1 (Measure)	ON	---	---	---	DELAY TIME	180.0	Sec	CONTINUES	CONDITION 1	OFF	---	---	---	---
FLAG1 (Measure)	IN1 (Start BT)	ON	---	---	---	THEN	DELAY TIME	0.0	Sec later	IN2 (Complete BT)	ON				

## Case 6 Count work pieces



**Work Flow**

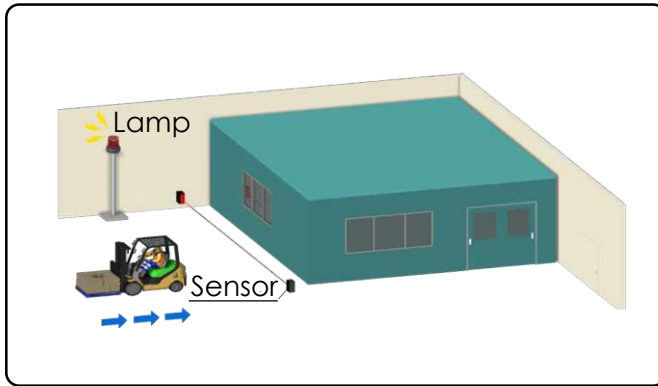
- 1) Sensor detects and counts work pieces
- 2) Lamp 1 turns ON after 50% of the goal has been met
- 3) Lamp 2 turns ON after 100% of the goal has been met

### Program

OUT	Condition 1					Condition 2			Duration Time (Until)						
OUT1 (50%)	IN1 (Sensor)	ON	---	---	---	50	TIMES THEN	0.0	Sec later	RUN	OFF				
OUT2 (100%)	IN1 (Sensor)	ON	---	---	---	100	TIMES THEN	0.0	Sec later	RUN	OFF				

## Case 7

### Warn before collision



#### Work Flow

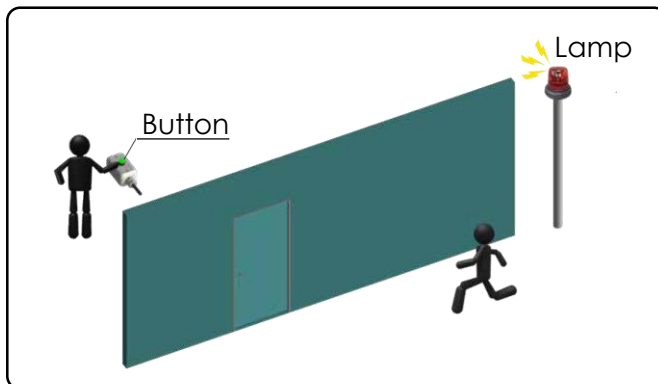
- 1) Sensor detects an object
- 2) Lamp turns ON
- 3) After 10 seconds, lamp turns OFF

#### Program

OUT	Condition 1			THEN	Condition 2		Duration Time (Until)									
OUT1 (Lamp)	IN1 (Sensor)	ON	---	---	---	DELAY TIME	0.0	Sec	later	DELAY TIME	10.0	Sec	---	---	---	---

## Case 8

### Visitors' bell



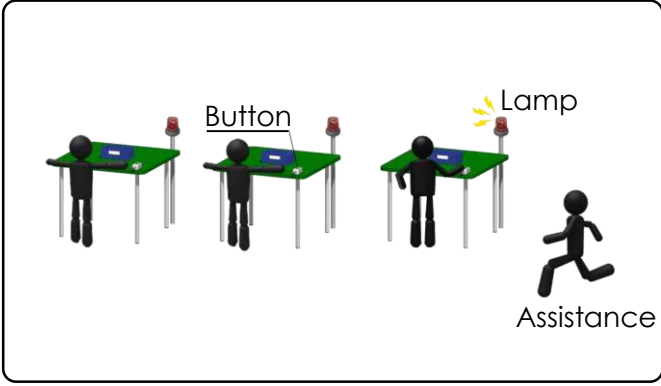
#### Work Flow

- 1) Visitor presses the button
- 2) Lamp turns ON
- 3) After 10 seconds, lamp turns OFF

#### Program

OUT	Condition 1			THEN	Condition 2		Duration Time (Until)									
OUT1 (Lamp)	IN1 (Button)	ON	---	---	---	DELAY TIME	0.0	Sec	later	DELAY TIME	10.0	Sec	---	---	---	---

## Case 9 Call for assistance



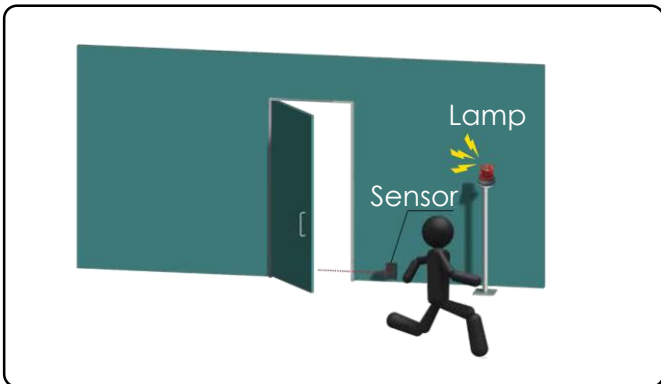
**Work Flow**

- 1) Operator presses button
- 2) Lamp turns ON
- 3) After 10 seconds, lamp turns OFF

**Program**

OUT	Condition 1			Condition 2			Duration Time (Until)					
OUT1 (Lamp)	IN1 (Switch)	ON	---	THEN	DELAY TIME	0.0 Sec later	DELAY TIME	10.0 Sec	---	---	---	---

## Case 10 Detect & indicate open door



**Work Flow**

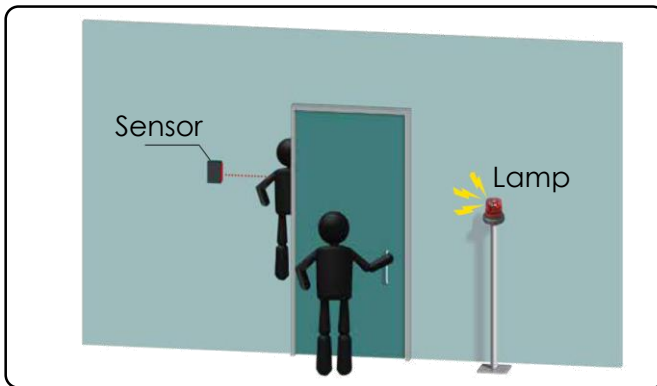
- 1) Door is opened
- 2) Sensor detects door for over 10 seconds
- 3) Lamp turns ON
- 4) After 5 seconds, lamp turns OFF

**Program**

OUT	Condition 1			Condition 2			Duration Time (Until)					
OUT1 (Lamp)	IN1 (Sensor)	ON		DELAY TIME	10.0 Sec	CONTINUES	DELAY TIME	5.0 Sec	---	---	---	---

## Case 11

### Detect & indicate visitor



#### Work Flow

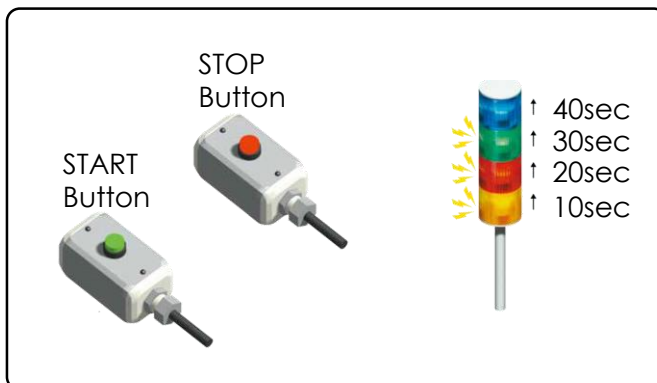
- 1) Sensor detects object behind door
- 2) Lamp turns ON
- 3) Sensor does not detect object
- 4) Lamp turns OFF

#### Program

OUT	Condition 1	Condition 2	Duration Time (Until)
OUT1 (Lamp)	IN1 (Sensor) ON	THEN DELAY TIME 0.0 Sec later	CONDITION 1 OFF

## Case 12

### Display time elapsed



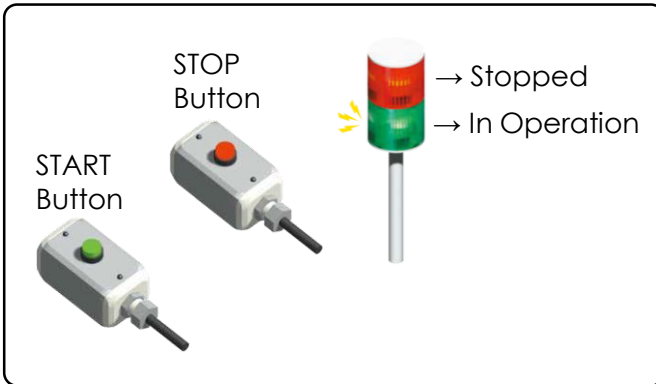
#### Work Flow

- 1) Operator presses START button
- 2) Lamps turn ON every 10 seconds
- 3) Lamps turn OFF after 50 seconds or when STOP button is pressed

#### Program

OUT	Condition 1	Condition 2	Duration Time (Until)
OUT1 (Lamp1)	FLAG1 (START) ON	DELAY TIME 10.0 Sec	CONTINUES CONDITION 1 OFF
OUT2 (Lamp2)	FLAG1 (START) ON	DELAY TIME 20.0 Sec	CONTINUES CONDITION 1 OFF
OUT3 (Lamp3)	FLAG1 (START) ON	DELAY TIME 30.0 Sec	CONTINUES CONDITION 1 OFF
OUT4 (Lamp4)	FLAG1 (START) ON	DELAY TIME 40.0 Sec	CONTINUES CONDITION 1 OFF
FLAG1 (START)	IN1 (START BT) ON	THEN DELAY TIME 0.0 Sec later	DELAY TIME 50.0 Sec OR IN2 (STOP BT) ON

## Case 13 Indicate activity status



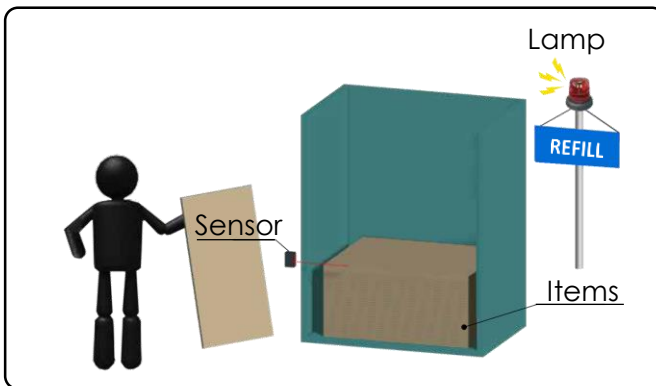
### Work Flow

- 1) Operator presses START button
- 2) Green lamp turns ON (red lamp is off)
- 3) Operator presses STOP button
- 4) Red lamp is ON (green lamp is off)

### Program

OUT	Condition 1					THEN	Condition 2			Duration Time (Until)					
OUT1 (Op Lamp)	IN1 (START BT)	ON	---	---	---	THEN	DELAY TIME	0.0	Sec later	IN2 (STOP SW)	ON	---	---	---	---
OUT1 (STP Lamp)	IN1 (STOP BT)	ON	---	---	---	THEN	DELAY TIME	0.0	Sec later	IN1 (Operation SW)	ON	---	---	---	---

## Case 14 Detect & indicate out of stock item



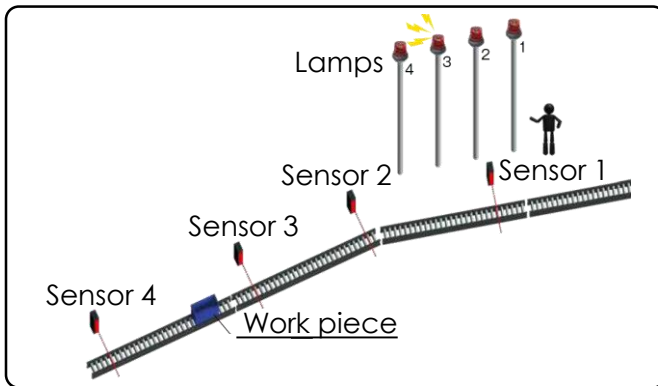
### Work Flow

- 1) Operator removes item from rack
- 2) Sensor does not detect item
- 3) Lamp turns ON
- 4) After 10 seconds, lamp turns OFF

### Program

OUT	Condition 1					THEN	Condition 2			Duration Time (Until)							
OUT1 (Lamp)	IN1 (Sensor)	OFF				THEN	DELAY TIME	3.0	Sec	CONTINUES	DELAY TIME	10.0	Sec	---	---	---	---

## Case 15 Detect & indicate current location



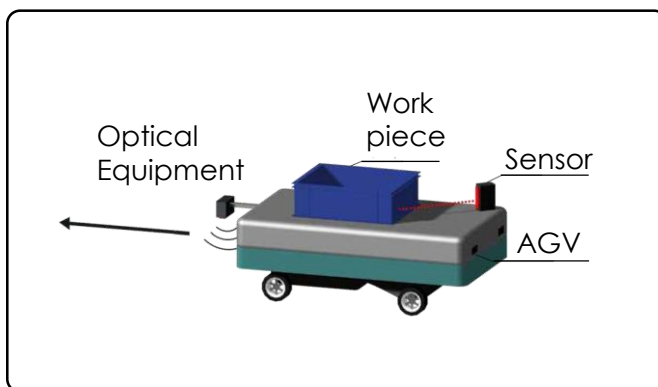
### Work Flow

- 1) Work piece travels down the line
- 2) Each sensor detects the work piece in sequence
- 3) Each lamp turns ON in sequence
- 4) The fourth lamp turns OFF after 5 seconds

### Program

OUT	Condition 1				THEN	Condition 2			Duration Time (Until)							
OUT1 (Lamp 1)	IN1 (Sensor 1)	ON	---	---	---	THEN	DELAY TIME	0.0	Sec	later	IN4 (Sensor 4)	ON	---	---	---	---
OUT2 (Lamp 2)	IN2 (Sensor 2)	ON	---	---	---	THEN	DELAY TIME	0.0	Sec	later	IN4 (Sensor 4)	ON	---	---	---	---
OUT3 (Lamp 3)	IN3 (Sensor 3)	ON	---	---	---	THEN	DELAY TIME	0.0	Sec	later	IN4 (Sensor 4)	ON	---	---	---	---
OUT4 (Lamp 4)	IN4 (Sensor 4)	ON	---	---	---	THEN	DELAY TIME	0.0	Sec	later	DELAY TIME	5.0	Sec	---	---	---

## Case 16 Detect & indicate items for AGV



### Work Flow

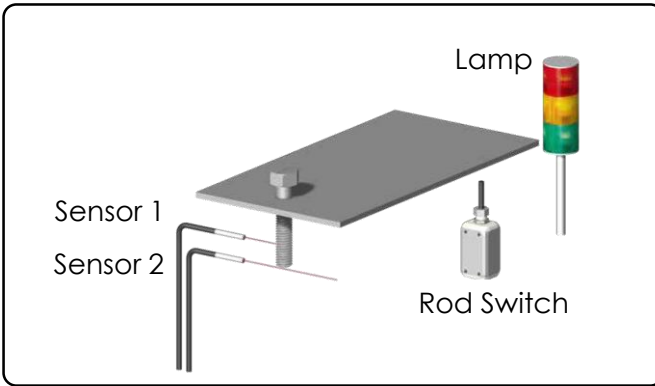
- 1) Sensor detects work piece
- 2) Optical equipment signals AGV to start
- 3) AGV arrives at destination
- 4) AGV dispenses work piece
- 5) Sensor does not detect work piece
- 6) Optical equipment signals AGV to start

### Program

OUT	Condition 1				THEN	Condition 2			Duration Time (Until)							
OUT1 (Start)	FLAG1 (Work in)	ON	OR	FLAG2 (Work out)	ON	THEN	DELAY TIME	0.0	Sec	later	DELAY TIME	1.0	Sec	---	---	---
FLAG1 (Work in)	IN1 (Sensor)	ON	---	---	---	THEN	DELAY TIME	1.0	Sec	later	DELAY TIME	1.0	Sec	---	---	---
FLAG2 (Work out)	IN1 (Sensor)	OFF	AND	FLAG3 (Initialize)	ON	THEN	DELAY TIME	1.0	Sec	later	DELAY TIME	1.0	Sec	---	---	---
FLAG3 (Initialize)	IN1 (Sensor)	ON	---	---	---	THEN	DELAY TIME	0.0	Sec	later	RUN	OFF	---	---	---	

## Case 17

### Detect & indicate for quality control



#### Work Flow

- 1) Insert work piece into jig plate
- 2) Flip rod switch
- 3) Sensors detect length of work piece
- 4) Lamp reports result (long, short, correct)

#### Program

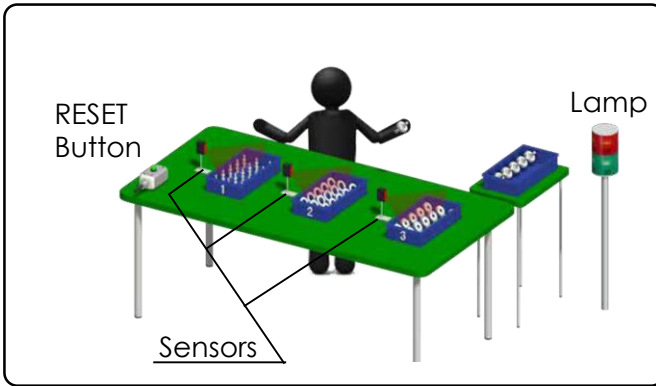
OUT	Condition 1					Condition 2			Duration Time (Until)							
OUT1 (Blue Lamp)	IN1 (Switch)	ON	AND	FLAG1 (Normal)	ON	THEN	DELAY TIME	0.0	Sec later	DELAY TIME	5.0	Sec	---	---	---	---
OUT2 (Yellow Lamp)	IN1 (Switch)	ON	AND	FLAG2 (Abnormal L)	ON	THEN	DELAY TIME	0.0	Sec later	DELAY TIME	5.0	Sec	---	---	---	---
OUT3 (Red Lamp)	IN1 (Switch)	ON	AND	FLAG3 (Abnormal S)	ON	THEN	DELAY TIME	0.0	Sec later	DELAY TIME	5.0	Sec	---	---	---	---
FLAG1 (Normal)	IN2 (Sensor 1)	ON	AND	IN3 (Sensor 2)	OFF	THEN	DELAY TIME	0.0	Sec later	CONDITION 1	OFF	---	---	---	---	---
FLAG2 (Abnormal L)	IN2 (Sensor 1)	ON	AND	IN3 (Sensor 2)	ON	THEN	DELAY TIME	0.0	Sec later	CONDITION 1	OFF	---	---	---	---	---
FLAG3 (Abnormal S)	IN2 (Sensor 1)	OFF	AND	IN3 (Sensor 2)	OFF	THEN	DELAY TIME	0.0	Sec later	CONDITION 1	OFF	---	---	---	---	---





## Case 18

## Indicate correct procedure

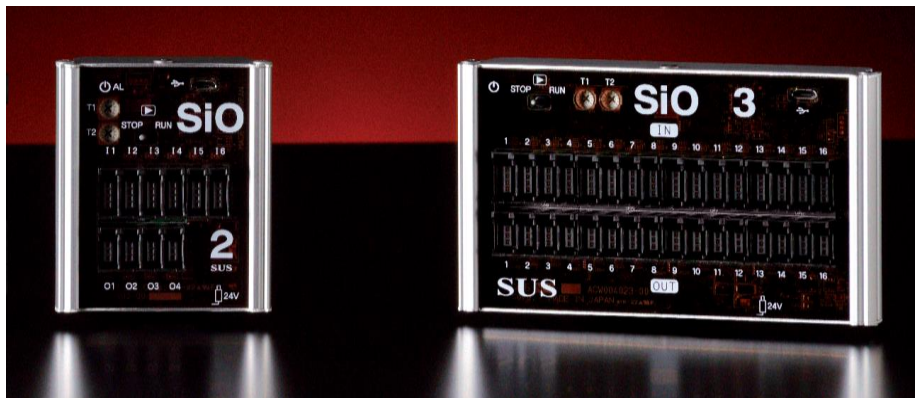


### Work Flow

- 1) Operator takes items in correct order (1→2→3)
- 2) If the order is not correct, lamp turns ON
- 3) When RESET button is pressed, lamp turns OFF

### Program

OUT	Condition 1				THEN	Condition 2			Duration Time (Until)						
OUT1 (NG Order)	FLAG4 (NG Cond1)	ON	OR	FLAG5 (NG Cond 2)	ON	THEN	DELAY TIME	0.0	Sec later	IN4 (Reset BT)	ON	---	---	---	---
OUT2 (OK)	FLAG6 (NG Cond2)	ON	AND	FLAG3 (IN3 END)	ON	THEN	DELAY TIME	0.0	Sec later	DELAY TIME	2.0	Sec	---	---	---
FLAG1 (IN1 END)	FLAG7 (IN1 ON)	ON	AND	IN1 (Sensor 1)	OFF	THEN	DELAY TIME	0.0	Sec later	OUT1 (NG Order)	ON	OR	FLAG 10 (Release Cond)	ON	---
FLAG2 (IN2 END)	FLAG8 (IN2 ON)	ON	AND	IN2 (Sensor 2)	OFF	THEN	DELAY TIME	0.0	Sec later	OUT1 (NG Order)	ON	OR	FLAG 10 (Release Cond)	ON	---
FLAG3 (IN3 END)	FLAG9 (IN3 ON)	ON	AND	IN3 (Sensor 3)	OFF	THEN	DELAY TIME	0.0	Sec later	OUT1 (NG Cond)	ON	OR	FLAG 10 (Release Cond)	ON	---
FLAG4 (NG Cond1)	FLAG1 (IN1 END)	OFF	AND	IN2 (Sensor 2)	ON	THEN	DELAY TIME	0.0	Sec later	FLAG 10 (Release Condition)	ON	---	---	---	---
FLAG5 (NG Cond2)	FLAG2 (IN2 END)	OFF	AND	IN3 (Sensor 3)	ON	THEN	DELAY TIME	0.0	Sec later	FLAG 10 (Release Condition)	ON	---	---	---	---
FLAG6 (NG Cond2)	FLAG1 (IN1 END)	ON	AND	FLAG2 (IN2 END)	ON	THEN	DELAY TIME	0.0	Sec later	Condition 1	OFF	---	---	---	---
FLAG7 (IN1 ON)	IN1 (Sensor 1)	ON	---	---	---	THEN	DELAY TIME	0.0	Sec later	Condition 1	OFF	---	---	---	---
FLAG8 (IN2 ON)	IN2 (Sensor 2)	ON	---	---	---	THEN	DELAY TIME	0.0	Sec later	Condition 1	OFF	---	---	---	---
FLAG9 (IN3 ON)	IN3 (Sensor 3)	ON	---	---	---	THEN	DELAY TIME	0.0	Sec later	Condition 1	OFF	---	---	---	---
FLAG10 (Release)	OUT2 (OK Order)	ON	OR	IN4 (Reset BT)	ON	THEN	DELAY TIME	0.0	Sec later	Condition 1	OFF	---	---	---	---



# SiO Controllers

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Traditional Karakuri
Automated Karakuri
Miniature Karakuri
SiO Controller



<b>Item #</b>	XAC-046	XAC-050
<b>Product Name</b>	SiO2	SiO3
<b>Power-Supply Voltage</b>	DC24V ± 10% 0.3A DC Plug: 5.5mm (outer diameter) x 2.1mm (inner diameter)	
<b>Number of Inputs/Outputs</b>	6 Inputs / 4 Outputs	16 Inputs / 16 Outputs
<b>Input Specifications</b>	DC24V ±10% 7mA/DC24V Non-Voltage Contact Input (NPN) Non-Insulated	
<b>Output Specifications</b>	DC24V ± 10% 100mA/DC24V Open Collector (NPN) Non-Insulated	
<b>Communication Specifications</b>	USB 2.0 Compliant/Micro-B Type	
<b>RoHS Compatible</b>	RoHS Compatible	
<b>I/O Interface</b>	e-CON Connector	
<b>External Dimensions</b>	W65mm × D29mm × H81mm W2.6" × D1.1" × H3.2"	W130mm × D29mm × H81mm W5.1" × D1.1" × H3.2"
<b>Weight</b>	Approximately 107g	Approximately 178g
<b>Installation Method</b>	GF/DIN Rail	
<b>Price</b>	<b>141.82</b>	<b>349.09</b>

# SiO Accessories

## Input Devices (Device → SiO)



Item #	Description	Price
SUC-195	Photoelectric Sensor (Reflective Type) <ul style="list-style-type: none"> <li>• Detects objects by reflecting light off of them</li> <li>• Can detect almost any material.</li> <li>• Cable length: 2m/78.75"</li> </ul>	183.64
SUC-193	Limit Switch <ul style="list-style-type: none"> <li>• Mechanically detects objects</li> <li>• Cable length: 2m/78.75"</li> </ul>	37.27

## Power Accessories



Item #	Model & Notes	Price
IFP-A034	Cable With DC Plug <ul style="list-style-type: none"> <li>• For connecting SiO to an external power supply of DC 24 volts</li> <li>• Use in situations where an AC adapter is not suitable</li> <li>• Can be used with an electric winch</li> <li>• Cable length: 0.5m (19.7")</li> </ul>	10.91
SUC-261-A	AC Adapter <ul style="list-style-type: none"> <li>• For supplying SiO with DC 24 volt power</li> <li>• Compatible with Green Frame N (28mm)</li> </ul>	30.91

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# SiO Accessories

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## Input Aggregate/Output Splitters



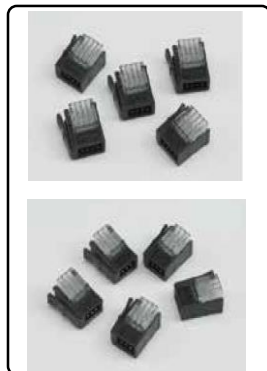
Item #	Model & Notes	Price
SUC-208	Input Aggregate Cable <ul style="list-style-type: none"> <li>Combines the signals of 2-3 input devices</li> <li>Cable length: 0.1m/4"</li> </ul>	10.73
SUC-230	Output Splitter Cable <ul style="list-style-type: none"> <li>Splits signals to output devices</li> <li>Cable length: 0.1m/4"</li> </ul>	10.55

## Extension Cables



Item #	Description	Price
SUC-210	Extension Cable for INPUT (4 pins) <ul style="list-style-type: none"> <li>Use to extend the length of input cables</li> <li>Cable length: 2m/78.75"</li> </ul>	9.27
SUC-209	Extension cable for OUTPUT (3 pins) <ul style="list-style-type: none"> <li>Used to extend the length of output cables</li> <li>Cable length: 2m/78.75"</li> </ul>	9.09

## e-CON Connectors

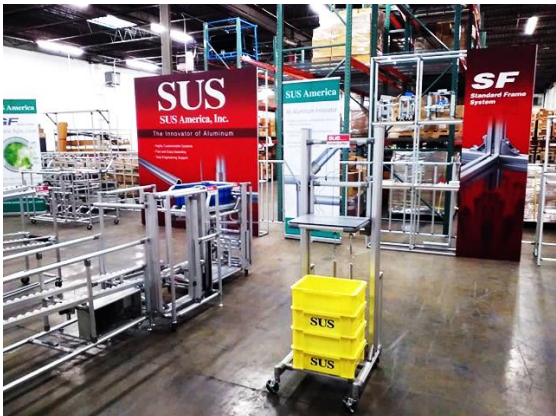


Item #	Model & Notes	Price
SUC-212	Connector Inputs (4 pins) 10 pieces <ul style="list-style-type: none"> <li>For heavy lines (37104-2206-000FL): x7</li> <li>For light lines (37104-4080-G00FL): x3</li> </ul>	28.91
SUC-211	Connector Outputs (3 pins) 10 pieces <ul style="list-style-type: none"> <li>For heavy lines (37104-2206-000FL): x7</li> <li>For light lines (37104-4080-G00FL): x3</li> </ul>	26.91





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