



# METAL DETECTOR & CHECKWEIGHER



## **METAL DETECTOR & CHECKWEIGHER**



# Nikka Densok creates a part of your safety life.



**N** I K K A   **D** E N S O K   **C** A T A L O G

## METAL DETECTOR

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# METAL DETECTOR

## *DenoA*<sup>®</sup> touch

“DenoA touch” has been designed mainly for food industrial environment in order to get high accuracy and user-friendly operation.

Newly developed “common drive” engine with multiple frequency makes higher sensitivity not only for ferrous but also for non-ferrous & stainless steel.

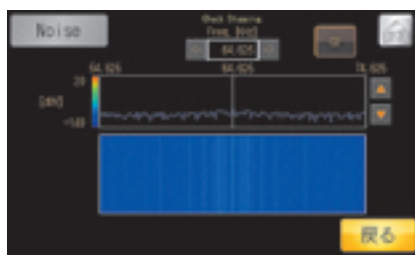
Touch screen can be controlled with operator’s intuition. “Touch” with us!



High Visibility Controller with 7 inch touch screen



Operating status and Detection alert are clearly indicated.



Spectrum Analyzing function for radio wave interference.

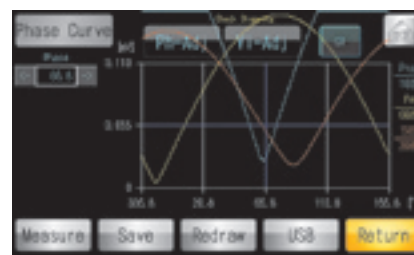
## Feature



Interactive operation



History Record can be saved and managed with USB flash memory.

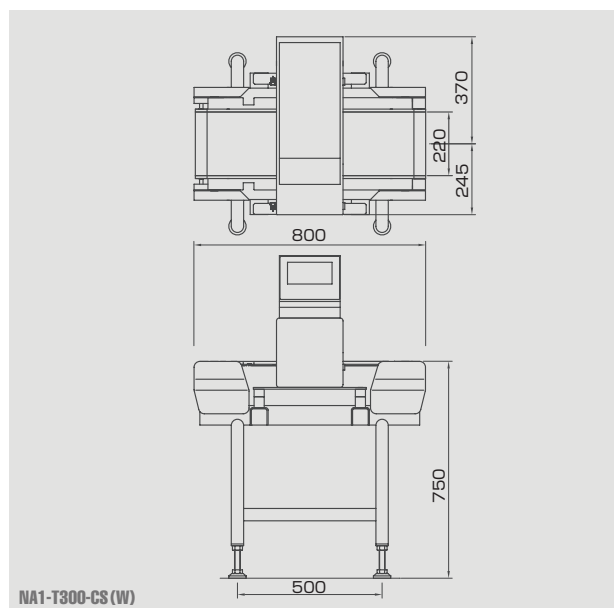


The most suitable Phase setting can be found with Phase Curve function.

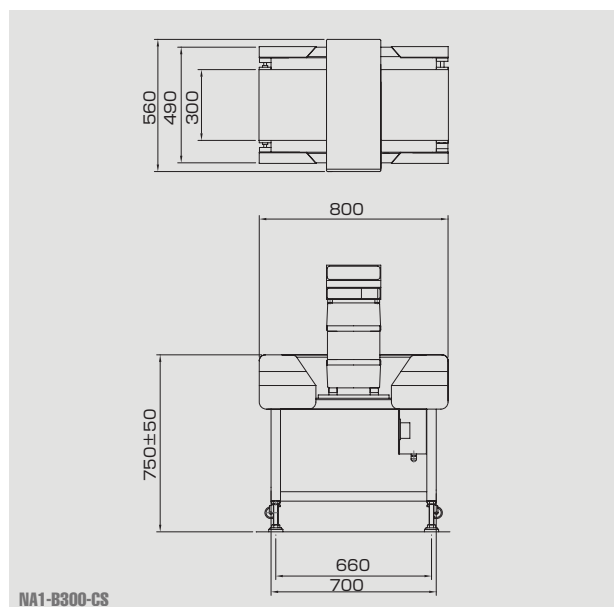


Easy Detachable Conveyor without Tools

## NA1-T300-CS (W)

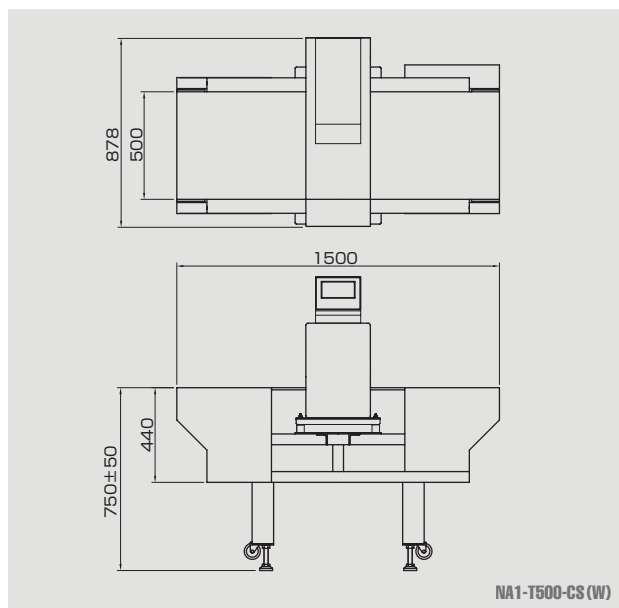
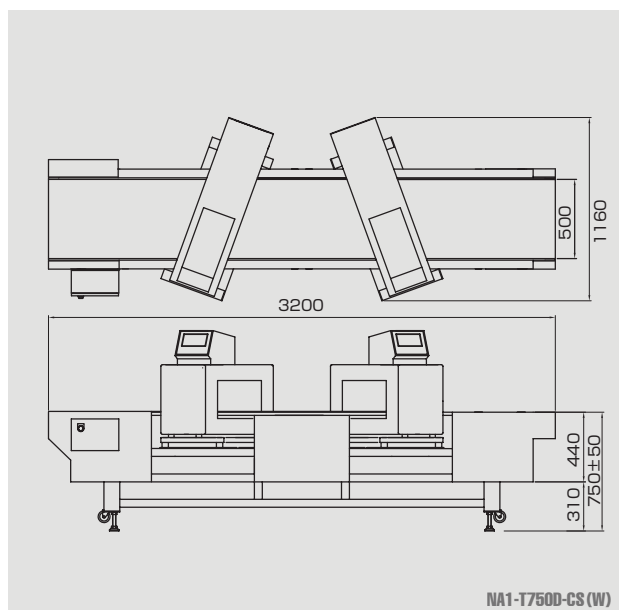


## NA1-B300-CS



Type	NA1-T300-CS (W)	NA1-T400-CS (W)	NA1-B300-CS
	NA2-T300-CS (W)	NA2-T400-CS (W)	
Controller type	NA1/NA2		NA1
Passing height *1	80mm		100mm
Sensitivity *2	Fe	Φ 0.3mm	Φ 0.4mm
	SUS	Φ 0.7mm	Φ 0.8mm
Rejection method	Conveyor stop and buzzer		
Belt width	220mm	300mm	
Type of detection unit	Coaxial		Opposing
Conveyor frame	SUS		SS
Conveyance speed	20m/min. (50Hz) ・ 24m/min. (60Hz)		
Power source	AC 100～230V, 50/60Hz, 1phase		
Conveyor length/passline height	800mm / 750mm±50mm		
Weight	90kg	95kg	80kg

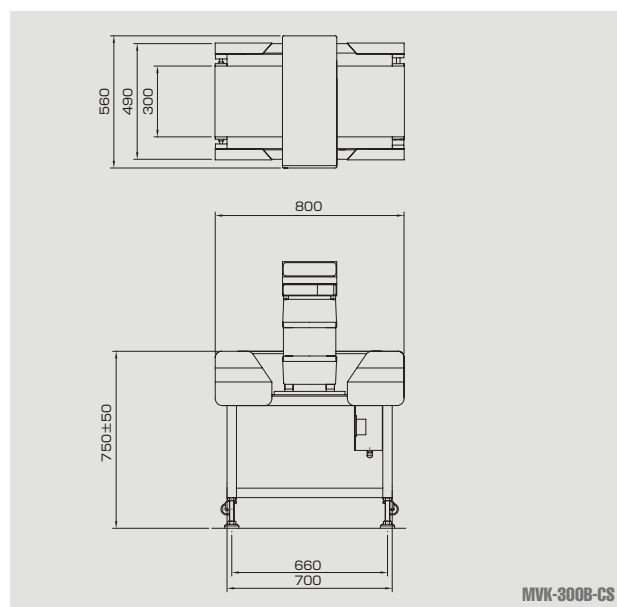
\*1. Passig height can be adjusted as an optional extra. \*2. Sensitivity may depend upon inspected product, environmet, and etc.

**NA1-T500-CS (W)****NA1-T750D-CS (W)**

Type		NA1-T500-CS (W)	NA1-B500-CS	NA1-T750D-CS (W)
		NA2-T500-CS (W)		
Controller type		NA1/NA2	NA1	
Passing height * <sup>1</sup>		200mm		200mm
Sensitivity * <sup>2</sup>	Fe	φ 0.7mm		φ 0.7mm
	SUS	φ 1.5mm		φ 1.5mm
Rejection method		Conveyor stop and buzzer		
Belt width		500mm		
Type of detection unit		Coaxial	Opposing	Coaxial or Opposing
Conveyor frame		SUS	SS	SUS
Conveyance speed		20m/min. (50Hz) ・ 24m/min. (60Hz)		
Power source		AC 200V, 50/60Hz, 3phase		
Conveyor length/passline height		1500mm / 750mm±50mm		3200mm / 750mm±50mm
Weight		300kg	250kg	500kg

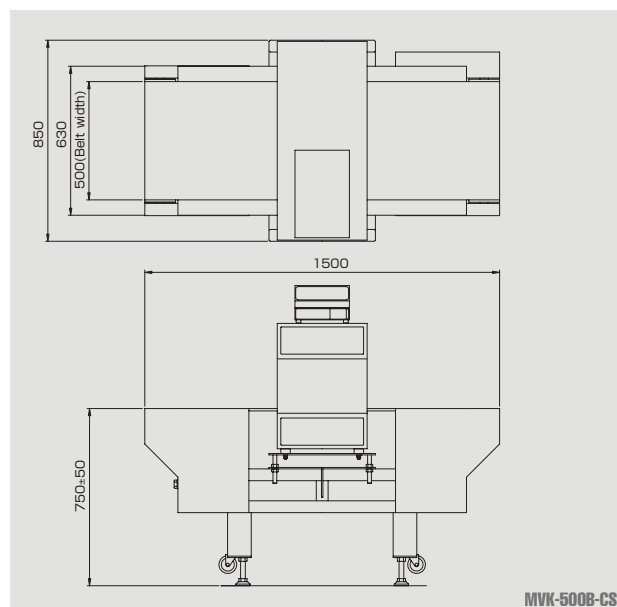
\*1. Passig height can be adjusted as an optional extra. \*2. Sensitivity may depend upon inspected product, environmet, and etc.

## Compact mode MVK-300B-CS



MVK-300B-CS

## Medium model MVK-500B-CS



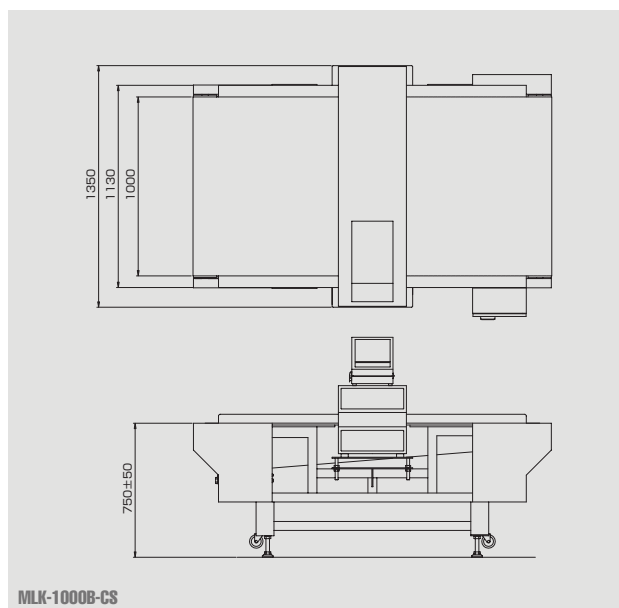
MVK-500B-CS

Type		MVK-300B-CS	MVK-500B-CS
Controller type		MEVZ	
Passing height *1		100mm	200mm
Sensitivity *2	Fe	Φ0.5mm	Φ0.7mm
	SUS	Φ1.0mm	Φ1.5mm
Rejection method		Conveyor stop and buzzer	
Belt width		300mm	500mm
Type of detection unit		Opposing	
Conveyor frame		SS	
Conveyance speed		20m/min. (50Hz) · 24m/min. (60Hz)	
Power source		AC 100V, 50/60Hz, 1phase	AC 200V, 50/60Hz, 3phase
Conveyor length/passline height		800mm / 750mm±50mm	1500mm / 750mm±50mm
Weight		75kg	245kg

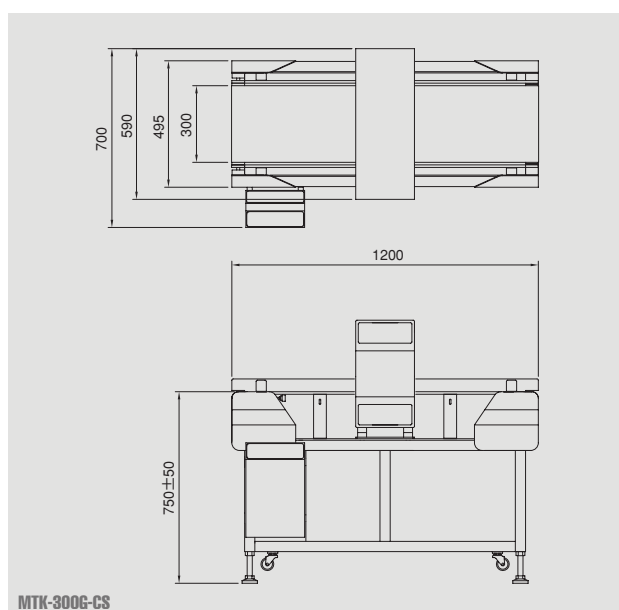
\*1. Passig height can be adjusted as an optional extra. \*2. Sensitivity may depend upon inspected product, environmet, and etc.



## Wide Type MLK-1000B-CS



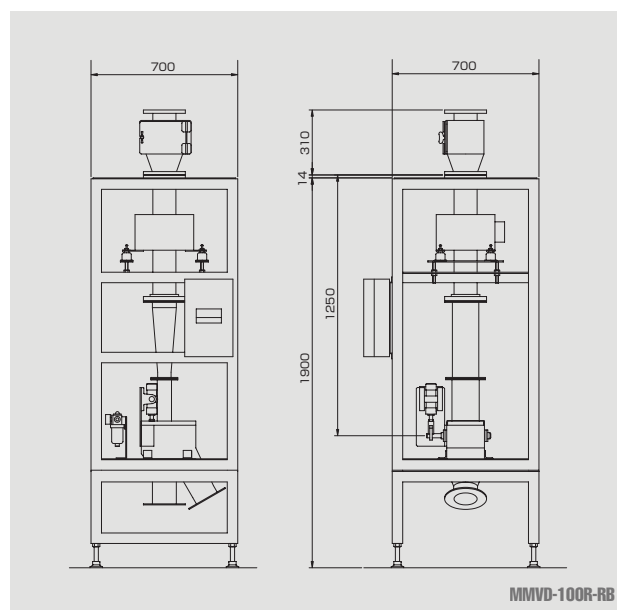
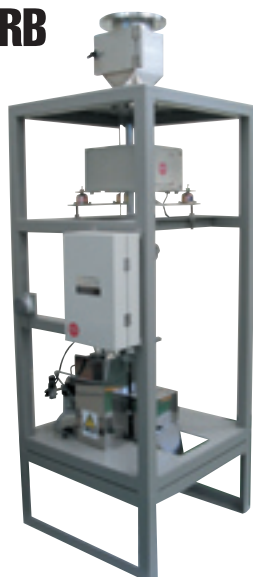
## Ferrous detection model MTK-300G-CS



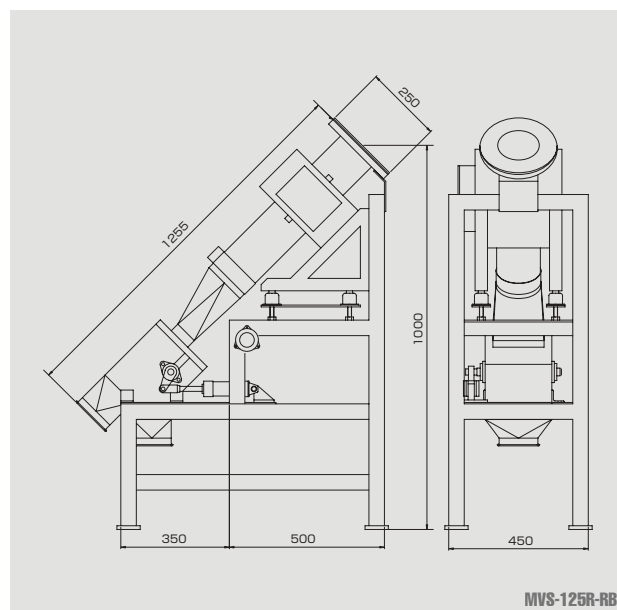
Type	MLK-1000B-CS	MTK-300G-CS
Controller type	MELZ	METZ
Passing height *1	100mm	100mm
Sensitivity *2	Fe	φ0.7mm
	SUS	φ1.0mm
Rejection method	Conveyor stop and buzzer	
Belt width	1000mm	300mm
Type of detection unit	Opposing	Opposing (ferrous only)
Conveyor frame	SS	
Conveyance speed	20m/min. (50Hz) · 24m/min. (60Hz)	
Power source	AC 200V, 50/60Hz, 3phase	AC 100V, 50/60Hz, 1phase
Conveyor length/passline height	2000mm / 750mm±50mm	1200mm / 750mm±50mm
Weight	300kg	110kg

\*1. Passig height can be adjusted as an optional extra. \*2. Sensitivity may depend upon inspected product, environmet, and etc.

## Vertical drop type MMVD-100R-RB



## Chute sliding type MVS-125R-RB

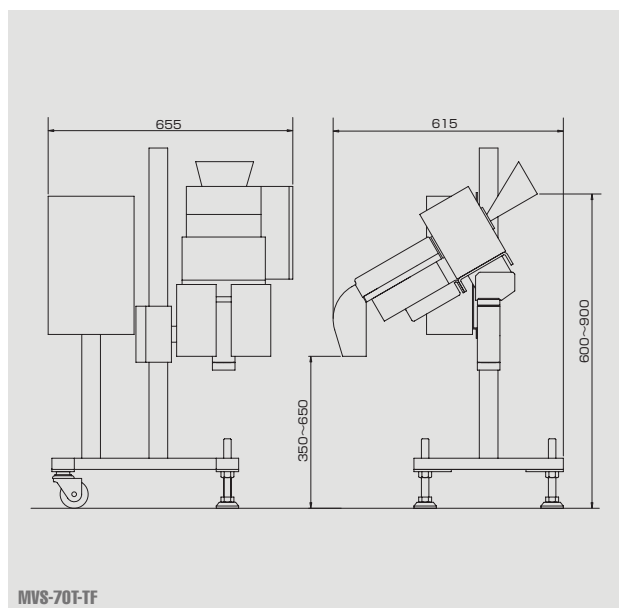


Type		MMVD-100R-RB	MVS-125R-RB
Controller type		MEVZ	
Size of chute *1		φ100mm	φ125mm
Sensitivity *2	Fe	φ0.7mm	φ0.8mm
	SUS	φ1.5mm	φ2.0mm
Rejection method		Revolving bucket and buzzer	
Type of detection unit		Coaxial	
Model of magnet		Clean Flow Magnet: CFM-EKL100	-
Conveyance type		Vertical drop	Chute Sliding
Handling capacity		8ton / hour	10ton / hour
Power source		AC 100V, 50/60Hz, 1phase	
Required air pressure		0.4Mpa	
Weight		75+15kg	110kg

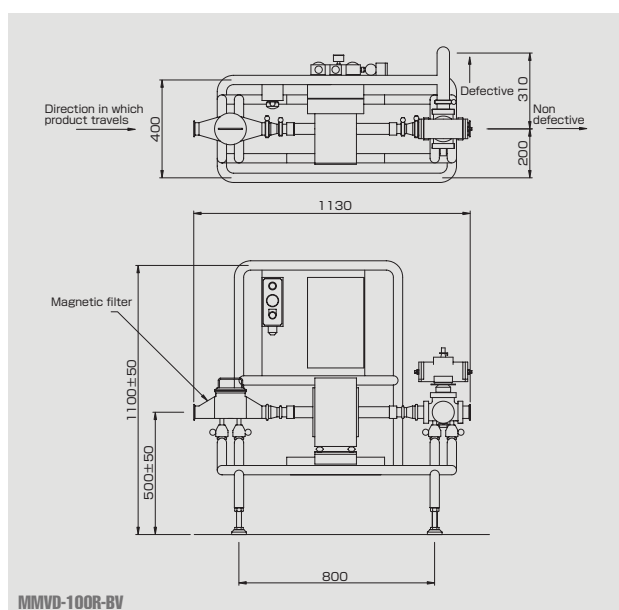
\*1. Size of chute can be adjusted as an optional extra. \*2. Sensitivity may depend upon inspected product, environment, and etc.



## For tablets MVS-70T-TF



## Flow pipe type MMVP-100R-BV



Type	MVS-70T-TF	MMVP-100R-BV
Controller type	MEVZ	
Size of chute or pipe * <sup>1</sup>	70 x 15mm	φ100mm
Sensitivity * <sup>2</sup>	φ0.2mm	φ0.7mm
	Fe	φ1.5mm
	SUS	
Rejection Method	Swinging out and buzzer	3-way ball valve and buzzer
Type of detection unit	Coaxial	
Model of magnet	-	Magnetic Filter: MFV-BN20HS
Conveyance type	Chute sliding	Pipe
Power source	AC 100V, 50/60Hz, 1phase	
Required air pressure	0.4Mpa	
Weight	50kg	70+7kg

\*1. Size of chute be adjusted as an optional extra. \*2. Sensitivity may depend upon inspected product, environment, and etc.

## Description for DenoA touch



# NA1-T300D-CS(W)

### Controller

NA1: Standard  
NA2: Special edition

### Type of Detection Unit

B: Opposing type  
F: Ferrous detection purpose  
T: Coaxial type  
R: Circular type

### Effective width of Detection unit

### Additional information

D: Double detection head  
Y: Vertical installation  
N: Sideling installation

\* "+" shall be used for the model composed of controller and detection unit only such as NA1+T300.

Waterproof or Stainless steel frame

### Conveyor & Rejecter type

CS: Conveyor Belt Stop  
AF: Air Flapper  
AJ: Air Jet  
AD: Damper  
LC: Sweep  
CU: Conveyor Belt Up  
BB: Conveyor Belt Back  
BD: Conveyor Belt Dropping  
PM: Plate Marker  
TF: Swing out  
RB: Revolving Bucket  
BV: Ball Valve

## Description for DenoA

# MVK-300B-CS

M: Metal detector  
MM: Metal detector with Magnet

\* Number of unit shall be used for no conveyance system such as ML2-300B.

### Type of Conveyance system

K: Belt Conveyor  
D: Vertical Drop  
S: Chute Sliding  
P: Pipe

### Effective width(mm) of Detection unit

### Type of Detection Unit

B: Opposing type  
F: Ferrous detection purpose  
T: Coaxial type  
R: Circular type

### Controller

#### L: MELZ

- Integrated computer
- Automatic setting and registration
- 100 products presetting function
- Automatic phase angle tracking



#### V: MEVZ

- Circuit configures detection for all kind of metals.
- Manual adjustment
- Automatic balancing
- Phase angle configuration

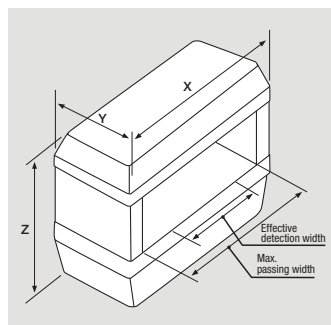


#### T: METZ

- Ferrous detection purpose
- Easy operation



## Type of Detection Unit (Opposing-type)



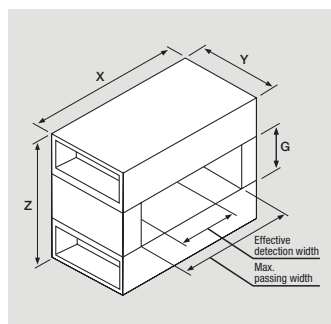
### B type

250W · 300W type

- The maximum height of passing product can be adjusted.
- It can be disassembled into 4 pieces.
- Suitable for high-frequency applications.

※ Waterproofing is available as an option.

	Effective detection width	Passing width	Outer dimension (mm)		
			X	Y	Z
B-250	250	366	460	235	240+G
B-300	300	466	560	230	240+G
B-400	400	640	740	380	300+G
B-500	500	740	840	380	300+G
B-600	600	840	940	380	300+G
B-750	750	990	1090	380	300+G
B-1000	1000	1240	1340	380	300+G
B-1200	1200	1440	1540	380	300+G

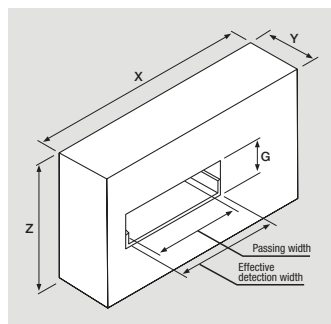


### G type

- Ferrous detection purpose for aluminum foil bags etc.
- The maximum height of passing product can be adjusted.
- It can be disassembled into 4 pieces.

	Effective detection width	Passing width	Outer dimension (mm)		
			X	Y	Z
G-250	250	390	490	230	240+G
G-300	300	490	590	230	240+G
G-400	400	640	740	380	300+G
G-500	500	740	840	380	300+G

## Type of Detection Unit (Coaxial-type)



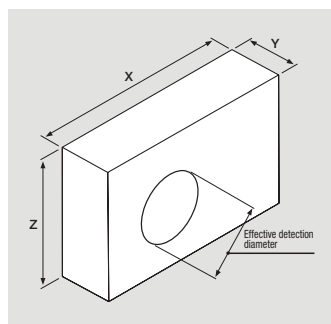
### T type

- Suitable for high-frequency applications.
- Maximum height of passing product cannot be adjusted.
- Can be used with wet products
- Can be used with thin products.
- Can be used with horizontally large products.
- High structural integrity resists vibration.

※ Waterproofing is available as an option.

※ Over 1200mm width models are available upon request.

	Effective detection width	Passing width	Outer dimension (mm)			
			X	Y	Z	G
T-70	100	70	302	120	200	~30
T-250	310	250	563	230	200+G	~140
			593	250		150~200
T-300	360	300	613	230	200+G	~140
			643	250		150~200
T-400	460	400	713	230	200+G	~140
			743	300		150~200
T-500	560	500	813	230	200+G	~140
			843	300		150~200
T-600	660	600	913	230	200+G	~140
			943	300		150~200
T-750	810	750	1063	230	200+G	~140
			1093	300		150~200
T-1000	1120	1000	1373	230	200+G	~140
			1403	300		150~200



### R type

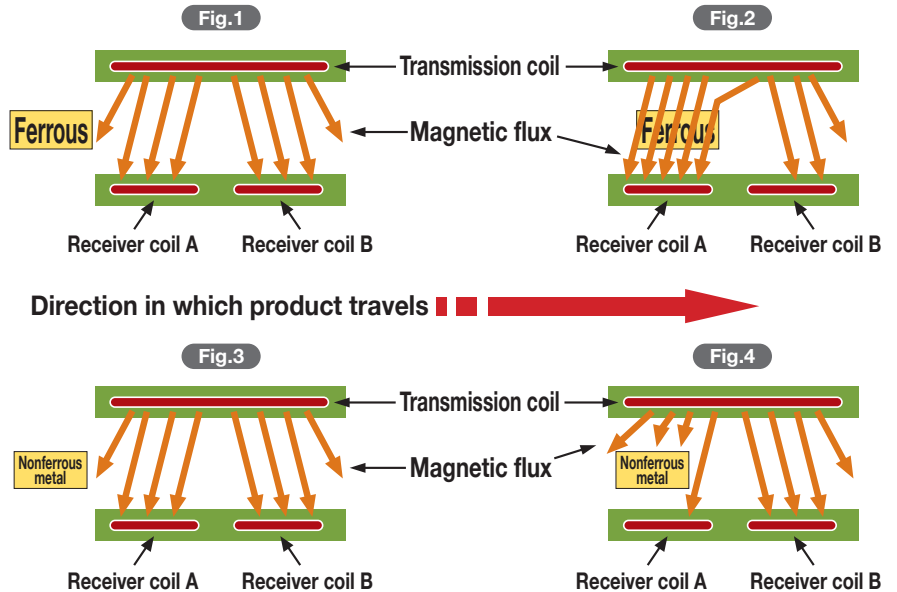
- Suitable for high-frequency applications.
- Can be installed in a small space on the pipe line.
- You can use it for any substance including powder, liquid, paste, and kneaded food.
- High structural integrity resists vibration.

※ Waterproofing is available as an option.

	Effective detection width	Passing width	Outer dimension (mm)		
			X	Y	Z
R-50	70	50	333	120	210
R-100	125	100	403	120	280
R-125	150	125	403	120	280
R-150	175	150	483	200	360
R-200	225	200	483	200	360
R-250	280	250	603	200	480
R-300	330	300	603	200	480

# Detection Method

- When no metal is passing through (Fig.1 and Fig.3), there is no voltage difference between receiver coil A and receiver coil B ( $A - B = 0$ ). This produces no detection signal.
- When metal (ferrous) is passing through (Fig.2), the magnetic flux density around the iron increases. As a result, increased voltage in receiver coil A causes a voltage difference between A and B, then a detection signal is produced.
- When metal (nonferrous metal) is passing through (Fig.4), magnetic flux entering the nonferrous metal is reduced due to overcurrent. As a result, the reduced voltage in receiver coil A causes a voltage difference between A and B, then a detection signal is produced.

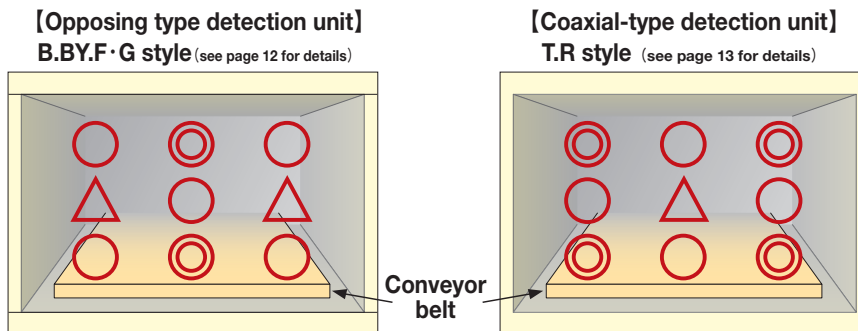


# Distribution of Detection Sensitivity

Detection sensitivity depends upon where metal is passing through.

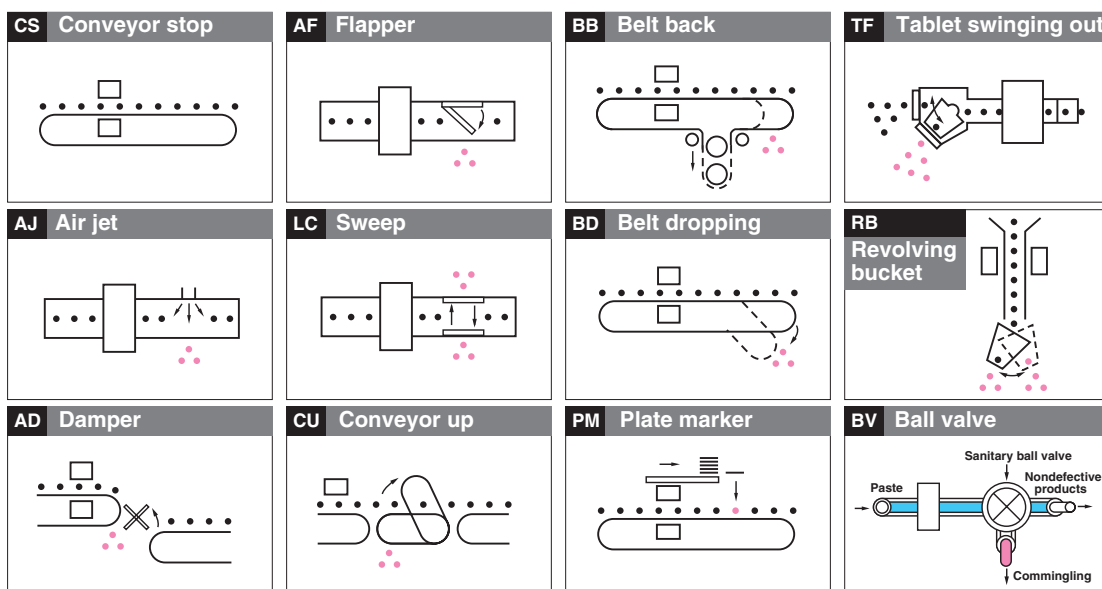
Easy to detect  $\odot > \bigcirc > \triangle$  Difficult to detect

The following shows a detection unit from an anterior view.



For example, 1.0  $\phi$  of metal can be detected on a  $\odot$  point and cannot be detected on a  $\triangle$  point. At least 1.2  $\phi$  of metal can be detected on a  $\triangle$  point.

# Type of rejecter



# Magnetized Metal Detector

## NT series

Magnetized Metal Detector, NT series, is super high sensitivity detecting device that can detect smallness magnetic metal<sup>\*1</sup>, especially for stainless-steel wire cannot be detected by conventional metal detector.

Package material (aluminum foil and tray) and product character (temperature, salt or moisture content) do not affect the sensitivity because of special magnetic sensor to catch only a small magnetic field radiated from magnetic metals.

We also have current concept model, NT4 that is newly developed to seek ultimate sensitivity.

<sup>\*1</sup>. Iron and magnetizable stainless-steel subjected to stress by cutting or bending.



## NEW

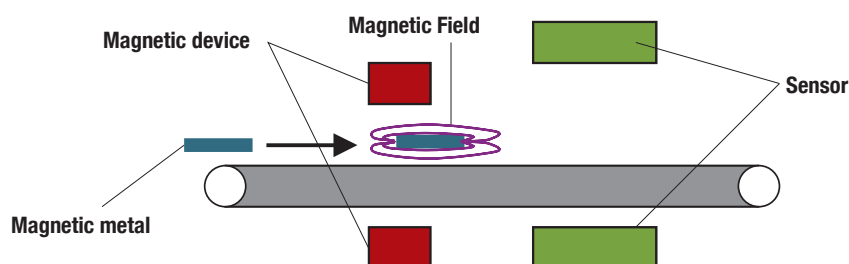
## NT4

- *Ultimate sensitivity*
- *Smallest running cost*
- *Serve a useful role for detection*
- *Simple Operation*



Model	NT4R-200M	NT4R-300M	NT4R-400M
Belt width	200mm	300mm	400mm
Effective height	80mm		
Sensitivity	Fe 0.5mm dia. (Reference value: SUS wire 0.2mm dia. X 2mm)		
Conveyance speed	from 10m to 60m per min. (adjustable)		
Conveyor length / Pass line height	/ 750mm±50m		
Power source	AC 100V ~ 240V ±		

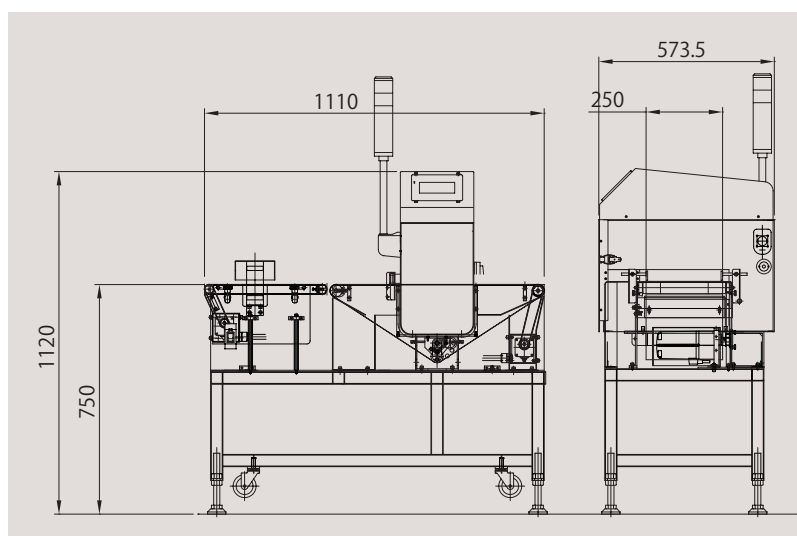
### Detection Principle



A contaminating magnetic metal is magnetized in the magnetic device and the special magnetic sensor detect a magnetic field around the magnetized metal. Passing through the magnetic device, stainless-steel can be magnetized because it is predisposed to magnetize when it is subjected to pressure of cutting or bending during processing or damaging. At this time, magnetized metal can be detected with no effect from the package however it is aluminum materials, because aluminum is nonmagnetic metal.

<sup>\*1</sup>The sensitivity of stainless-steel may depend upon the condition of magnetizing subjected to stress by cutting or bending.

## Standard type

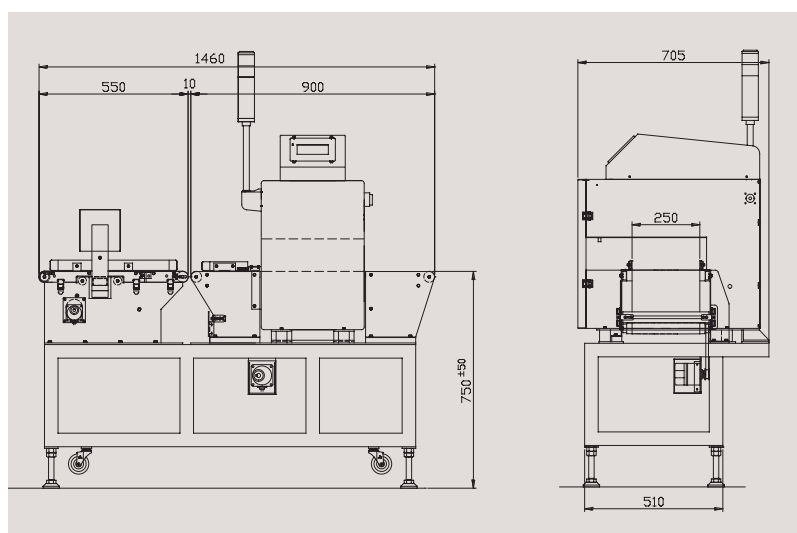


NT2R-K4B



Model		NT2R-J6B	NT2R-K4B	NT2R-L2B
Belt width		150mm	250mm	350mm
Sensitivity	effective high:40mm	Fe 0.8mm dia. (Reference value: SUS wire 0.2mm dia X 2mm)		
	effective high:60mm	Fe 1.2mm dia. (Reference value: SUS wire 0.2mm dia X 2mm)		
Conveyance speed		from 10 to 60m per min. (adjustable)		
Conveyor length / Pass line height		1,010mm/750mm±50mm		1,310mm/750mm±50mm
Power source		AC100V±10% 50/60Hz or required		

## High grade type



NT3R-K4B

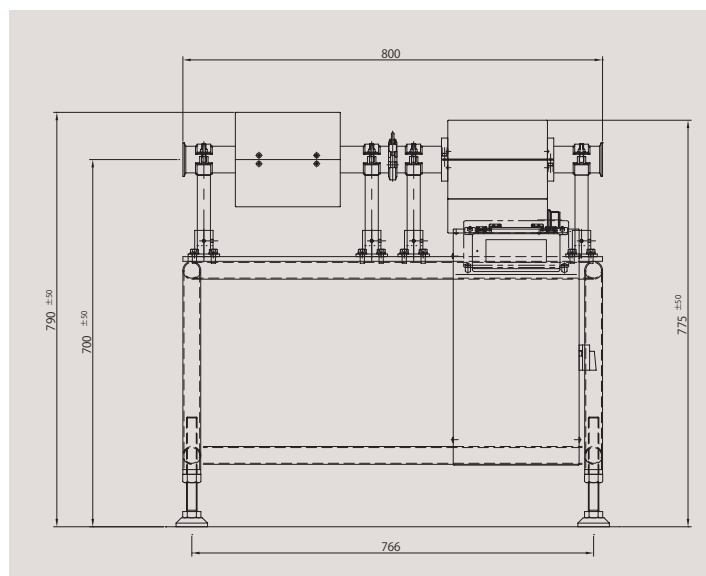


Model		NT3R-J6B	NT3R-K4B	NT3R-L2B
Belt width		150mm	250mm	350mm
Sensitivity	effective high:100mm	Fe 0.8mm dia. (Reference value: SUS wire 0.2mm dia X 2mm)		
	effective high:120mm	Fe 1.2mm dia. (Reference value: SUS wire 0.2mm dia X 2mm)		
Conveyance speed		from 10 to 60m per min. (adjustable)		
Conveyor length / Pass line height		1,460mm/750mm±50mm		1,760mm/750mm±50mm
Power source		AC100V±10% 50/60Hz or required		



## Pipe type

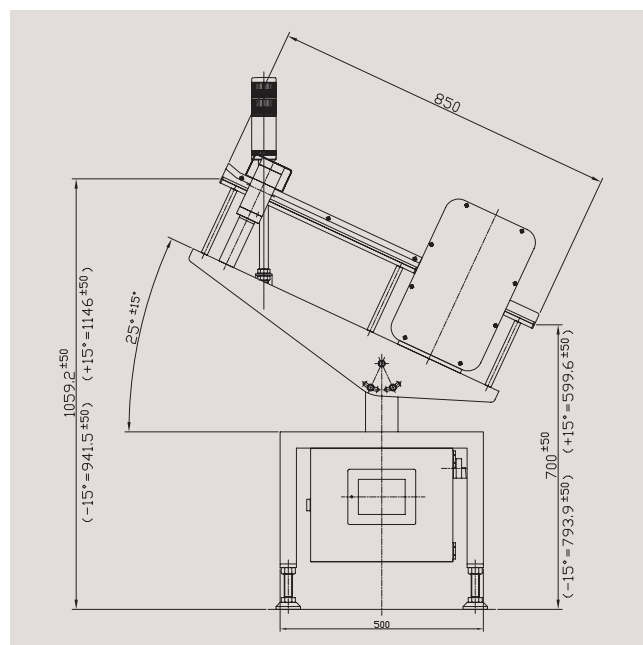
### NT3P



Model	NT3P-1.5S	NT3P-2.0S
Pipe size	1.5S	2.0S
Sensitivity	Fe 0.5mm dia. (Reference value: SUS wire 0.2mm dia X 2mm)	
Capable speed	from 10 to 100m per min.	
Tempera ture	Product -10 ~ 80C°	Ambient temperature 0 ~ 40C°
Power source	AC100V ~ 240V ±10% 50/60Hz or required	

## Chute type

### NT2R-JS2



Model	NT2R-JS2	
Effective width	120mm	
Sensitivity	effective hight:30mm	Fe 0.6mm dia. (Reference value: SUS wire 0.2mm dia X 2mm)
Capable speed	from 10 to 100m per min.	
Power source	AC100V ~ 240V ±10% 50/60Hz or required	

# CHECKWEIGHER

## CHECKWEIGHER with METAL DETECTOR

Checkweigher Model NW series has been improved for higher accuracy, easier cleaning capabilities for better sanitation conditions and the addition of machine functions allows for a more operator friendly design.



- Original Digital Signal Processor & Advanced Noise Reduction increase measurement accuracy.
- Inspected data can be saved and printed (option)



High Visibility  
with touch screen

## Feature



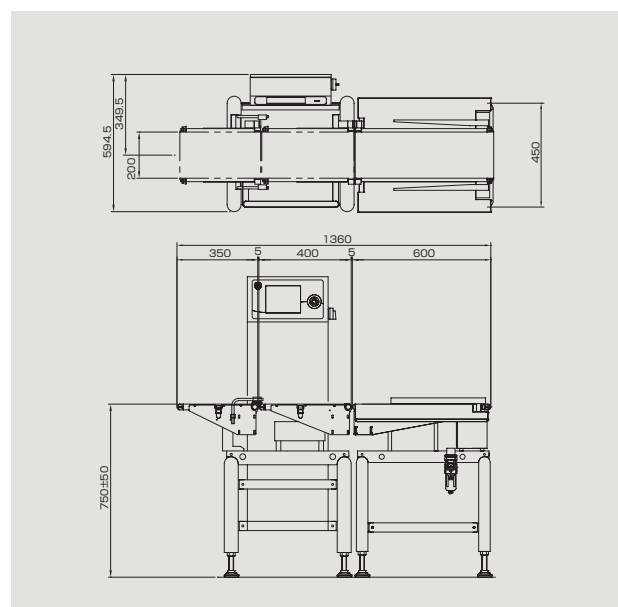
Easy Operation



More Sanitary Design  
with round piping frame for waterproof model.

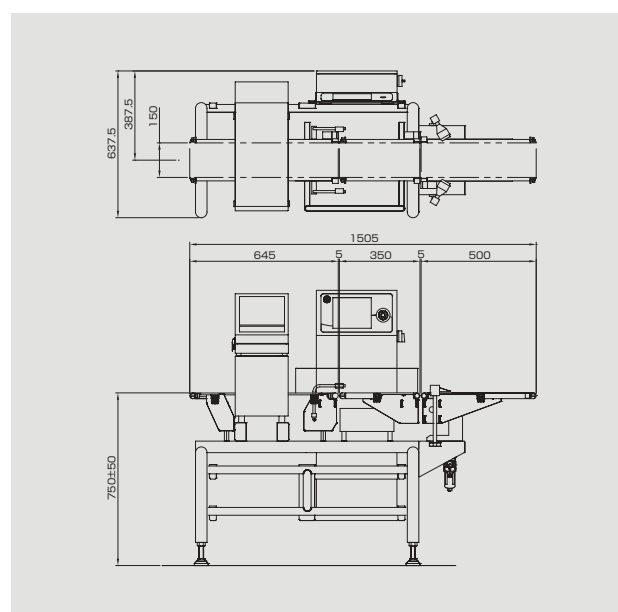
## Possible to combine with a rejecter

### NW1-C2040W + AF200



## Integrated model with Metal detector

### ND1-B1535TLW + AJ150



Model		NW1-C2040W+AF200	ND1-B1535TLW+AJ150
Weighing range		5 - 1000g	5 - 200g
Grading accuracy		+/- 0.2g	+/- 0.2g
Max. capacity		130 pcs/min.	300 pcs/min.
Full scale		1000.0g	200.0g
Min. scale		0.1g	0.1g
Product size		W=20~190mm L=30~300mm H5~150mm	W=20~140mm L=30~250mm H5~100mm
Metal Detector		—	Effective Width 150mm x passing height 90mm
Sensitivity of metal detector	Fe	—	φ0.4
	SUS	—	φ0.8
Belt speed		Adjustable (*1)	Adjustable (*1)
Power source		AC 100V +/-10% 50/60Hz 300VA	AC 200V +/-10% 50/60Hz 300VA
Height of pass line		750 +/-50mm	750 +/-50mm
Weight		120kg (including rejecter)	160kg (including rejecter)

\* Grading accuracy, handling capacity and sensitivity may depend upon conditions of measured products, use environment, etc. Product size and capacity depend upon the grading unit you use.

\*1. Adjustable range may depend upon the specification.

**We produce various lineup (full scale: 100g to 40kg) for general purpose and special model which are designed specifically for user's requirement (Engineering-To-Order)**



**Non-waterproof model**



**Combination model with DenoA touch**

### Type of full scale

A	B	C	D	E	F	G	H
100g	200g	1000g	2000g	5000g	10kg	20kg	40kg

### For small size product

Type		Weighing conveyor	Total length		product size
DenoWay	DenoX		NW	ND	
NW1-○1530 *	ND1-○1530□□ *	150x300	605	1000	W=20~140mm L=30~200mm H5~100mm
NW1-○1535 *	ND1-○1535□□ *	150x350	655	1000	W=20~140mm L=30~250mm H5~100mm
NW1-○2035 *	ND1-○2035□□ *	200x350	705	1000	W=20~190mm L=30~250mm H5~150mm
NW1-○2040 *	ND1-○2040□□ *	200x400	755	1000	W=20~190mm L=30~300mm H5~150mm
NW1-○2045 *	ND1-○2045□□ *	200x450	805	1100	W=20~190mm L=30~350mm H5~150mm
NW1-○2545 *	ND1-○2545□□ *	250x450	855	1100	W=20~240mm L=30~350mm H5~180mm
NW1-○3045 *	ND1-○3045□□ *	300x450	905	1100	W=20~290mm L=30~350mm H5~180mm

### For medium and large size product

Type of DenoWay	Weighing conveyor	Total length	Product size
NW1-○3055	300x550	550	W=200~250mm L=200~400mm H10~180mm
NW1-○3070	300x700	700	W=200~250mm L=200~550mm H10~180mm
NW1-○4055	400x550	550	W=200~350mm L=200~400mm H10~180mm
NW1-○4070	400x700	700	W=200~350mm L=200~550mm H10~180mm
NW1-○5010	500x1000	1000	W=300~450mm L=600~800mm H10~180mm
NW1-○6011	600x1100	1100	W=300~550mm L=600~800mm H10~180mm

## Description of Type

The type of full scale to ○ , metal detector to □ are applied. In case of waterproof model, W is applied to \* .

Ex. In case of 1000g full scale with Metal detector (control type: MELZ, detection type: T) and waterproof model,

**ND1-C2040TLW**

# Rejecter

Selectable lineup for best suited to various kinds of product and environment.

## ■ Air Jet system

Type	Size	Belt width	Capacity	Product weight	Grading level	Weight
AJ150	310Wx500L	150W	100~300pcs/min.	2~300g	3	11kg
AJ200	310Wx500L	200w	100~300pcs/min.	2~300g	3	13kg

\* Air supply: 0.2~0.6Mpa



## ■ Air Flapper system

Type	Size	Belt width	Capacity	Product weight	Grading level	Weight
AF150	540Wx500L	150W	100~150pcs/min.	5~1000g	3	37kg
AF200	540Wx600L	200W	100~130pcs/min.	5~2000g	3	42kg
AF250	540Wx700L	250W	100~110pcs/min.	5~2000g	3	48kg
AF300	540Wx770L	300W	80~100pcs/min.	5~2000g	3	60kg

\* Air supply: 0.2~0.6Mpa



## ■ Damper system

Type	Size	Belt width	Capacity	Product weight	Grading level	Stroke	Weight
BD150	360Wx400L	150W	50~80pcs/min.	5~2000g	2	100mm	15kg
BD200	360Wx500L	200W	50~80pcs/min.	5~2000g	2	130mm	20kg
BD250	470Wx500L	250W	50~80pcs/min.	5~2000g	2	145mm	40kg
BD300	500Wx550L	300W	50~80pcs/min.	5g~10kg	2	130mm	50kg

\* Air supply: 0.2~0.6Mpa



## ■ Slide Plate system

Type	Size	Belt width	Capacity	Product weight	Grading level	Weight
SP200	850Wx1090L	200W	340pcs/min.	5~300g	3	110kg



## ■ Air Pusher system (for medium and large size)

Type	Belt width	Conveyor length	Product weight	Grading level
AP300	300W	670L	1~5kg	2
AP400	400W	820L	1~10kg	2
AP500	500W	1045L	1~20kg	2

\* Air supply: 0.2~0.6Mpa

## Main products handled by Nikka Densok

Metal detector

Magnetaized metal detector

Magnetic iron removal equipment

Checkweigher

Pinhole inspector

Security-related equipment

Other various inspection machine, automatic rejector

## NIKKA DENSOK CATALOG

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<http://www.nikka-densok.co.jp>



### **NIKKA DENSOK LIMITED**

710 Shimoakasaka, Kawagoe-shi, Saitama-ken

350-1155, Japan

Phone +81-49-266-7311

FAX +81-49-266-5810

E-mail: [head-sales@nikka-densok.co.jp](mailto:head-sales@nikka-densok.co.jp)

<http://www.nikka-densok.co.jp>

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