Techik ®

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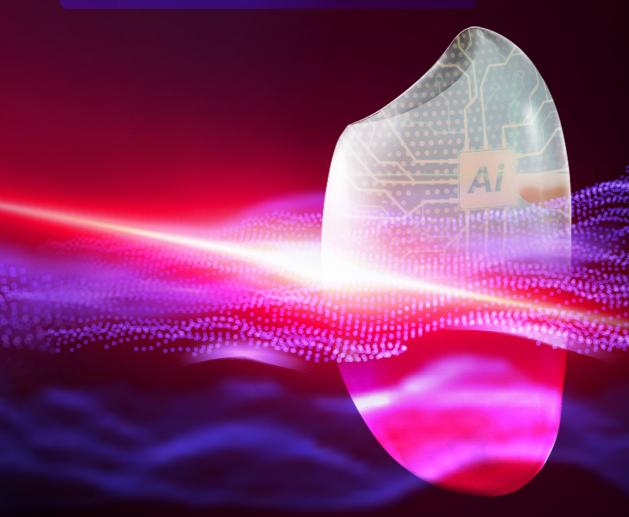**TECHIK SECURITY (SHANGHAI) CO., LTD**

Address: No 88, Lane 3509, South Hongmei Road, Minhang District, Shanghai, China

Color Sorter   X-ray Inspection System   Metal Detector   Checkweigher

Please visit www.techikgroup.com for more information!

Techik ®

RICE INDUSTRY
OPTICAL SORTING SOLUTION

HIGH OUTPUT RESOLUTION   HIGH PRECISION   INTELLIGENCE

HIGH QUALITY RICE · TECHIK INTELLIGENCE

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TECHIK INSTRUMENT (SHANGHAI) CO., LTD

Techik ®

HIGH-QUALITY RICE IS THE VITAL SOURCE AND FOUNDATION FOR RICE ENTERPRISES COMPETITIVENESS

Established in 2008, Techik Instrument (Shanghai) Co., Ltd. (hereinafter referred to as Shanghai Techik) is a high-tech enterprise focusing on research and development of spectrum online detection technology and product. Its products cover the fields of dangerous goods detection, foreign body detection, substance classification and sorting, etc. . Through the application of multi-spectrum, multi-energy spectrum, and multi-sensor technology, it provides efficient solutions for industries such as public safety, food and drug safety, food processing and resource recovery.

Relying on its profound technical research and development strength, Shanghai Techik owns more than one hundred kinds of intellectual property rights, and has successively won many honorary titles such as Shanghai Specialized and Special New Enterprise, Shanghai Small Giant Enterprise, Shanghai Xuhui District Technology Center.

Shanghai Techik has three holding subsidiaries, has established service organizations and sales offices covering Chinese market, and has service organizations and agency partners in more than 50 countries and regions around the world, to provide customers with technical support and after sales service.

Shanghai Techik adheres to the corporate mission of "making life secure and quality". Continuously improve around customer needs and improve customer experience; Take the striver as the foundation, dedicate to innovation and continuously create value. Shanghai Techik is committed to growing into a globally competitive supplier of intelligent high-end inspection equipment and solutions.

Vigorously promote agricultural mechanization and intelligence, and plug the wings of science and technology into agricultural modernization.

LEADING-EDGE TECHNOLOGY

FULL SPECTRUM

VISIBLE LIGHT

Visible light is the part of the electromagnetic spectrum that the human eye can perceive. The visible light technology uses the difference in the optical properties of rice to distinguish subtle chromatic aberrations and distinguish discolor and defect.

INFRARED LIGHT

Infrared (IR) frequency is between microwave and visible light, which is an invisible light. Infrared technology expands the range of material sorting and can identify malignant impurities such as plastic, metal, and glass.

COMPENSATION LIGHT

The light compensation technology can fill light in real time according to material sorting requirements and changes in the environment, greatly improving the ability to recognize subtle defects and yellowish.

CHALKY RICE SORTING

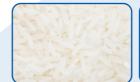| HIGH QUALITY RICE | CHALKY WHOLE | | HIGH QUALITY RICE | CORE CHALKY |

SIMULTANEOUS DISCOLOR & CHALKY RICE SORTING

| HIGH QUALITY RICE | YELLOW RICE | YELLOWISH | EXTREME YELLOWISH | CHALKY WHITE |

YELLOW, CHALKY & BROKEN RICE SORTING & OTHERS

| HIGH QUALITY RICE | YELLOW RICE | YELLOWISH | EXTREME YELLOWISH | CHALKY WHITE |

| BROKEN RICE | Backline | SPOT DEFECT | GRASS SEEDS | PADDY |

SORTING SOLUTIONS

MALIGNANT IMPURITIES SORTING

Glass	Cable tie	Cigarette butts
Buttons	Insect	Ceramic
Wooden stick	Metal	Stone
Mouse droppings	PET	Straw
Thread	Desiccant	Paddy
Seed stone	Rice hull	Grass seeds

Common malignant impurities can be sorted out, for example: glass, plastic, ceramic, cable tie, metal, insect, stone, mouse droppings, desiccant, thread, flake, heterogeneous grain, seed stone, straw, grain hull, grass seeds, crushed buckets, paddy, etc.

DISCOLOR SORTING

Whole chalky	core chalky	yellowish
color & chalky sorting		
Backline rice	Dark grey	Yellow rice
color & chalky sorting & separated		

DISEASE RICE SORTING   THE SHAPE SORTING

spot defect	Mildew	
Broken rice	Indica & japonica rice sorting	

SOFTWARE ADVANTAGES

FRIENDLY INTERACTIVE INTERFACE

- Self-developed rice operating software.
- Preset multiple schemes, choose the best to use immediately .
- The default boot guide, the interface is simple and easy to understand.
- Human-computer interaction is simple and efficient.

INTELLIGENT ALGORITHM

- No manual intervention, deep self-learning.
- Intelligent recognition of subtle differences.
- Fast realization of simple operation mode.

INTELLIGENT CLOUD CONTROL

- Exclusive APP, real-time control of production line status.
- Remote diagnosis, online sorting problem solving.
- Cloud backup/download color sorting parameters.

HARDWARE ADVANTAGES

MILITARY QUALITY SOLENOID VALVE

SENSITIVITY
High-speed response to the color sorter control system commands, promptly drive solenoid valve to eject high-pressure airflow, blowing defects material into rejecting hopper

LONGEVITY
Military quality solenoid valve; effective protection technology reduces solenoid valve tear; long working life; low failure rate; low power consumption; and prolonged working life of the whole machine.

PRECISION
The high- resolution camera combines intelligent algorithms to accurately locate defect objects, and the high-frequency solenoid valve immediately open the airflow switch, so that the high-speed airflow can accurately remove the defect objects.

STABILITY
The dust extracttion system and anti-breakage) system effectively reduce the disturb of dust and powder on the running color sorter. The low-power, high-quality solenoid valve ensures a stable and efficient color sorting effect.

SHORTWAVE INFRARED INGAAS CAMERA
Using indium gallium arsenide (InGaAs) material, it has the advantages of high sensitivity and high resolution, and can accurately identify glass, desiccant, plastic, stone and other malignant impurities. Dual infrared cameras can detect other more complex foreign materials.

NEAR INFRARED (NIR) CAMERA
Near-infrared has the advantages of high sensitivity and high contrast, and can identify most bands of stone minerals, metal, glass, plastic particles and other malignant impurities.

FULL COLOR CCD CAMERA
Using 5400 pixel full-color sensor, highresolution recognition and reduction of the subtle color difference of the material, it can effectively sort the different colors of rice, such as whole chalky, core chalky, chalky, milky chalky, yellowish, back line rice, black gray, etc..with algorithm setting, it is possible to distinguish particles of size, shape, and even different physical characteristics.

HIGH QUALITY RICE
FROM HIGH QUALITY SORTING
EQUIPMENT

1

TCS-GR Series
RICE COLOR SORTER

- Equipped with a resolution 5400 pixel full-color sensor, high-resolution snapshot function, perfect restoration of the true color of the material, 8 times magnification of photos, ultra-high-speed linear scanning speed, improvement of the ability to accurately identify small defects and Yellowish .
- The intelligent multiple-type easy-sorting algorithm system enhances parallel analysis and processing capabilities, with one-key setting of sorting modes, which can realize multiple color independent sorting, normal sorting, reverse sorting, multiple sorting, etc., so eventually achieving the durable and stable sorting with more prominent effect.
- High-brightness LED cold light source, shadowless lighting, to ensure stable and durable lighting environment.

Shape sorting function   Smart tracking   Automatic identification

📋 TECHNICAL INDEX LIST

Series	Model	Channel Number	Total Power	Voltage	Air Pressure	Air Consumption	Dimension (LxDxH)(mm)	Weight
TCS-GR Series	GR3TXTX-BS	3 × 63	2.0 kW	180～240V 50Hz	0.6～0.8MPa	≤1.8 m³/min	1650x1600x2100	520 kg
	GR4TXTX-BS	4 × 63	2.5 kW			≤2.4 m³/min	2050x1700x1950	900 kg
	GR5TXTX-BS	5 × 63	3.0 kw			≤2.8 m³/min	2350x1700x1950	1050 kg
	GR6TXTX-BS	6 × 63	3.4 kW			≤3.2 m³/min	2650x1700x1950	1200 kg
	GR7TXTX-BS	7 × 63	3.8 kW			≤3.8 m³/min	3000x1700x1950	1450 kg
	GR8TXTX-BS	8 × 63	4.2 kW			≤4.2 m³/min	3300x1700x1950	1650 kg
	GR10TXTX-BS	10 × 63	4.8 kW			≤5.0 m³/min	3950x1700x1950	2050 kg
	GR12TXTX-BS	12 × 63	5.3 kW			≤5.4 m³/min	4290x1700x2040	2600 kg

Note: 1. This parameter takes gummi as an example (the impurity content is 2%), and the above parameter indicators may vary due to different materials and impurity content.
2. If the product is updated without notice, the actual machine shall prevail.

⚙ PERFORMANCE INDEX LIST

Item	Performance Description
15-inch LCD Display	★
Visible Light Ultra-clear Sensor	★
Infrared Imaging System	——
InGaAs Composite Infrared	——
Imaging System	★
Shape Sorting Function	——
Spectral Confocal System	——
Geometric Center Positioning	>50亿次

Item	Performance Description
Ejector Life	>50000小时
LED Light Source Life	>50000小时
Total Power Life	☆☆☆
Malignant Impurity Sorting	
Dust Extraction System	★
High-efficiency Air System	——
Channel Cover	——
Feeding Protective Cover	☆

Note: ★ stands for standard configuration; ☆ stands for optional configuration; - stands for N/A.

🔔 SMART INDEX LIST

Simple Operation	Terminal Operation	Cloud Assistance	Equipment Self-check	Multi-level Program Settings
Standard Configuration	Optional Configuration	Optional Configuration	Standard Configuration	Standard Configuration

2

TCS-DR Series
INTELLIGENT RICE COLOR SORTER

- Equipped with a highresolution 5400 pixel full-color sensor , high-resolution snapshot function, perfect restoration of the true color of the material, 8 times magnification of photos, ultra-high-speed linear scanning speed, improvement of the ability to accurately identify little defects.
- The intelligent multiple-type easy-sorting algorithm system enhances parallel analysis and processing capabilities, with one-key setting of sorting modes, which can realize multiple color independent sorting, normal sorting, reverse sorting, multiple sorting, etc., so eventually achieving the durable and stable sorting with more prominent effect.
- High-brightness LED cold light source, shadowless lighting, to ensure stable and durable lighting environment.
- Transparent, plastic and non-metallic particles and particles of different colors, sizes, shapes and even physical properties can be sorted. Infrared sensor has been widely used in color sorting when there is material overlap. After effective perspective, the culled object can be efficiently sorted.

Shape sorting function   Smart tracking   Automatic identification

📋 TECHNICAL INDEX LIST

Series	Model	Channel Number	Total Power	Voltage	Air Pressure	Air Consumption	Dimension (LxDxH)(mm)	Weight
TCS-DR-P Series	DR3TXTX-BS	3 × 63	2.0 kW	180～240V 50Hz	0.6～0.8MPa	≤1.8 m³/min	1700x1700x2020	800 kg
	DR4TXTX-BS	4 × 63	2.5 kW			≤2.4 m³/min	2000x1700x2020	980 kg
	DR5TXTX-BS	5 × 63	3.0 kW			≤2.8 m³/min	2250x1700x2020	1200 kg
	DR6TXTX-BS	6 × 63	3.4 kW			≤3.2 m³/min	2650x1700x2020	1400 kg
	DR7TXTX-BS	7 × 63	3.8 kW			≤3.8 m³/min	3000x1700x2040	1700 kg
	DR8TXTX-BS	8 × 63	4.2 kW			≤4.2 m³/min	3280x1700x2040	1880 kg
	DR10TXTX-BS	10 × 63	4.8 kW			≤5.0 m³/min	3900x1700x2040	2200 kg
	DR12TXTX-BS	12 × 63	5.3 kW			≤5.4 m³/min	4290x1700x2040	2600 kg

Note: 1. This parameter takes gummi as an example (the impurity content is 2%), and the above parameter indicators may vary due to different materials and impurity content.
2. If the product is updated without notice, the actual machine shall prevail.

⚙ PERFORMANCE INDEX LIST

Item	Performance Description
15-inch LCD Display	★
Visible Light Ultra-clear Sensor	★
Infrared Imaging System	——
InGaAs Composite Infrared Imaging System	——
Shape Sorting Function	★
Spectral Confocal System	★
Geometric Center Positioning	★
Ejector Life	>5 Billion

Item	Performance Description
LED Light Source Life	>50000h
Total Power Life	>50000h
Malignant Impurity Sorting	☆☆☆
Glass, Desiccant, Plastic, Stone	
Dust Extraction System	★
High-efficiency Air System	★
Channel Cover	——
Feeding Protective Cover	☆

Note: ★ stands for standard configuration; ☆ stands for optional configuration; - stands for N/A.

🔔 SMART INDEX LIST

Simple Operation	Terminal Operation	Cloud Assistance	Equipment Self-check	Multi-level Program Settings
Standard Configuration	Optional Configuration	Optional Configuration	Standard Configuration	Standard Configuration

TCS-DR系列
INTELLIGENT RICE COLOR SORTER
Platinum Edition

Infrared · Shape sorting function · Smart tracking · Automatic identification

- Equipped with a high- resolution 5400 pixel full-color sensor, high-resolution snapshot function, perfect restoration of the true color of the material, 8 times magnification of photos, ultra-high-speed linear scanning speed, improvement of the ability to accurately identify small defects and Yellowish .
- The intelligent multiple-type easy-sorting algorithm system enhances parallel analysis and processing capabilities, with one-key setting of sorting modes, which can realize multiple color independent sorting, normal sorting, reverse sorting, multiple sorting, etc., so eventually achieving the durable and stable sorting with more prominent effect.
- Near-infrared color sorter configuration, high-brightness LED cold light source, shadowless lighting, to ensure stable and durable lighting environment.

TECHNICAL INDEX LIST

Series	Model	Channel Number	Total Power	Voltage	Air Pressure	Air Consumption	Dimension (LxDxH)(mm)	Weight
TCS-DR-P Series	DR3TVTX-BS	3 × 63	2.0 kW	180~240V 50Hz	0.6~0.8MPa	≤1.8 m³/min	1700x1700x2020	800 kg
	DR4TVTX-BS	4 × 63	2.5 kW			≤2.4 m³/min	2000x1700x2020	980 kg
	DR5TVTX-BS	5 × 63	3.0 kw			≤2.8 m³/min	2250x1700x2020	1200 kg
	DR6TVTX-BS	6 × 63	3.4 kW			≤3.2 m³/min	2650x1700x2020	1400 kg
	DR7TVTX-BS	7 × 63	3.8 kW			≤3.8 m³/min	3000x1700x2040	1700 kg
	DR8TVTX-BS	8 × 63	4.2 kW			≤4.2 m³/min	3280x1700x2040	1880 kg
	DR10TVTX-BS	10 × 63	4.8 kW			≤5.0 m³/min	3900x1700x2040	2200 kg
	DR12TVTX-BS	12 × 63	5.3 kW			≤5.4 m³/min	4290x1700x2040	2600 kg

Note: 1. This parameter takes gummi as an example (the impurity content is 2%), and the above parameter indicators may vary due to different materials and impurity content.
2. If the product is updated without notice, the actual machine shall prevail.

PERFORMANCE INDEX LIST

Item	Performance Description		Item	Performance Description
15-inch LCD Display	★		LED Light Source Life	>50000h
Visible Light Ultra-clear Sensor	★		Total Power Life	>50000h
Infrared Imaging System	★		Malignant Impurity Sorting	☆☆☆☆
InGaAs Composite Infrared Imaging System	—		Glass, Desiccant, Plastic, Stone	
Shape Sorting Function	★		Dust Extraction System	★
Spectral Confocal System	★		High-efficiency Air System	★
Geometric Center Positioning	★		Channel Cover	☆
Ejector Life	>50 Billion		Feeding Protective Cover	☆

Note: ★ stands for standard configuration; ☆ stands for optional configuration; - stands for N/A.

SMART INDEX LIST
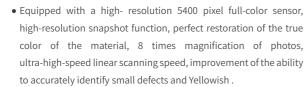
Simple Operation	Terminal Operation	Cloud Assistance	Equipment Self-check	Multi-level Program Settings
Standard Configuration	Optional Configuration	Optional Configuration	Standard Configuration	Standard Configuration

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TCS-DR系列
INTELLIGENT RICE COLOR SORTER
Diamond Edition

Infrared · Shape sorting function · Smart tracking · Automatic identification · 选悉杂

- Equipped with a highresolution 5400 pixel full-color sensor , high-resolution snapshot function, perfect restoration of the true color of the material, 8 times magnification of photos, ultra-high-speed linear scanning speed, improvement of the ability to accurately identify little defects.
- The intelligent multiple-type easy-sorting algorithm system enhances parallel analysis and processing capabilities, with one-key setting of sorting modes, which can realize multiple color independent sorting, normal sorting, reverse sorting, multiple sorting, etc., so eventually achieving the durable and stable sorting with more prominent effect.
- High-brightness LED cold light source, shadowless lighting, to ensure stable and durable lighting environment.
- InGaAs infrared technology can sort transparent bodies, plastic and non-metal particles, and particles of different colors, sizes, shapes, and even different physical properties.

TECHNICAL INDEX LIST

Series	Model	Channel Number	Total Power	Voltage	Air Pressure	Air Consumption	Dimension (LxDxH)(mm)	Weight
TCS-DR-P Series	DR3TITX-BS	3 × 63	2.0 kW	180~240V 50Hz	0.6~0.8MPa	≤1.8 m³/min	1700x1700x2020	800 kg
	DR4TITX-BS	4 × 63	2.5 kW			≤2.4 m³/min	2000x1700x2020	980 kg
	DR5TITX-BS	5 × 63	3.0 kW			≤2.8 m³/min	2250x1700x2020	1200 kg
	DR6TITX-BS	6 × 63	3.4 kW			≤3.2 m³/min	2650x1700x2020	1400 kg
	DR7TITX-BS	7 × 63	3.8 kW			≤3.8 m³/min	3000x1700x2040	1700 kg
	DR8TITX-BS	8 × 63	4.2 kW			≤4.2 m³/min	3280x1700x2040	1880 kg
	DR10TITX-BS	10 × 63	4.8 kW			≤5.0 m³/min	3900x1700x2040	2200 kg
	DR12TITX-BS	12 × 63	5.3 kW			≤5.4 m³/min	4290x1700x2040	2600 kg

Note: 1. This parameter takes gummi as an example (the impurity content is 2%), and the above parameter indicators may vary due to different materials and impurity content.
2. If the product is updated without notice, the actual machine shall prevail.

PERFORMANCE INDEX LIST

Item	Performance Description		Item	Performance Description
15-inch LCD Display	★		LED Light Source Life	>50000h
Visible Light Ultra-clear Sensor	★		Total Power Life	>50000h
Infrared Imaging System	☆		Malignant Impurity Sorting	☆☆☆☆☆
InGaAs Composite Infrared Imaging System	★		Glass, Desiccant, Plastic, Stone	
Shape Sorting Function	★		Dust Extraction System	★
Spectral Confocal System	★		High-efficiency Air System	★
Geometric Center Positioning	★		Channel Cover	☆
Ejector Life	>5 Billion		Feeding Protective Cover	☆

Note: ★ stands for standard configuration; ☆ stands for optional configuration; - stands for N/A.

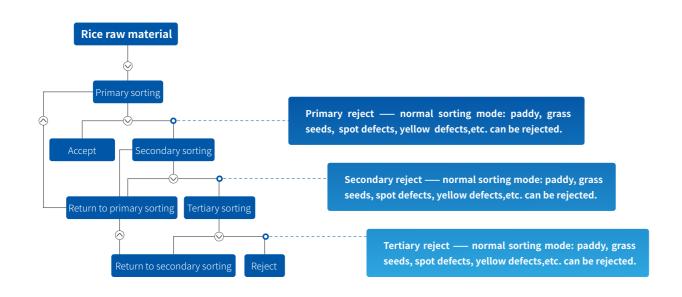### SMART INDEX LIST

Simple Operation	Terminal Operation	Cloud Assistance	Equipment Self-check	Multi-level Program Settings
Standard Configuration	Optional Configuration	Optional Configuration	Standard Configuration	Standard Configuration

HETEROCHROMIA SORTING FOR JAPONICA/INDICA RICE
SOLUTIONS

PROCESS FLOW DIAGRAM

Rice raw material

Primary sorting

Accept | Secondary sorting

Return to primary sorting | Tertiary sorting

Return to secondary sorting | Reject

Primary reject —— normal sorting mode: paddy, grass seeds, spot defects, yellow defects,etc. can be rejected.

Secondary reject —— normal sorting mode: paddy, grass seeds, spot defects, yellow defects,etc. can be rejected.

Tertiary reject —— normal sorting mode: paddy, grass seeds, spot defects, yellow defects,etc. can be rejected.

SORTING RESULT COMPARISON

Accept | Reject

Accept | Reject

YELLOW AND WHITE SORTING FOR JAPONICA / INDICA RICE
SOLUTIONS

PROCESS FLOW DIAGRAM

Rice raw material

Primary sorting

Accept | Secondary sorting

Return to primary sorting | Tertiary sorting

Heterochromatic particles | Fourth sorting

Return to secondary sorting | Chalky particles

Primary reject —— normal sorting mode: paddy, grass seeds, spot defects, yellow defects, milky white chalky rice, etc. can be rejected.

Secondary reject —— normal sorting mode: paddy, grass seeds, spot defects, yellow chalky rice, etc. can be rejected.

Tertiary reject —— normal sorting mode: paddy, grass seeds, spot defects, yellow defects etc. can be rejected.

Fourth reject --- normal sorting mode: chalky rice etc. can be rejected.

SORTING RESULT COMPARISON

Accept | Yellow Rice

Accept | Reject

GLUTINOUS RICE SORTING
SOLUTIONS

PROCESS FLOW DIAGRAM

SINGLE SORTING

Glutinous rice raw material

Primary sorting

Accept | Secondary sorting

Return to primary sorting | Tertiary sorting

Return to secondary sorting | Reject

YELLOW AND TRANSPARENT SORTING

Glutinous rice raw material

Primary sorting

Accept | Secondary sorting

Return to primary sorting | Tertiary sorting

Color defects | Fourth sorting

Return to secondary sorting | Transparent rice

SORTING RESULT COMPARISON

Accept

Transparent rice

Accept

Yellow rice

CUSTOMER CASE

COMPANY ENVIRONMENT