

Foreword

Thank you for purchasing MR5D30A Twist-off Caps Vacuum Capper manufactured by MRZX -- Ningbo Zhong Xing Machinery Ltd.

To assist you to understand the operation and maintenance work of the equipment better, we will explain the use and attendance of the capper in a simple way. For this purpose, please read the instruction manual thoroughly to further get acquainted with its performance and features. This is essential for operators of the machine.

The instruction manual includes the necessary information such as relevant guidance, performance, operation, maintenance, spare parts checklist, outsourcing parts list, outside drawing and electric schematic diagram. No part of this publication may be reproduced, modified or transferred to the third party in any way without the prior written consent of MRZX. The content of this manual and the technical specifications of this product are subject to change without notice. For any problem or further information on the machine, please contact MRZX.

Guangzhou Branch: Guangzhou Mingrui Enterprise Co Ltd

Tel: +86 20 37597038

Fax: +86 20 37597029

E-mail: info@mingrui.com

Premise in Ningbo: Ningbo Zhong Xing Machinery Ltd

Tel: +86 574 87905888

Fax: +86 574 87906999

E-mail: zxfef@163.com

Contents

1. Applications and performance.....	3
2. Specifications.....	3
3. Main component parts:	4
4. Main working procedures.....	4
5. Electric control (see Fig. 10.1 Electric Schematic Diagram)	6
6. Installation of the capper.....	7
7. Adjustment and commissioning.....	7
8. Lubrication and maintenance of the machine.....	10
9. Operating procedures	11
10. Electric Components Checklist for MR5D30A Twist-off Caps Vacuum Capper.....	13
11. Accessories of MR5D30A Twist-off Caps Vacuum Capper.....	14
12. Spare parts supplied with MR5D30A Twist-off Caps Vacuum Capper.....	16
13. Consumables of MR5D30A Twist-off Caps Vacuum Capper.....	17
14. Attached drawings.....	17

1 Applications and performance

As an improved version of MR5D30, **MR5D30A Twist-off Caps Vacuum Capper** is applicable to cans, drinks, condiments, medicines and chemical products and is capable of vacuum capping of the bottles with lug or twist-off caps as well as of those not necessarily to be vacuumed. The integrated machine features compact design, smooth running, low noise, efficient energy consumption, simple operation, easy adjustment, maintenance and cleaning, complete functions and full automation. It is really an optimal device for quality and efficient bottle capping.

The machine integrates the advantages of the advanced similar machines both from home and abroad. It satisfies customers' different demands on different capping speeds by means of infinite speed regulation. The machine decreases the air pressure inside a bottle by high-speed steam injection, tightens the bottle cap and then vacuums the bottle by flushing cold water. Using the principle of "Parabola Tracking Sliding", the cap-feeding device automatically arranges in order the caps that are put in the feeder at option and dexterously feeds them into the cap guide rail. In a very short time, the machine smoothly and accurately finishes a series of operations, e.g. cap supply, positioning, caps feed, steam ejection, and sealing. At the same time, it achieves automatic cap supply using a non-contact inductive switch (electric eye). To ensure the orderly working procedures and to prevent bottle and cap from damage, the machine stops bottle infeed in the event of no cap.

With a unique design and extensive scope of application, the machine is intended for capping bottles and caps in varied sizes only by simple adjustment instead of parts replacement. Multiple types of product may be processed using different glass bottles and caps.

The machine complies with Q/ZXB007-2000 standards.

2 Specifications

2.1 Applicable cap types: twist-off caps, PT cap, etc.

Cap diameter: (30~85)mm

Bottle diameter: (30~85)mm

Bottle height: (65~260)mm

2.2 Productive capacity: (80 – 150) bottles/min (for caps in 38 -85mm diameters).

2.3 Steam demand: (182 – 227) kg/h

2.4 Rated steam pressure: ≤ 0.4 MPa

2.5 Vacuity in bottle up to: 66cm-Hg(constant filling temperature of liquid soap: 70~85°C)

- 2.6 Requirement of motive power:
Main motor: 2.2kW
Cap supply motor: 0.37kW
Exhaust motor: 0.55kW
- 2.7 External dimensions: 3000mm (L) ×1100mm (W) ×2000mm (H)
- 2.8 Net weight: approx. 1100kg。

3 Main component parts:

The machine consists of the following ten components:

- | | |
|---|----------------------------------|
| 1. Frame (upper cabinet and lower base) | 2. Driving assembly |
| 3. Conveying assembly | 4. Cap supply component |
| 5. Pre-sealing assembly | 6. Sealing assembly |
| 7. Steam piping | 8. Cooling water assembly |
| 9. Electric control component | 10. Exhaust ventilation assembly |

4 Main working procedures

The filled bottles (with 5 – 10mm top clearance) to be capped are conveyed to the carrier chain of the main unit by the conveyor (the clearance between bottles >180mm) and then into the machine. Caps are automatically arranged with opening downwards (as shown in Fig. 1) in the cap feeder and taken to the guide rail in the pre-sealing area along the chute one by one (the chute is provided with a steam ejecting pipe to soften the seal ring in cap). A Cap is left on the neck of each bottle passed the guide rail and pre-sealed under the application of pressing foot and rubber block. Then it comes to the underside of the differential flat belt pressure plate of the sealing assembly and is tightened by the two differential flat belts to twist cap.

Before capping, the bottle passes the steam ejection area first and displaces the air under normal pressure in the top clearance at the bottle mouth with high-speed steam. After capping, the cooling water pipe sprays cold water on its cap to cool down the bottle to vacuum it.

During the entire process from pre-sealing to sealing, the bottle is clamped by a pair of V-belts synchronizing with the carrier chain so that the bottle can go forward smoothly and will not turn (see Fig. 2).

The main steps are described as follows:

4.1 Automatic cap supply and positioning

Put bottle caps in the bucket (Put in 1000~2000 caps at a time depending on the size of caps and

timely replenish them so as not to affect productive capacity. Relatively big or small caps may also exert negative impact on productive capacity, and even results in the failure of production). The turn table rotates counterclockwise under the driving force of the cap feeding motor drives and caps are automatically arranged with opening downwards. Caps come out of the discharge hole on one side of the bucket and slide into the chute and then into the guide rail. At this point, they incline, hold and wait for bottle with the application of the tip ball. Thus far, the automatic cap feeding and positioning processes have been finished.

The machine is equipped with a cap feeding system. At the same time, its productivity will boost if using the floor type magnetic cap elevator as the cap feeding system of the machine.

4.2 Automatic cap supply and pre-sealing

Stuffed bottles are conveyed to beneath the guide rail from the carrier chain. A bottle neck hitches the lowest slopping cap arranged in a single row in the guide rail and takes it away. At this point, the front pressing foot sets it flat and then the thread on the bottle neck screws in the cap preliminarily as a result of the friction between the rubbing strip outside the cap and cap edge. The preliminarily engaged bottle and cap leave the rubbing strip. Then it is tightened by the second pressing foot and advances towards the belts (sealing area). Till now the automatic cap supply process and pre-sealing process are done (see Fig. 3 and Fig. 4).

4.3 Automatic sealing

The Pre-sealed bottle enters into sealing area. Under the pressure of the pressure plate, two differential flat belts rotating in the same direction come to contact with the topside of cap. The outer belt (pressure belt) stabilizes the bottle and the inner belt (sealing belt) tightens and seals the cap on the bottleneck by rotating the cap at a faster speed than the carrier belt, side belt and pressure belt (see Fig. 6 and Fig. 7).

4.4 Vacuum and exhaust

The steam from steam boiler is supplied into the steam control system of the machine through piping. It blows off from the steam jet nozzle above cap chute and bottle conveying channel after it is separated by a flow filter and steam-water separator. The ejected high-speed hot steam displaces the air in the bottle mouth and cap space to achieve vacuum.

The used steam is vented out by air extractor to ameliorate working conditions.

4.5 Cooling

User connects the cold water supply pipe (e.g. tapping pipe) to the cold water intake of the

machine to reduce the temperature of the bottle and its contents as well as the air in top clearance to normal temperature in order to vacuum the bottle. On the other hand, the cold water sprayed on the sealing belt pressure plate and side belt pulley decreases the temperature rise caused by friction and effectively keeps the normal performance of these assemblies and reduce wear.

5 Electric control

5.1 Operational principle

The machine uses 380v/220v three-phase four-wire power supply.

Main motor M1 and cap feeding motor M2 are controlled by automatic means. The main motor M1 adopts stepless speed regulation of frequency changer. All electric components are imported.

The machine is provided with an air-break switch, which prevents it from short circuit and overload. The cap feeding motor and air extractor are also protected from short circuit and overload. The control circuit section is protected by a fuse. Additionally, the machine is equipped with a crank handle. The main unit cannot operate unless the crank handle is removed. Please refer to Fig. 13 for the schematic diagram of the electric control system, Fig. 14 for electric wiring diagram and terminal block arrangement plan, Fig. 15 for control panel layout diagram and Fig. 16 for electrical components layout diagram.

5.2 Operating instruction

Check for all preparation work before start-up. Connect to power supply and start the machine after you make sure every thing is O.K. Switch on the main switch QF and air switch QF1. The power indicator lights. Remove the crank handle and turn on the knobs (SA1、SA2、SA3)of the main motor, cap feeding motor and air extractor. Then the machine starts to operate. When necessary, the speed of operation needs to be regulated according to the frequency of the frequency changer during operation. For stopping the machine, switch off knobs of the main unit, cap feeding motor and air extractor, and then shut off the main switch. During operation, you may press down the emergency switch (SB) to cut off the control power supply in case of emergency. The machine will stop immediately.

5.3 System protection

To guarantee equipment and personnel safety, the electric cabinet must be securely grounded.

The basic parameters for the frequency changer of the main unit have been set at factory and need no adjustment as a general rule. For speed regulation, you simply need to change its frequency. Read the supplied instruction manual for the frequency changer before operating it. Operate the machine by strictly following the instruction manual and avoid excessive shock or

vibration. Otherwise its components are subject to damage.

In case accidents during operation, never force the machine to operate. Do not continue to operate the machine unless you carefully examine and remove the problem. Periodically conduct maintenance work in production to ensure its normal operation.

6 Installation of the capper

6.1 Position the machine as required by the production line. It needs no exclusive foundation but only leveled and solid concrete ground surface for placement.

6.2 The steam outlet of the air extractor must be connected to the exhaust pipe according to the layout of the workshop so that the used steam can be fully discharged.

6.3 The installation of steam piping and power lines must lay stress on safety at first. At the same time, they must be arranged tidy and not affect the normal production.

6.4 After installation, clean the mechanical elements with quality turpentine or kerosene and mop them up with a soft dry cloth. Then grease them as usual and check the lubrication in the worm gear case under the lower base, the driving gear box on the back side of the upper housing and worm reducer behind the cap bucket. Refill and replace grease in all parts as required.

Caution: Before commissioning, remove the mill star under the cap bucket support (used for protection purpose during transportation) so as not to damage the machine during adjustment.

7 Adjustment and commissioning

7.1 Adjustment of the guide rail and baffle at the upper end of the bottle cap chute

Unscrew the support nuts on the top baffle (steam box) on the chute, adjust the baffle upwards or downwards to keep 1.5~2.0mm clearance between cap and the baffle and then lock it. Loosen the set screws on the guide rail and make the distance between the upper guide rails 1.5~2.0mm bigger than the outside diameter of the cap by rotating the star shaped (or knurled) nut, and then tighten the screw.

7.2 Adjustment of the width and height of the cap chute

7.2.1 Adjustment of the width of the cap chute

Unscrew the chute set screw on one side of the cabinet cover. Place a bottle cap on the top of the chute. Gradually counterclockwise or clockwise rotate the adjusting spindle of the chute to allow it to broaden or narrow down until there is about 1.5mm clearance between the chute width and the

outside diameter of the cap. The cap slides down to the stop on the guide rail at the bottom of the chute. Draw the cap out of the tip ball by hand freely. Then lock the set screw (see Fig. 11).

7.2.2 Adjustment of the height of the cap chute

Lower the upper chute until the cap is blocked. Then raise it to 1.6~2mm away from the top side of the bottle cap to let the cap pass freely (see Fig. 3).

7.3 Adjustment of cap pick-up (height of the related upper cabinet)

The machine may be used to cap bottles in different heights simply by adjusting the height of its upper cabinet. The adjustment of the upper cabinet can be carried out only by setting the height regulator on the left side of the lower base with the supplied exclusive spanner. The upper cabinet rises as a result of counterclockwise rotation and vice versa. When the adjustment of the cap chute is made, the pick-up of cap mainly depends on the height adjustment of the upper cabinet. Proceed as follows:

7.3.1 For initial operation of the machine, remove the V-belt outside the upper cabinet (on the side of cabinet cover) from the driving pulley and idler pulley. Then unscrew the setscrews on the upper cabinet cover and upper cabinet, and remove the upper cabinet cover.

7.3.2 Feed several caps (downwards) at the upper end of the cap chute, and allow them to reach the guide rail and wait for bottles.

7.3.3 Pull out the V-belt inside the cabinet from the idler pulley and leave the belt under it. Place a bottle to be capped beneath the guide rail and align the bottleneck with the lowest cap in the chute. If clamping V-belt pulley at this time affects the alignment of the bottle with the guide rail, move the V-belt pulley inward to get out of the way of the bottle by turning clockwise or counterclockwise the handwheel at the top of backside of the cabinet.

7.3.4 Finely adjust the height of the upper cabinet so that the edge of the cap is 5mm below the top of the bottle neck (see Fig. 1). Manually turn the conveyer on the right side of the lower base to allow the carrier chain to move forward and the bottle neck to arrest the cap. Then, replace the inner V-belt on the driving pulley, idler pulley and pressure strip pulley as well as the upper cabinet cover. Lock the set screws on the cabinet cover and cabinet. Replace the outer V-belt on the driving pulley, idler pulley and pressure strip pulley.

7.4 Position the center of bottle

It is essential to position the center of the bottle. When the procedures of cap pick-up and cabinet replacement are finished, proceed as follows:

Center the bottle by adjusting the two hand wheels on the front side of the machine. Then again center the bottle by adjusting the two hand wheels on the rear side of the machine. Through the adjustment of the hand wheels, the belts on both sides of the bottle move to the right or left and hence clamp the bottle (see Fig. 2 and Fig. 9) and align the inner and outer clamping belts with the center of the bottle.

Adjust the alignment piece on the carrier chain support to the center of the guide rail and the two clamping belts so that the bottle can come into contact with the clamping belts on both sides under the cap and the clamping force can be balanced. The alignment piece must be adjusted if the bottle contacts the V-belt on side first and then that on the other side. The bottle must smoothly pass the alignment piece and reach the clamping belts without contacting the V-belt on side first and then that on the other side. In general, the several center points must be aligned in one center line.

7.5 Adjustment of pre-sealing assembly

After the above mentioned adjustment, the bottle arrests the cap and enters into the pressing foot pre-sealing area (see Fig. 5). To make the underside of the front pressing foot contact the top of the cap and to keep it level, adjust the screw on the leaf spring to an appropriate pressure. Then gently press the pre-sealing slab rubber inwards by fingers to make the rubbing slab contact the edge of the cap and give the leaf spring an appropriate pressure by adjusting the screw. In this way, the four lugs (three or six lugs) of the cap preliminarily screw the threads at the bottle opening when it passes the front pressing foot and pre-sealing slab rubber. Then the bottle continues to move forward and the rear pressing foot takes over the front pressing foot in keeping contacting the top of the cap and level. The leading edge of the cap is accessed by the flat belt (sealing area) and the trailing edge is pressed by the pressing foot so that the bottle can be forwarded smoothly (see Fig. 4). The height of the pressing foot may be adjusted using the adjustment connecting rod over the pressing foot outside the upper cabinet. At the same time, a gentle pressure can be obtained by adjusting the screw on the adjustment leaf spring. The elastic force required on the pressing foot depends on the capping speed. As a general rule, the higher the linear speed is, the bigger elastic force is required on the pressing foot.

7.6 Adjustment of the sealing assembly

The final sealing the cap and bottle depends on the differential flat belt and its pressure plate. The height of the flat belt is controlled by the copper pressure plate assembly while the height of the latter is controlled and regulated by the two upper handles at the top of the upper cabinet (see Fig. 6). The lower handle is used to adjust and control the acting force of the spring.

The flat belt and its pressure plate must be set to the proper height and appropriate spring acting force, meanwhile, the position of the pothook of the tensioning brace rod (see Fig. 6) must be adjusted so that the differential flat belt is properly tensioned and rotates smoothly.

When the pre-sealed bottle enters into the beneath of the differential flat belt, the left (at the intake) adjusting rod can rise 1.5~2.0mm and the right one 2.0~3.0mm. They smoothly return to their original positions after the bottle passes. The sealing and tightening degree in this state is appropriate. The copper pressure plate must lift smoothly. This can be achieved by adjusting the eccentric axial sleeve and preventing the spring from blockage. Keep on adjusting if all requirements can not be satisfied.

Fig. 12 indicates the roles each component plays in the adjustments. Fig. 13 is the outline drawing of the machine.

8 Lubrication and maintenance of the machine

8.1 Lubrication

The lubrication of moving parts is essential for any running equipment, especially high-speed running equipment. It is directly related to the normal operation and service life of equipment. The machine uses three different lubricants and lubricating periods for its different parts. They are as follows:

8.1.1 Calcium base grease (Albany grease) lubrication points

The machine has 12 through type lubrication points (through grease hole) and needs to be greased with #2 Albany grease each 48 hours.

8.1.2 Gear lubricants

Check the worm gear case in the base and worm reducer behind the cap bucket for lubricant each 15 days. Refill Grade 70 viscosity gear oil if the oil level drops below the midline of the oil leveler (inspection glass)

8.1.3 Liquefied paraffin (white mineral oil) lubrication points

Once for each shift;

The moving sleeves and pins of the entire carrier chain;

Sleeve, roller, chain;

The eight grease holes in the copper sleeve of the clamping belt support (grease the inner wall of the copper sleeve as well as the spindle and springs in the sleeve).

8.2 Maintenance

Regular and careful maintenance is an important guarantee of the good performance and normal operation of the equipment. So:

8.2.1 Routine maintenance: Carefully clean and mop up the machine after each shift. Examine and refill lubricant and grease as required by lubrication. Weekly check the tensioning status of the driving belts of the main motor and cap feeding motor, and properly regulate them when necessary.

8.2.2 When the equipment is to be out of service after seasonal production, thoroughly clean all assemblies and components of the machine. Meanwhile, completely lubricate all exposed parts such as the supporting axle, lifting screw and apply a layer of Albany grease on them. Then wrap them with oil paper or plastic film.

8.2.3 Qualified operators trained by the manufacturer and carrying out responsibility system are recommended. This can help operators further learn about its structure, operational principles, technical performance, operating procedures and maintenance work, know the relevant assemblies to be examined and adjusted when changing the size and height of bottle as well as the cap size, timely find out and resolve the arising problems and improve productive efficiency and capping quality.

9 Operating procedures

9.1 Start-up

9.1.1 Before starting the machine, examine and refill lubricant and grease as required by lubrication.

9.1.2 Connect the machine to power supply and switch on the main switch in the electric cabinet. Then the power indicator illuminates;

9.1.3 Remove the crank handle. Otherwise the main unit can not start up due to electric interlocking protection.

9.1.4 Feed bottle caps (downwards) in the cap chute to the beneath of the non-contact inductive switch (electric eye) SQ1.

9.1.5 Turn on the switch of the main motor and allow the carrier chain, differential flat belt and side belt to run idle for 1-2 minutes.

9.1.6 Switch on the cap feeding motor.

9.1.7 Switch on tapping water valve and supply the machine with cooling water.

9.1.8 Unscrew the screw at the bottom of the exhaust pipe of the air extractor, drain off condensed water and switch on the power switch. Then the air extractor starts to operate.

9.1.9 Turn on the steam supply valve, check and adjust steam pressure.

9.1.10 Load a stuffed bottle with 5-10mm clearance from its content to the opening, and then the machine is in operating state.

9.2 Stopping the machine

9.2.1 Stop steam supply by shutting off the steam supply valve.

9.2.2 Switch the power switch of the cap feeding motor to "OFF" position

9.2.3 Switch the power switch of the main motor to "OFF" position.

9.2.4 Switch the power switch of the air extractor to "OFF" position.

9.2.5 Switch the main switch to "OFF" position and then the indicator goes out.

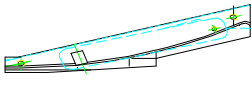
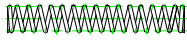
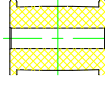



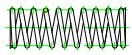
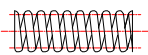
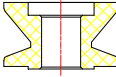

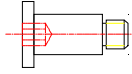
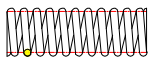

9.2.6 Shut off the cooling water supply valve.

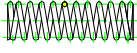
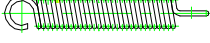
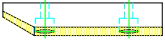
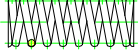
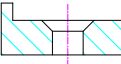
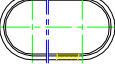

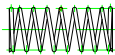
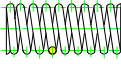

9.2.7 In case of accident, press down "SB" emergency button to cut off the control circuit.

10 Electric components checklist

Serial No.	Code	Designation	Model	Quantity	Remarks
01	QF	Air-break switch	BKM-3P-C16	1	LG
02	QF1	Air-break switch	BKM-3P-C10	1	LG
03	KM1, 2	AC contactor	LC1-D0610 AC220V	12	TE
04	KA1	Intermediate relay	MY4J-AC220V	1	OMRON
05	KA2, 3,4	Intermediate relay	MY4J-DC24V	3	OMRON
06	FR1, 2	Thermal relay	LR2 D1308-N	2	TE
07	VF	Frequency changer	ATV-28HU54N4	1	Schneider
08	VC	Linear power supply	S-35-24 1.5A	1	Taiwan
09	SQ1, 2	Proximity switch	PR18-5DP DC24V	2	Autonics
10	SQ3	Proximity switch	PR18-8DP DC24V	1	Autonics
11	FU1, 2	Fuse	RT14-20 2A	2	With support
12	HL1	Indicator	XB2-EVB4C	1	TE
13	HL2, 3,4	Indicator	XB2-EVB3C	3	TE
14	SB	Emergency stop button	ZB2-BS54C	1	TE
15	SA1, 2,3	Two place buttons	ZB2-BD2C	3	TE
16	KT1, 2	Time relay	H3CT-8A (H) DC24V	2	OMRON

11 Accessories of MR5D30A Twist-off Caps Vacuum Capper

NO.	Drawing NO.	Drawing	Material	Remarks
601	MR5DA-11-09 Bracket plate		1Cr18Ni9Ti	A left piece and a right piece
602	MR5DA-11-38 Pressure spring		0Cr17Ni7Al	
603	MR5DA-12-15 Roller gear		PF	
604	MR5DA-12-22 Roller gear of splinting (length)		PF	
605	MR5DA-12-22 Roller gear of splinting (shot)		PF	
606	MR5DA-13-21 shin		F-4	There are three standards depths
607	MR5DA-12-08 Rising and tightly spring		0Cr17Ni7Al	
608	MR5DA-13-09 Hard spring		0Cr17Ni7Al	
609	MR5DA-13-06 Contact roller		F-4	
610	MR5DA-13-04 liner		F-4	
611	MR5DA-13-05 Spindle of contact roller		1Cr18Ni9Ti	
612	MR5DA-13-02 Soft spring		0Cr17Ni7Al	
613	MR5DA-12-27 Belt of protecting slide		Silicon rubber	1 Set 2 pieces A large belt and a small one

NO.	Drawing NO.	Drawing	Material	Remarks
614	MR5DA-13-16 spring		0cr17Ni7Al	
615	MR5DA-19-11 Extension spring		0cr17Ni7Al	1 Set 2 pieces
616	MR5DA-15-06 Rubbing strip		Silicon rubber	
617	MR5DA-15-07 spring		0cr17Ni7Al	
618	MR5DA-01-10 Board guide of chain		copper	
619	MR5DA-12-27 Belt of rubbing covers		Heat-resisting rubber	importment
620	B 形三角 Trigonometry of B form		GB11544-89	L=2692
621	MR5D-01-19 Transporting roller chain of stainless steel		1Cr18Ni9Ti	
622	MR5D-03.8-3 Bayoner lock spring		0cr17Ni7Al	1 Set 2 pieces
623	MR5DA-09-02 Compression spring		0cr17Ni7Al	1 Set 2 pieces
624	MR5D-05-15 Prick gear		40Cr	4 pieces

12 Spare parts supplied with MR5D30A Twist-off Caps Vacuum Capper

Serial No.	Designation	Specifications	Quantity	Drawing No.	Remarks
1	Cap twisting belt		1	MR5DA-12-27	Importation
2	Skidfree belt pulley		1	MR5DA-06-28	A bigger piece and a smaller piece
3	V-belt	Type B, L=2692	2		Spare part
4	Rubbing strip		2	MR5DA-15-06	Spare part
5	Crank handle	50-55	1		Tool

Type one: Drawing numbers and component names of $\Phi 30 \sim \Phi 50$ caps

1	Front pressing foot	$\Phi 30 \sim \Phi 50$ cap	1	MR5DA-14-07	
2	Rear pressing foot	$\Phi 30 \sim \Phi 50$ cap	1	MR5DA-14-06	
3	Immediate adjustable bracket	$\Phi 30 \sim \Phi 50$ cap	1	MR5DA-11-13	
4	Bracket plate	$\Phi 30 \sim \Phi 50$ cap	1	MR5DA-11-09	A left piece and a right piece

Type two: Drawing numbers and component names of $\Phi 53 \sim \Phi 80$ caps

1	Front pressing foot	$\Phi 53 \sim \Phi 80$ cap	1	MR5DA-14-08	
2	Rear pressing foot	$\Phi 53 \sim \Phi 80$ cap	1	MR5DA-14-09	
3	Immediate adjustable bracket	$\Phi 53 \sim \Phi 80$ cap	1	MR5DA-01-13	
4	Bracket plate	$\Phi 53 \sim \Phi 80$ cap	1	MR5DA-01-09	A left piece and a right piece

Remarks: The components of one type are mounted on the equipment (depend on order) and those of the other type are supplied with the machine.

13 Consumables of MR5D30A Twist-off Caps Vacuum Capper

NO.	Drawing NO.	Name	Number	Material	Remark
1	MR5DA-11-06.01	Spindle sleeve	4	F-4	7、8、10、12 one piece
2	MR5DA-11-23	Spindle sleeve	1	F-4	
3	MR5DA-11-38	spring	1	0cr17Ni7Al	
4	MR5DA-13-28	Locking washer	2	1Cr18Ni9Ti	
5	MR5DA-13-06	Contact roller	2	F-4	
6	MR5DA-12-12	liner	2	F-4	
7	MR5DA-13-02	Soft spring	2	0cr17Ni7Al	
8	MR5DA-06-28	Belt gear	1	F-4	
9	MR5DA-12-03.01	Spindle sleeve	1	H62	B=9.5
10	MR5DA-15-06	Rubbing strip	2	Silicon rubber	
11	MR5DA-15-02.02	sleeve	2	F-4	
12	MR5DA-11-24	Spindle sleeve	2	F-4	

14 Attached drawing