High loading speed

Special development of design

SERVO SHORT BAR FEEDER

Vs-65E/Vs-65LE

MANUAL FOR USE AND MAINTENANCE

REV：07   DATE：2011/11/08   COD：VSB20707

S/H

CONTENT （INDEX）

CONTENT （INDEX）

5. ADJUSTMENT AND SETTING

6. OPERATION AND ILLUSTRATIONS ☗

CONTENT （INDEX）

6. OPERATION AND ILLUSTRATIONS

1.　GENERAL INFORMATION

📖**Please read the Manual carefully before operating feeder.**

1.1　Contents of manual

The feeder manufacturer provides this manual, which is an essential part of the integrated products. Please act according to the indication of the manual in order to assure operators' safety as well as machines', and greatly achieve economic efficiency and the machine shall be long-lived. The important part is printed in boldface, and included the following marks:

⚠ *Warning*：

Hazard! It is possible to hurt you seriously, please be careful.

✋ *Watch out－Precautions*：

For preventing the accident or the loss of property, you should take precautions.

ℹ️ *Important information*：

Special important know-how information
Please take use of the table of contents, you will quickly find the information you need.

The mark shown in the manual means that the machine should be operated by a qualified and expert operator. As to the other operation shall be handled by a qualified personnel or professional operator of feeder.

1.2   The label of manufacturer and bar feeder

A. Name of manufacturer

B. Model(Type)

C. Serial Number

D. Manufacture Date

E. Weight of Machine

F. Pneumatic Pressure

G. Rated Voltage

H. Control Voltage

I. Full Load Current

J. Power

K. Short Circuit Rating

L. Wiring Drawing Number
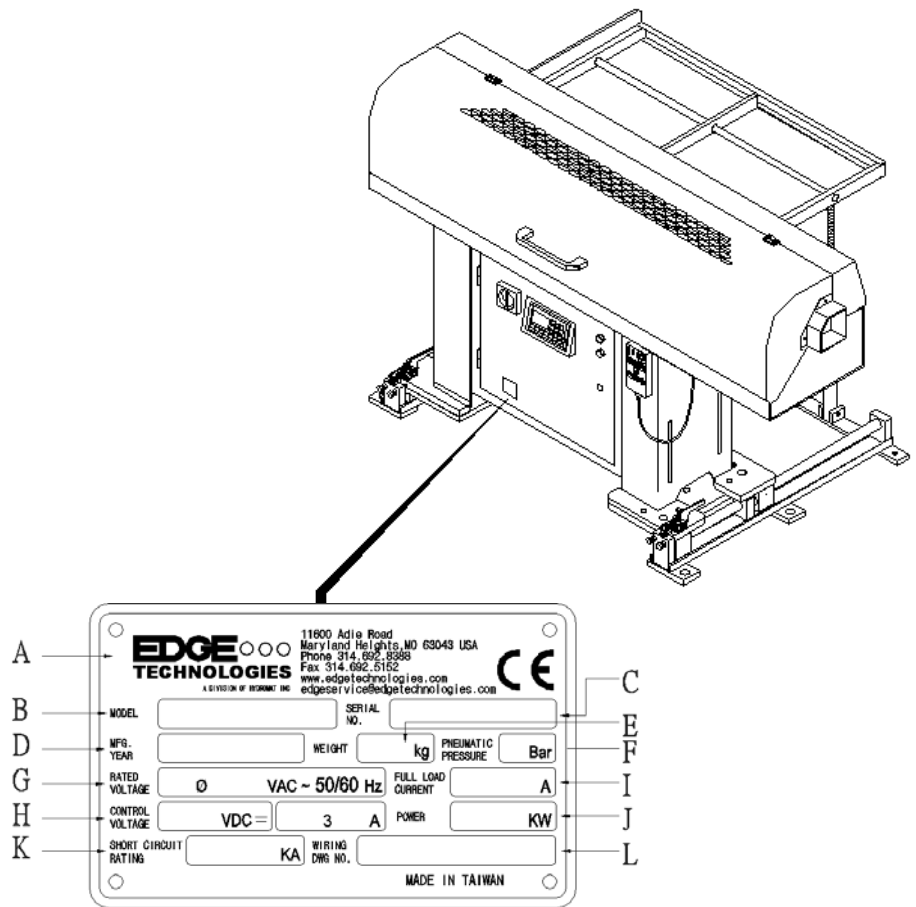
INFORMATION：

When inquire or order the parts, please notify the manufacture the above –mentioned each standards.

1.3   Support of technique

If you need any support of technique, you can inquire the service center in the appendix in anytime.

INFORMATION：

When you need the support of technique, please refer to the data sheet on the bar feeder.   Tell us the data of the bar feeder.

2-1

2.   DATA OF TECHNIQUE

2.1   Introduction of the bar feeder

The Vs-65E/LE is designed for automatic lathes to auto feed material, the bar feeder is suitable for fixed headstock lathes. The program of the P.L.C system can control the bar feeder running with the lathe at the same time. Operator can set parameters by the interface of man machine directly.

The remote control box is easily operated.

The bar feeder can feed circular material and other forms of material. While the lathe is running, The remnant material will be pushed out off the guide channel by the push bar or the next material.

2.2 Machine size
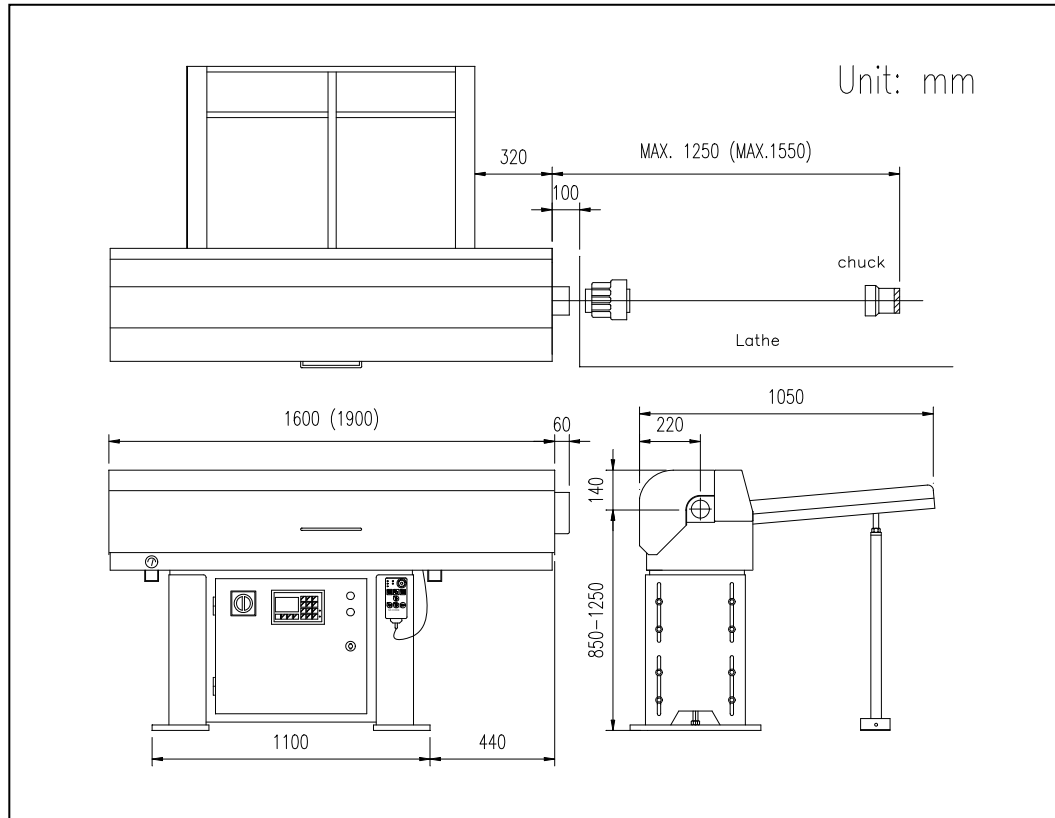
2.3 Description

	Vs-65E	Vs-65LE
Diameter of bar	Ø5mm－Ø 65mm	
Length of bar	Max.1250mm Bar length depends on spindle length.	Max. 1550mm Bar length depends on spindle length.
Spindle height	920mm-1300mm	
Weight	250kg	280kg
Air supply	5~7kg/cm^2	
Power supply	220 / 380V 0.4A 50/ 60HZ	

2.4   Compressed air supply and power supply

2.4.1   Compressed air pipe minimum Ø 8mm.
Minimum pressure 6 kg/cm^2. Compressed air consumption about 50L/H.

2.4.2   Put the air supply tube into (A).
Then pull and turn around the knob (b) and set the pressure at 6kg/cm^2.

2.4.3   Power supply 220V/380V，60/50HZ.
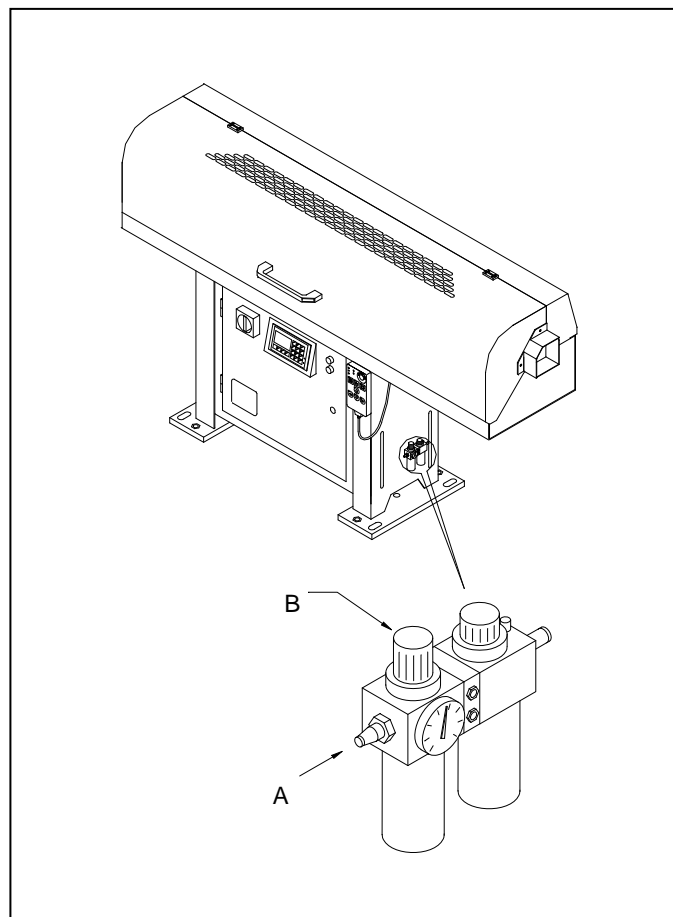
3.   TRANSPORTATION

⚠️ ***Hazard-warning***：

Transportation and hoist (please refer to the item 3.2.1 following weight table)

You have to BE sure the crane; forklift or other related tools could take the weight.

Using the proper equipment to move and hoist the machine should be and led by

the expert personnel.

3.1   Packing the bar feeder

There are three kinds of packing the bar feeder：

A. Unpacking。

B. On the pallet：Put the feeder on the pallet and wrap PE membrane around the

feeder.

C. Packing with wooden box**:** The Feeder was packed with wooden box and wrap

PE membrane around the box.
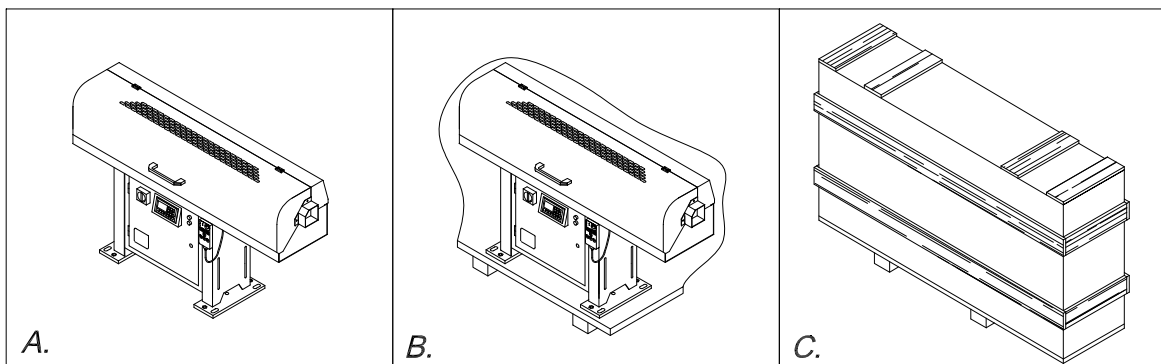
3.2 Transportation and hoist

3.2.1 Unpacking hoist

Putting two steel bars (Diameter：30mm,

l Length: 1M) under the bar feeder, using

suitable slings which are able to bear the

weight to hoist the bar feeder.

Vs-65E	210KG(NET)	300KG
Vs-65LE	260KG(NET)	370KG
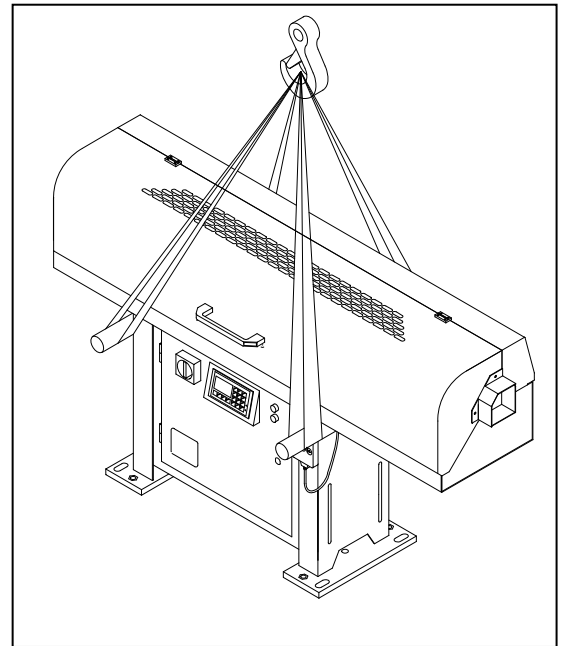
3.2.2 On the pallet

Using suitable slings which are able to

bear the weight to hoist the bar feeder.
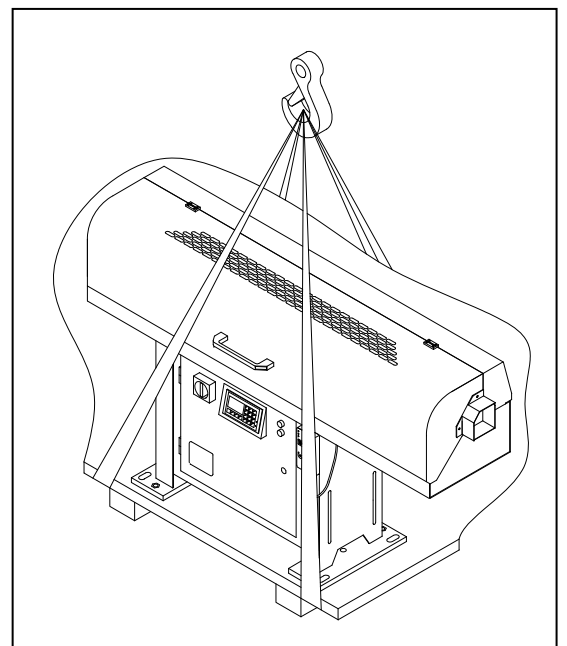
3.2.3 Packing with wooden box

Using suitable slings which are able to

bear the weight to hoist the bar feeder.
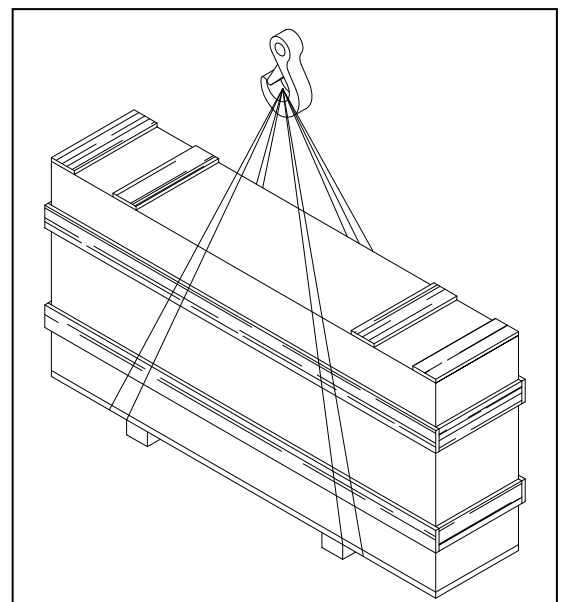
3.3   Forklift transportation

3.3.1   Safety regulation moved by forklift

1. The operator of forklift should have been trained.

2. Select the suitable forklift.

3. Make sure the weight and the center of gravity of the machine.

4. The forks should extend under the full length of the machine body during

transportation.

5. Be sure the balance and don't lift too high.

6. Be careful when climbing or descending down a slope.

7. Be sure all wire connections have been removed before moving.

8. Someone should to guide the operator of the forklift.

9. Forklift truck must be a minimum of 7 tons capacity.

10. Make sure that forks do not touch any delicate part of the machine.

11. Make sure machine is in balance.

(Note)   Machine weight approx：Vs-65E --------- 210 KGS (462lbs)

Vs-65LE -------- 260 KGS (572lbs)

(1) Unpacking hoist
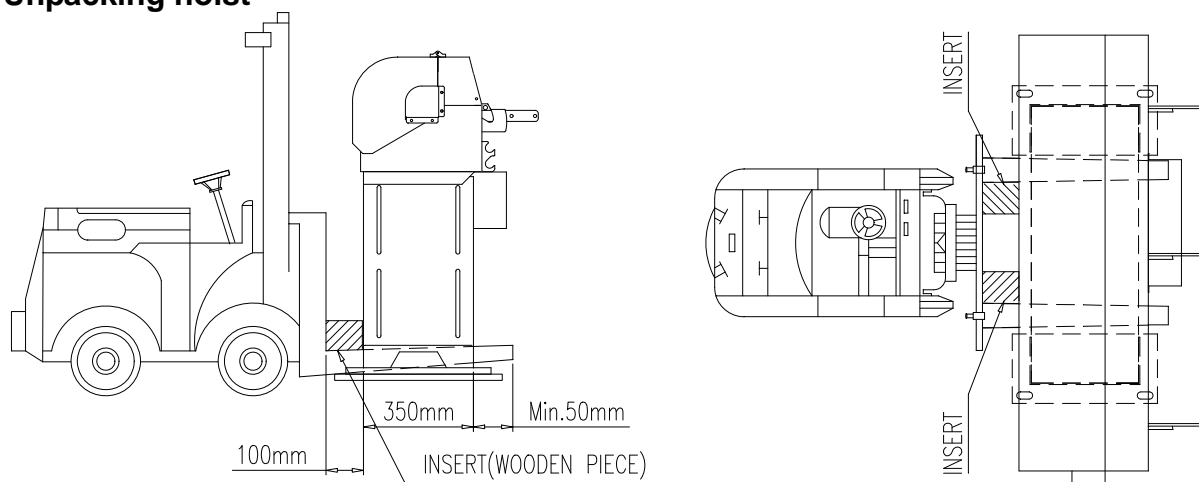
(2) On board transportation
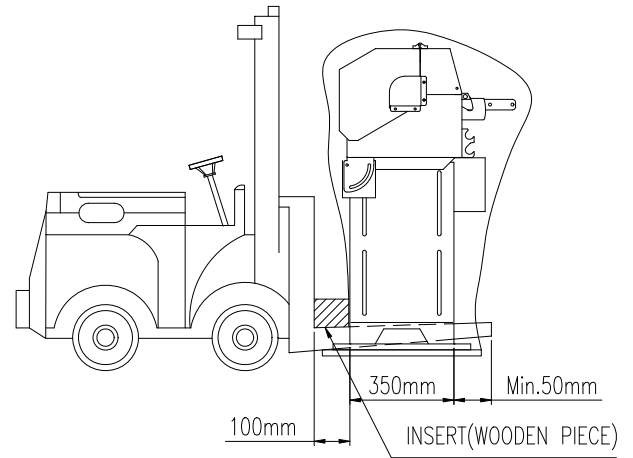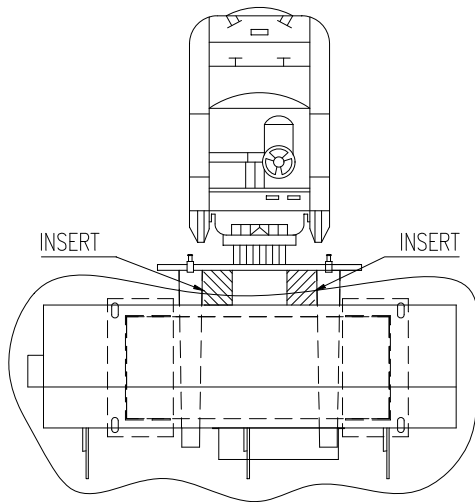
(3) Wooden transportation

Machine weight approx：Vs-65E -------- 300kg (660lbs)

Vs-65LE ------- 370kg (814lbs)

A. Moved by crane
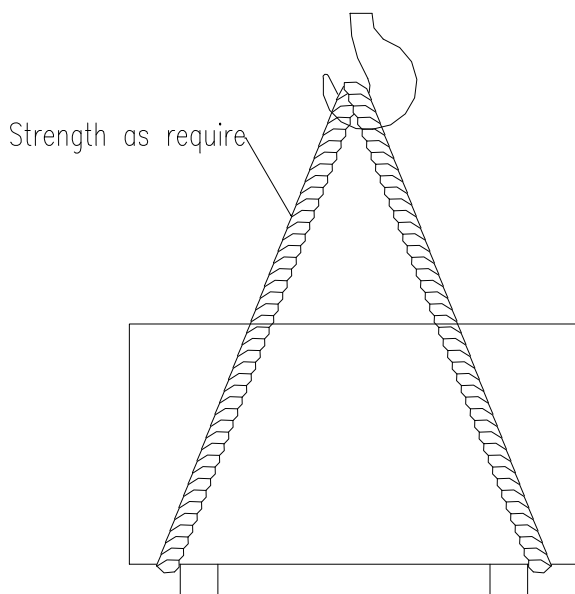
B. Moved by forklift
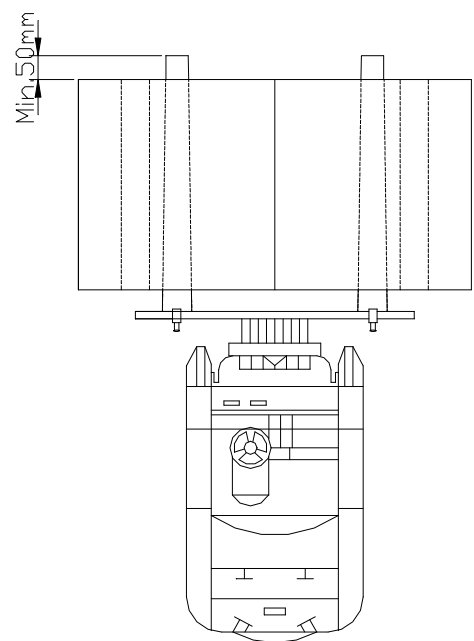
3.4 Installation area

In order to fix the feeder securely, the floor must be flat and firm.

According to the operation of the bar feeder, planning a suitable area in advance.

Area：(D-operator area)，(E-supply area)，The space must be enough to avoid the

feeder caused crashed by the operator.

The area of installation needs to be suitable light, outlet and compressed air

contact.

The bar feeder can't posit in air-explosive surrounding.
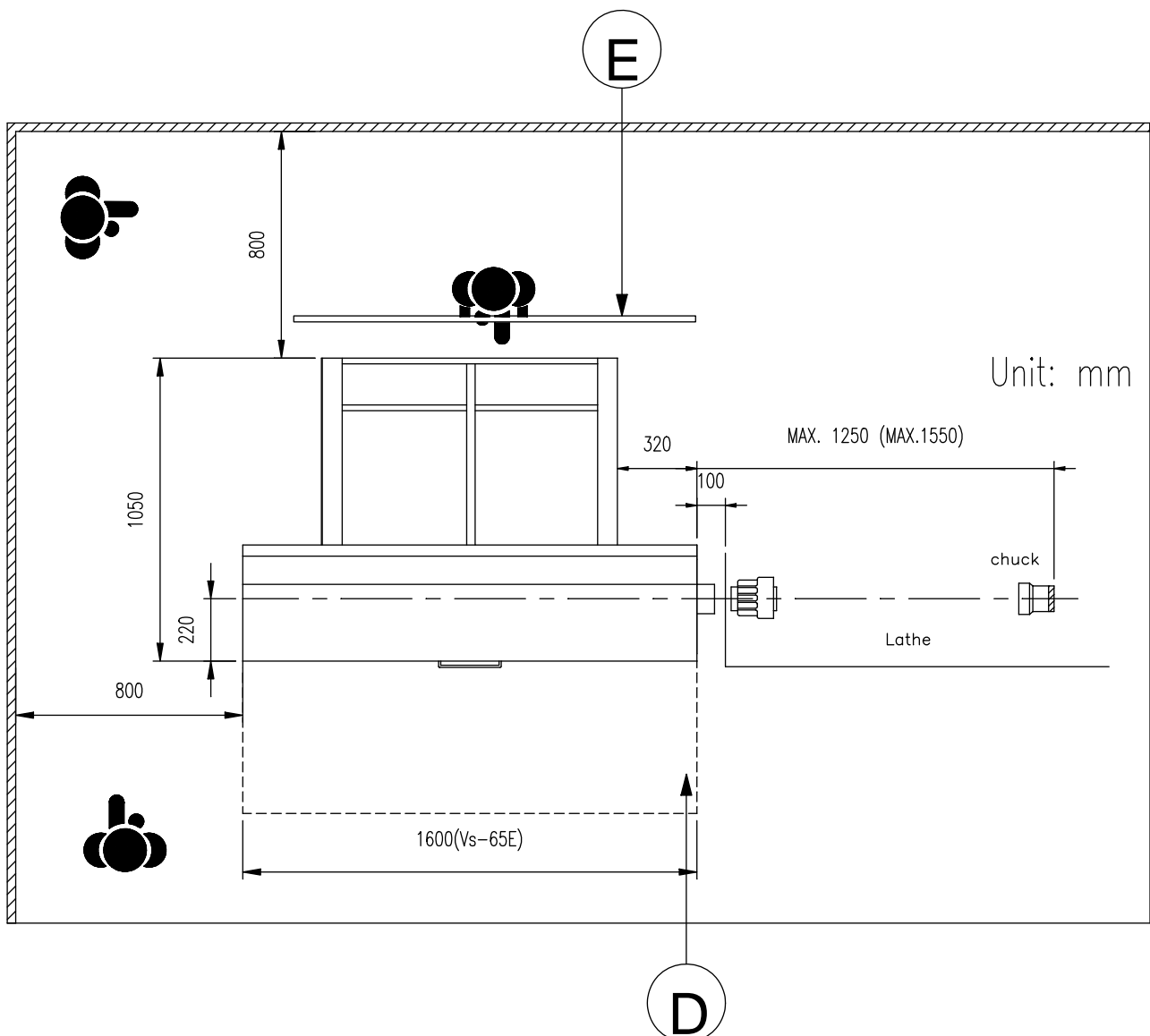
4.   INSTALLATION 👷

4.1   Bar feeder－Installation 👷

Before installing the bar feeder, the spindle of the lathe must be horizontal and the

Lathe is fixed on the ground strongly.

4.2   Height adjustment

4.2.1   Disengage the screw (1).

4.2.2   Adjust the screw（2）and shift from up to down. Adjust the height to a straight line

between the center of the bar feeder and the center of the lathe.
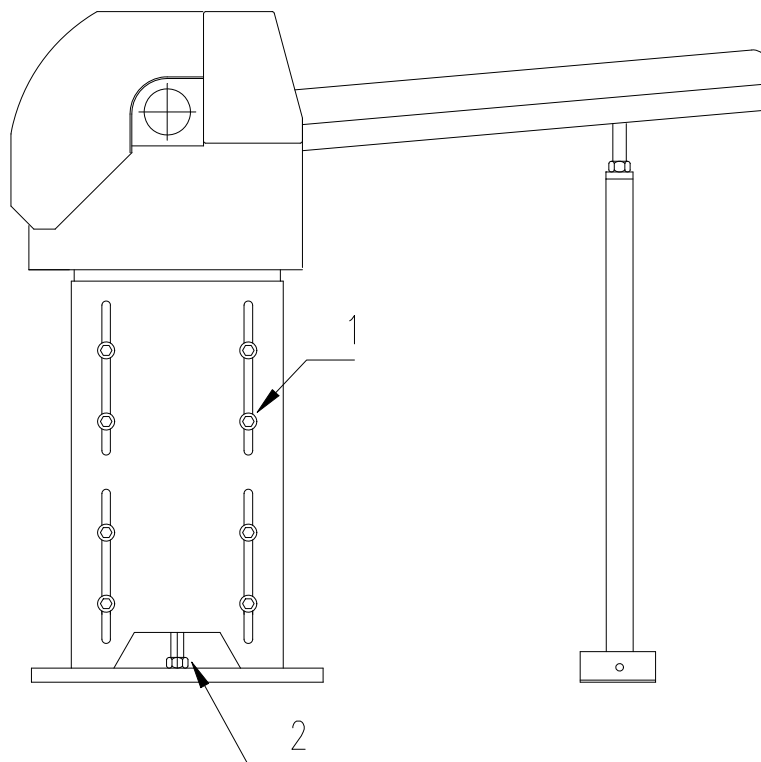
4.3   Initial position 👤

4.3.1   Distance between Vs-65E/LE and CNC-lathe

In order to use the automatic bar feeder in the best possible way you should see to

it that the distance between the CNC-lathe and the bar feeder is not too short!!

You may; however, load only bars whose length equals the spindle length of the

CNC- lathe. The bar stock has to be fed completely into the lathe spindle.

The bar feeder, however, must not be too far from the CNC-lathe.

The Max distance between CNC-lathe and bar feeder can be seen from the

following drawing.

If 1250mm should not be enough, you have to install a Vs-65E/LE to replace Vs65.

! IMPORTANT ! Be careful that – if several chucking devices are available-the max.

Distance will never be exceeded.
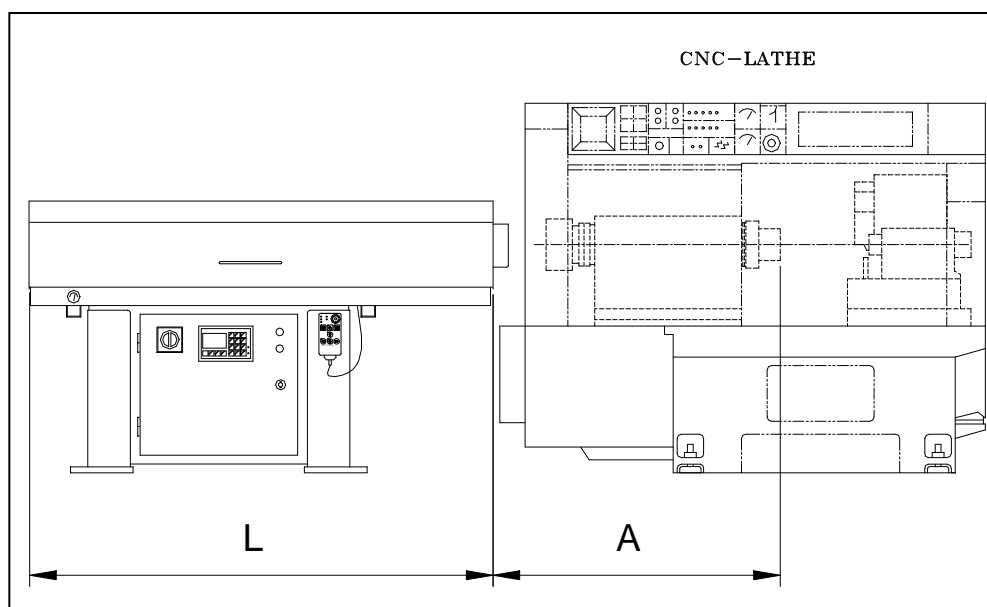
	L	A
Vs-65E	1600mm	Max.1200mm
Vs-65LE	1900mm	Max.1500mm

4.4   Directional adjusting

! IMPORTANT!

During directional adjusting the push bar must not touch the lathe spindle!!

The height must have been adjusted roughly beforehand and has to be readjusted if

necessary.

The direction has to be adjusted rather exactly as the adjusting range for precision

adjusting is limited.

Adjusting: You should be able to see through the spindle from the chuck and move the

push bar forwards.

If the push bar does not go through the middle of the spindle, go back to final position " –Z "

and adjust the bar feeder afterwards. Then check the direction of the push bar and repeat

checking until the push bar is adjusted exactly.
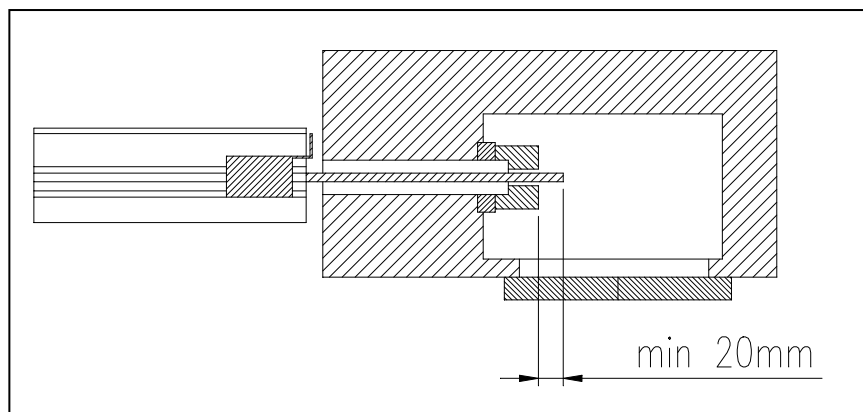
4.5   Mounting of the feeder frame

4.5.1   First, put the lever into support tube (1)

4.5.2   The support profile fixed with the extension (2) and fastened in the suitable height
with screw (3)

4.5.3   Then the middle support profile fixed with the extension (4)

4.5.4   Finally securing with the screw (5)
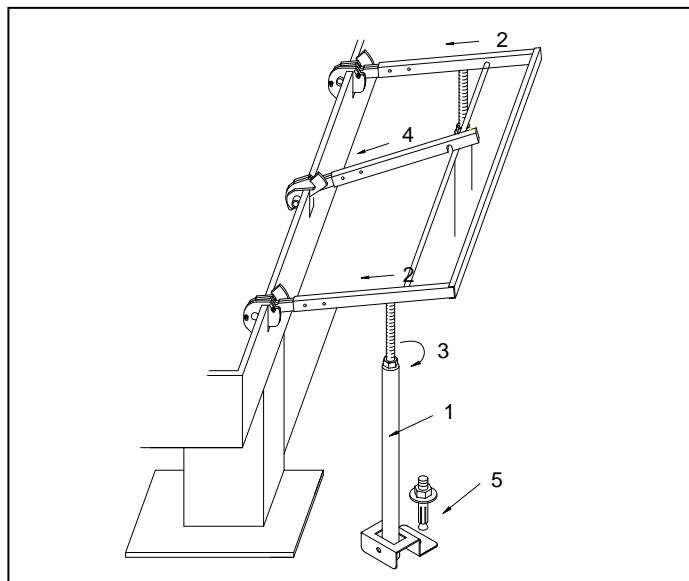
4.6   Securing and fastening of the bar feeder

4.6.1   Rotate 4 ground-screws (1) to touch the ground, and fix the nuts.

4.6.2   Drill ground (2) with drill bit Ø19mm (¾"), and fix the spindle-screw.
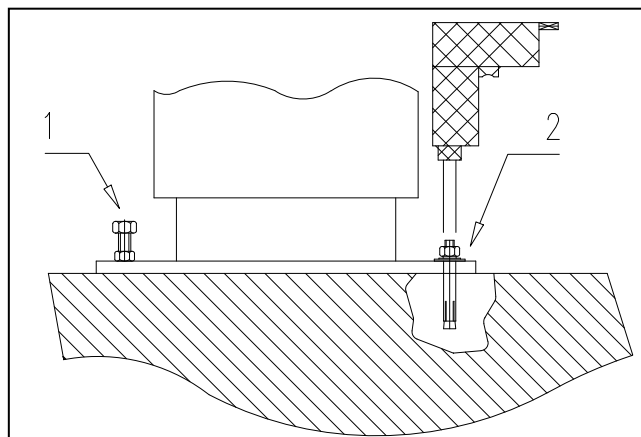
4.7   Accessories installation

4.7.1   Axial displacement (optional)

4.7.1.1 Place two woods (height: about 10cm) under the bar feeder.

4.7.1.2 Place axial displacement by each side under stands of the bar feeder (axial displacement has two parts: right part and left part)

4.7.1.3 Push the stands to the end of axial displacement and fix. And then take woods away.

4.7.1.4 Drill ground with drill bit Ø 19mm (¾") of bit, and fix the spindle-screw.

4.7.2   Auxiliary support stand ~ 𝒜 (optional)

4.7.2.1 Place a bar on V-type holder and spindle of the lathe.

4.7.2.2 Place Auxiliary support stand in front of the bar feeder and then lift Auxiliary support stand to touch the bar and fix the screws.
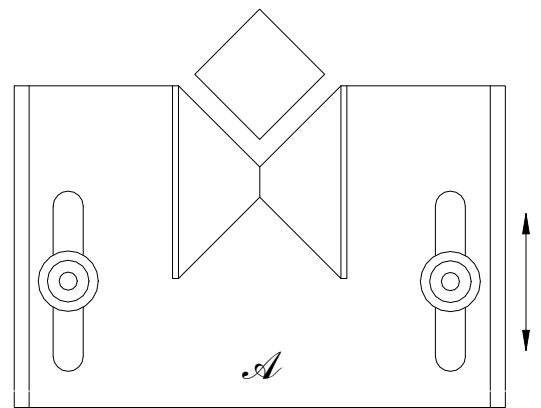
4.7.3   Auxiliary support stand ~ 𝐵 (optional)

4.7.3.1 Place Auxiliary support stand between bar feeder and lathe.

4.7.3.2 Loose screws (1) and (2),adjust screws (3)to suitable height so that the push bar into the center of the guide tube is accurately.

4.7.3.3 Tighten screws (1) and (2).

4-5
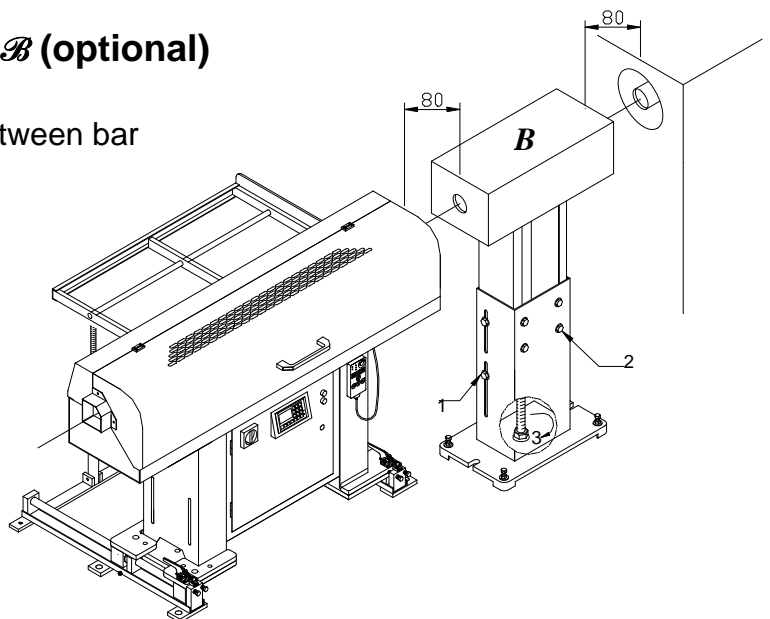
4.7.4 Spindle liners

4.7.4.1 How to select correct spindle liners：

The inner diameter of the spindle has to be adjusted to the outer diameter of the

bar stock. According to our experience, the diameter of spindle of blank bar stock

should be bigger by 3mm to 5mm than the diameter of bar stock.

Even black bar stock can be machined by spindle liners.

4.7.4.2 How to make two kinds of spindle liners:

1   Iron tube：Choose tubes which internal diameter is bigger by 3mm to 5mm than

the material to make.

The outer diameter is equal to the inter diameter of the spindle

According to the flange at the end of the spindle to muke, then fix the stop ring

20
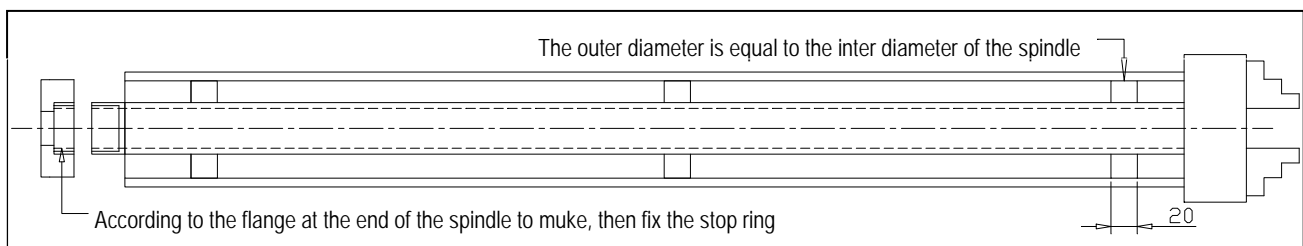
2   PE：Choose PE or Teflon to make according to the following method.

Stop ring   Liners   Tube

100   100
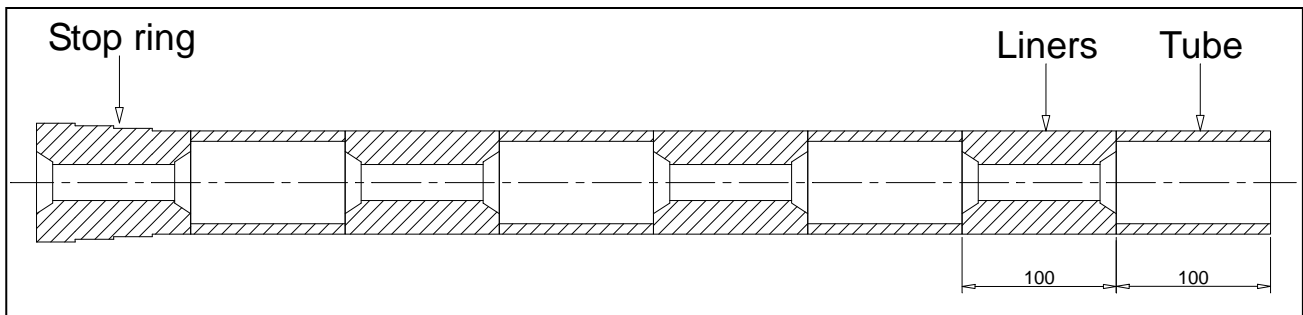
1. Tube：The thickness of the tube is 2mm to 3mm

2. Liners：Internal diameter of the lines should be bigger by 3mm to 5mm than
   the material.

3. Stop ring：In order to fasten the liners, the stop ring would be accorded with

   the inter diameter of the spindle to can make in the form of ladder. 。

4. When feeding different sizes of material, exchange the liners and stop ring.

※ The tube and the diameter of the liners must be smaller by 3mm to 5mm
   than the inter diameter of the spindle which prevent the tube was expanded.

5.   ADJUSTMENTS AND SETTING

5.1   Structure of the bar feeder

01	BRACKET DEVICE
02	CHANGEOVER
03	BAR PUSHER
04	FEEDING-EXTRACTION CONTROL DEVICE
05	FRAME
06	STAND
07	COVER
08	
09	AXIAL DISPLACEMENT

OPTIONAL
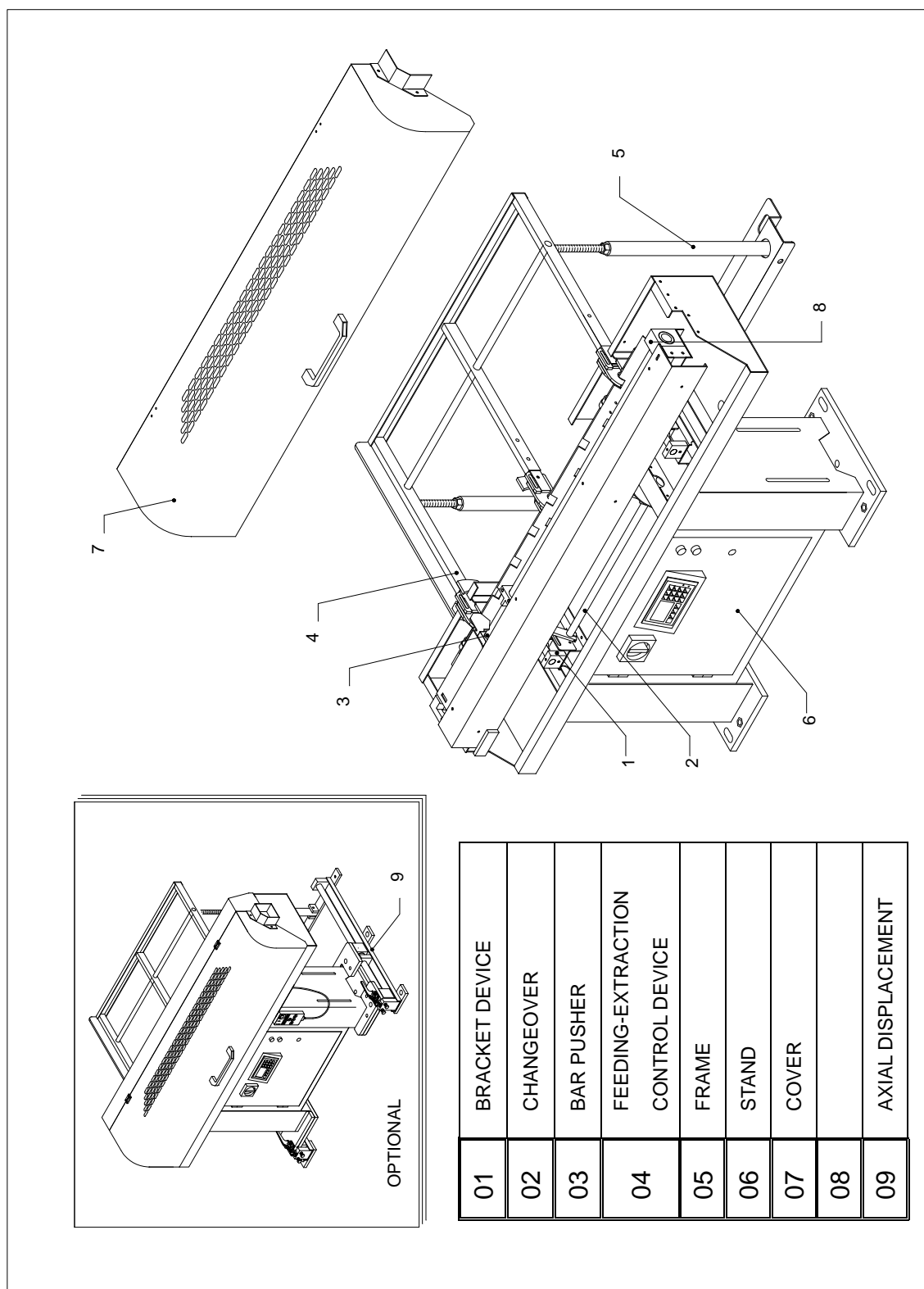
5.2   Adjustment and selection of the bar feeder

5.2.1   Adjustment of lever system

5.2.1.1 The inclination of the feeding frame

depends on the kind of bar stock used：

round bar stock：α about 5°~ 8°

hexagonal bar stock：α about 20°

Disengage screw (1) and (2).
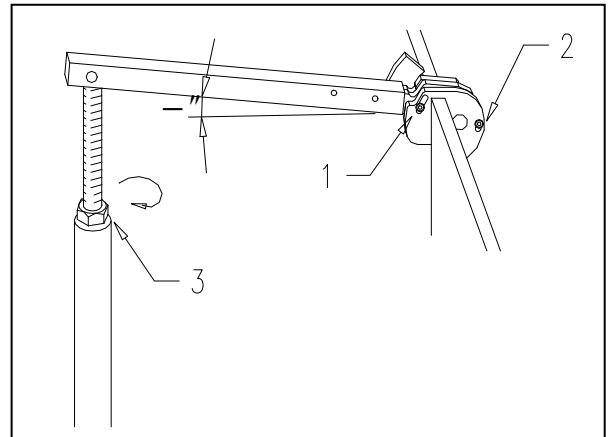
5.2.1.2 Adjust screw (3) to suitable α angle .

The material can smooth to fall down.

5.2.1.3 Tighten screws (1) and (2).

5.3   Adjustment of bar stop

5.3.1   Disengage screws I each.

5.3.2   Adjust bar stop so that only I bar is loaded.

5.3.3   Tighten screws I.

5.3.4   Switch into manual mode 🖐 , and go to ⬇ position.
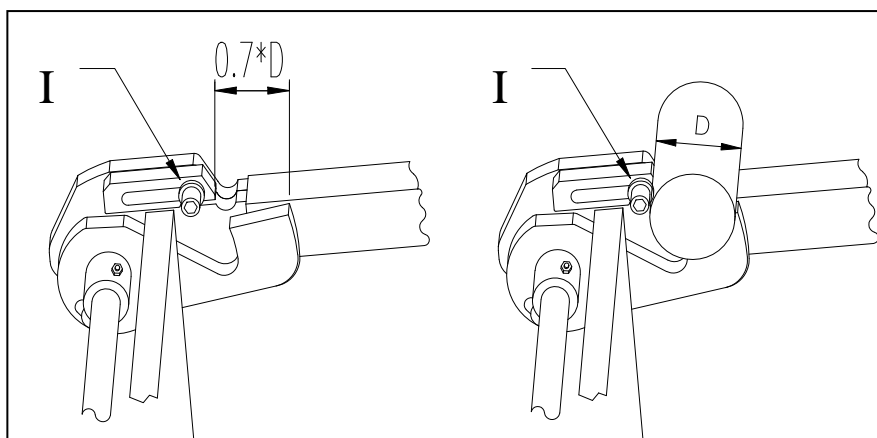
5.4   Adjustment of bar diameter

5.4.1   Turn to the manual position [✋]   , and press

(⬆)   until it is lighted.

5.4.2   Swing the handle (2) to adjust the graduation as same as the diameter of bar on a graduated meter (3).

5.4.3   Screw tightly the fixing-handle (1) on both sides.

5.4.4   Press (⬇)   until it is lighted, put a piece of material in V-type vessel.

5.4.5   Try to push forward the material into the spindle, and check the condition of adjustment.

   ※   Follow the step of 5.4.1, you may adjust again if any.

5.4.6   Move out the material, press (⬆)   until it is lighted, the adjustment is completed.
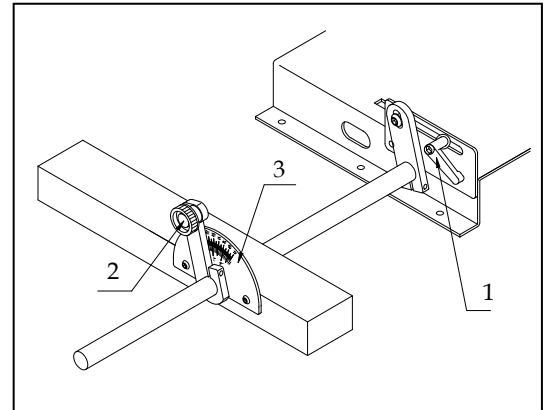
5.5   Selection of push bar:

The push bar has to be adjusted to the bar diameter：

push bar	bar stock
Ø6mm	to Ø15mm
Ø12mm	Ø15-25mm
Ø20mm	from Ø25mm

Changing of push bar：

※   Pull the PIN 1 out

※   Loosen the screw PIN 2

※   Loosen the screw PIN 3 and then take the bushing out backward

※   Pull the pusher bar out

※   Select adequate pusher bar to install

※   Put the pusher bar back on the frame

!IMPORTANT! The headless PIN for the fixing device must not exceed clutch sleeve!
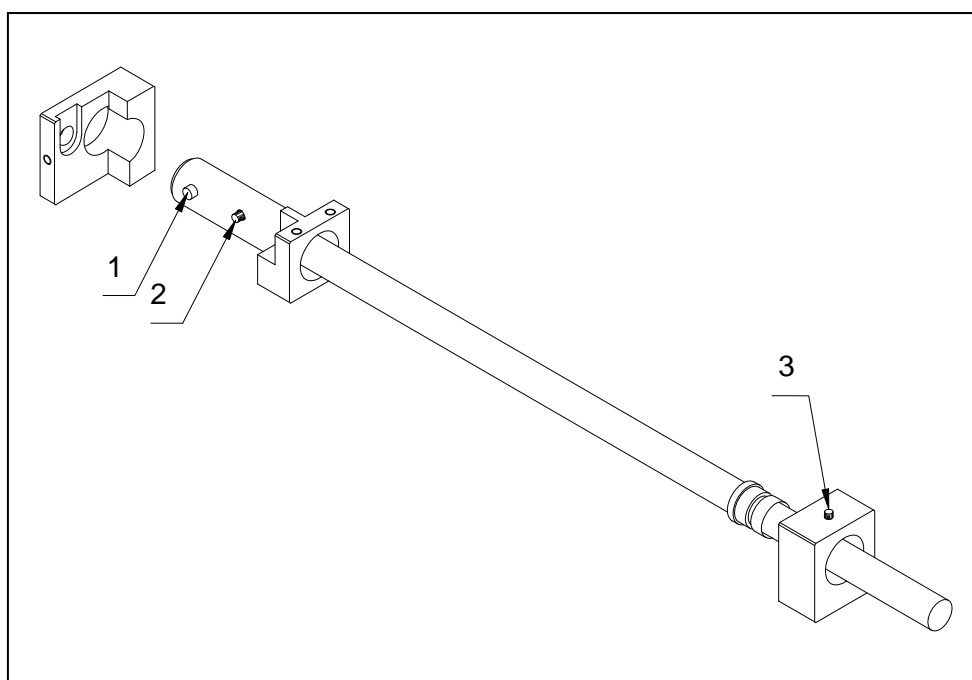
5.6   Optimizing remnant

By observing the following items the remnant length will be reduced to a minimum:

5.6.1   ※ Exact adjustment of bar end .(refer to 6.3.1)

5.6.2   ※ Machining and cutting off very close to chuck .

5.6.3   ※ Optimum breaking down of long bars .

Optimum breaking down:
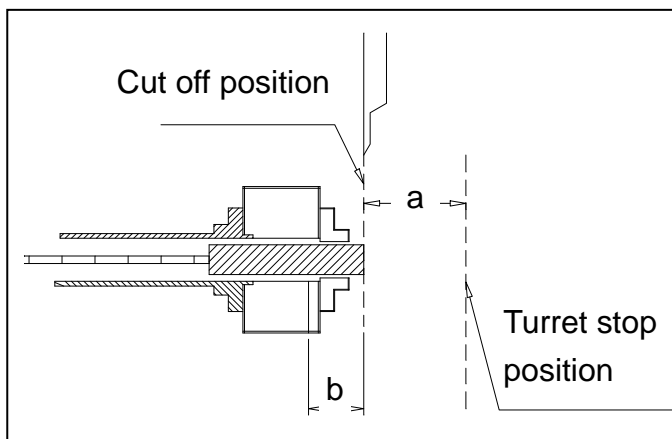
A **......** max breaking down of bar length
L **......** bar stock length
a **......** bar stock length per work piece
(length of work piece + facing length +
cutting off width)
b **......** minimum chucking length
M **......** number of work pieces/bar
K **......** broken down bar length

Example：A bar (3200 long) is to be broken down in an optimum length.

EX：

A＝1200mm $M = (A - b) / a$

L＝3200mm $= (1200 - 40) / 75$

a＝75mm $= 15.5$

b＝40mm   Each bar can produce 15 finish products.

$K = M \times a + b$

$=15 \times 75 + 40$

$=1165$

The bar stock (3200mm long) will be broken down into the following pieces:

Two pieces 1165mm each and one piece 870mm long.

The remnant of the 3200mm long bar is 40mm + 40mm + 45mm = 125mm

5.7   Maintain notice-key switch

5.7.1 If the safety cover is open, the bar feeder can't use the automatic mode, but it still can be use manual mode.

(1) Need to use the automatic mode when the safety cover is open. Please turn the key-switch to "OFF". The bar feeder can be use the automatic mode.

(2) If the bar feeder alarm and you have eliminated the breakdown. And then need to use the automatic mode, please close the power.
Turn the key-switch to "ON", and close the safety cover. Then open the power, and it can be operation on automatic mode.

! IMPORTANT! The key-switch has to turn to "ON", --otherwise the program can't to determine alarm to be directed against the safety cover.

5.7.2 Check the safety-switch location
When LCD display "cover not close", please check 3 safety-switches (show as in Fig) whether they go back to the location. Then press "F3" at the same time and the bar feeder can be working in normal.

(Note)

1. In normal running, please don't open the safety cover lest to cause alarm.
2. Please don't pull out the connect plug from the remote control box lest to cause alarm.
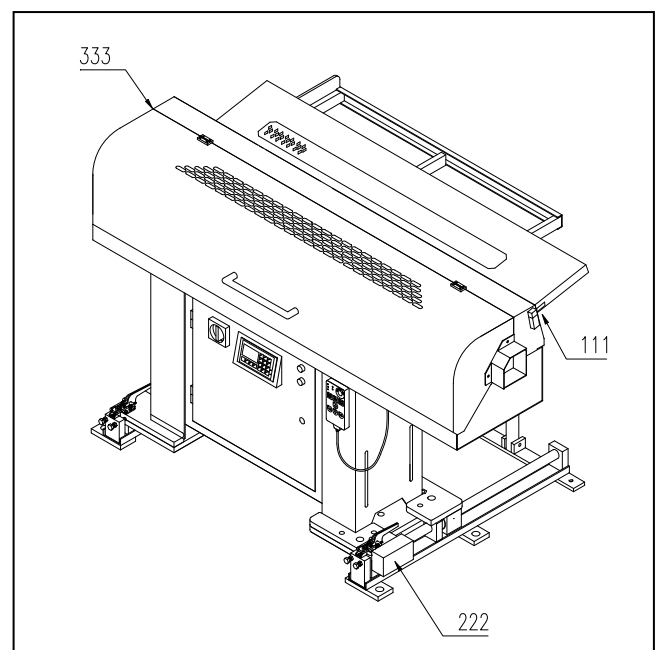
6. OPERATIONS AND ILLUSTRATIONS

6.1 Material preparation

Caution & prevention

Please don't put the material out of standard.

List1－The max length of material

Type	Mod	Max length (mm)
VS-65E	1600	1250 Bar length depends on spindle length.
Vs-65LE	1900	1550 Bar length depends on spindle length.

The flatness of material must be within 0.5mm/M

6.2 Electricity Position
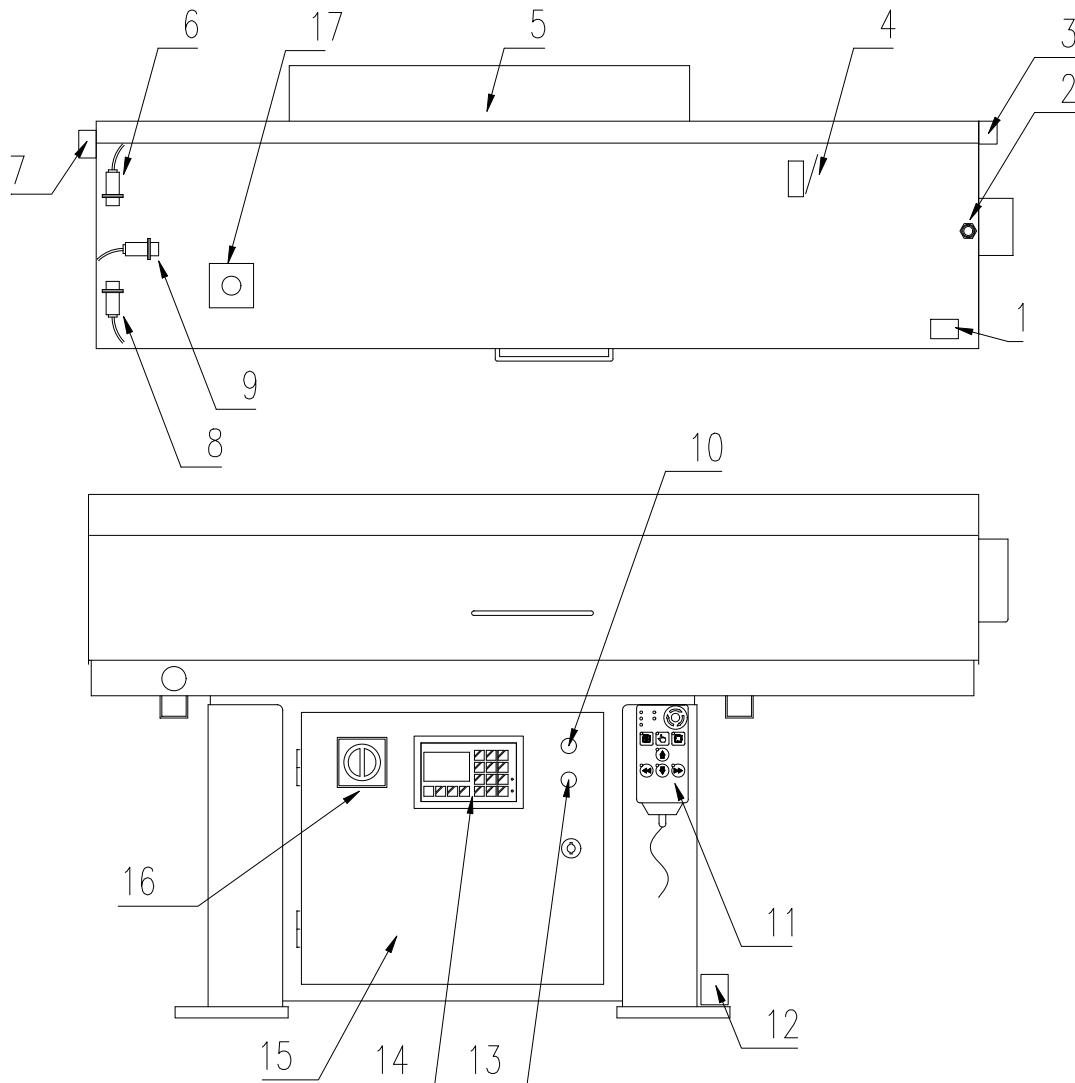
No	Code	Function	Part No.	No	Code	Function	Part No.
1	SS1	Safety switch	J311701	10	PB1	Power ON switch	J311502
2	LS2	Optical fiber sensor	J310403	11	Remote control pendent (refer to 6.3.5)		
3	LS4	Detect back cover	J311801	12	LS5	Detect axial displacement	J311802
4	LS1	Detect for loading	J311201	13	PB2	Power OFF switch	J311503
5	Solenoid valves(refer to 6.5)			14	HMI	Human Machine Interface	J210502
6	SR3	Detect primary position	J310308	15	Electrical cabinet (refer to 6.2.1)		
7	LS3	Detect the Front cover	J311801	16	CS1	Power switch	J310501
8	SR4	Detect movement	J310309	17	SM	Buzzer	J221002
9	SR2	Detect -Z Point	J310307				

6.2.1 Control box
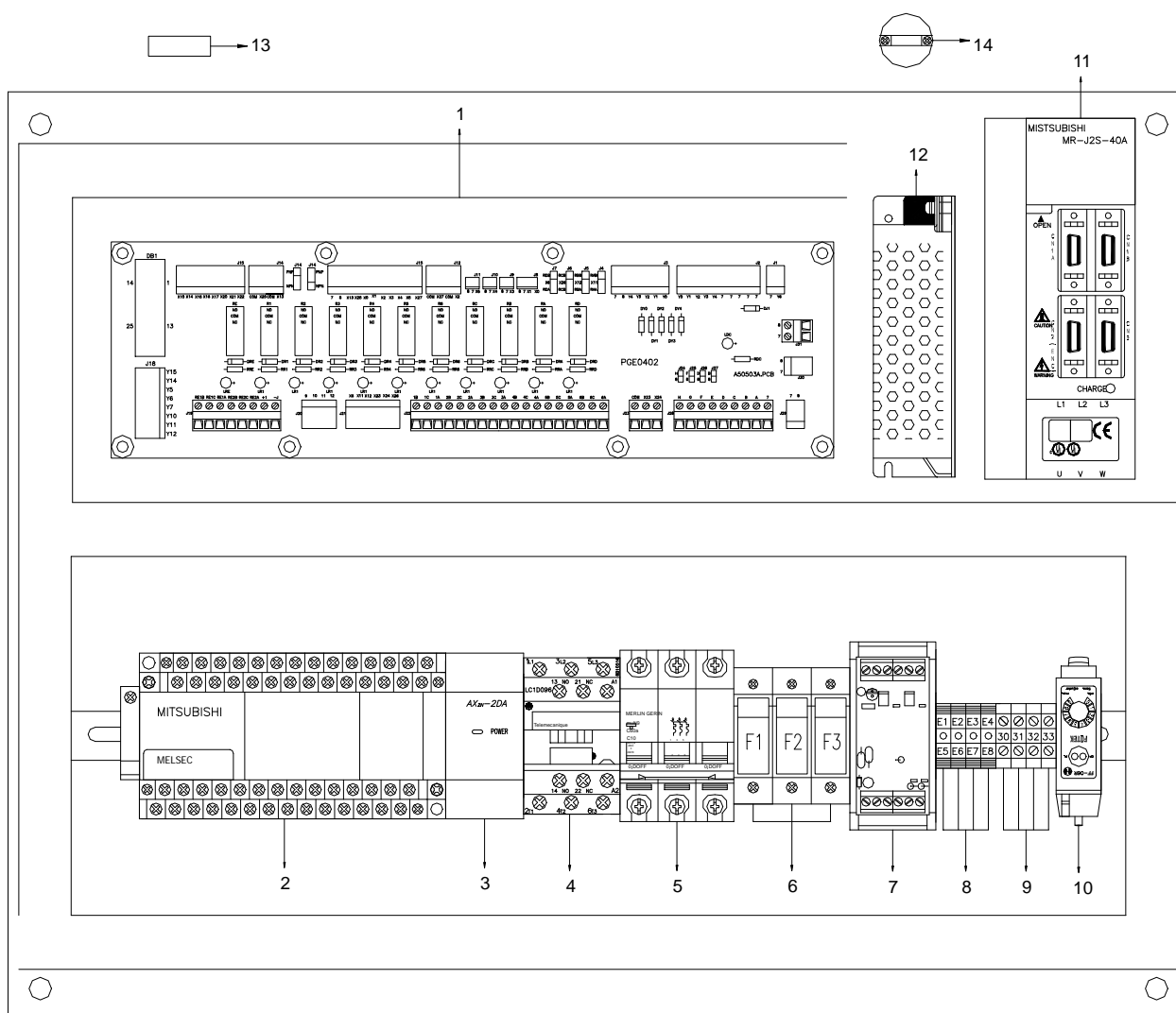
No	Code	Appellation	Part No.	No	Code	Appellation	Part No.
1	PCB1	Interface circuit board	J511400	7	PCB3	Pulse change device	J220307
2	PLC	Programmer controller	J221010	8	TB	Ground terminal blocks	J610502
3	2DA	Analogy signal module	J220200	9	TB	Signal terminal block	J610501
4	MC	Magnetic contactor	J312702	10	SR1	Optical fiber sensor	N/A
5	NFB	Fuse	J310503	11	Servo	Servo motor driver	J221001
6	F1	Fuse block 4A	J312102 J312103	12	PS	Power supply	J230101
	F2	Fuse block 4A	J312102 J312103	13	AS1	Detect pressure(start signal)	A12120300
	F3	Fuse block 3A	J312102 J312103	14	BZ	Buzzer	J312200

6.3   Operation box
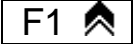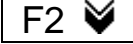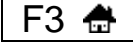
6.3.1
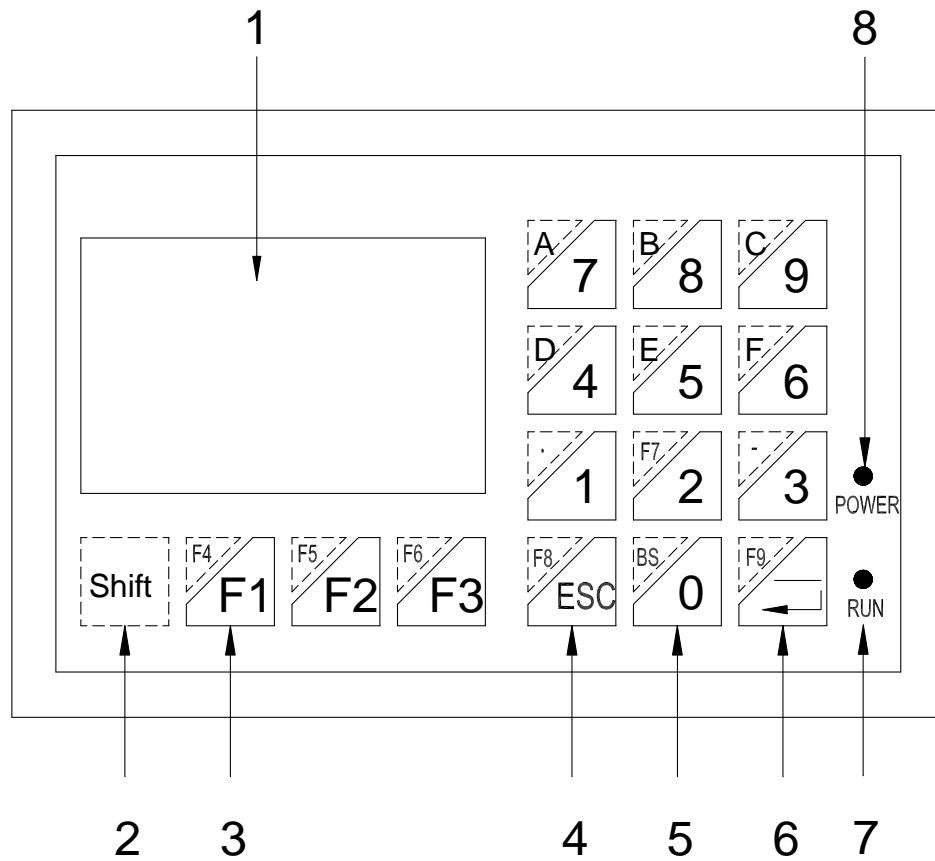
NO.	Function
1	LCD Display area
2	Shift
3	Function
4	ESC
5	Number
6	Enter
7	Run light
8	Power light

6.3.2　Monitor function description

Shift–display：Press the key according to the indication on the display.

（1）　| F1 ⌃ | ：Page up

（2）　| F2 ⌄ | ：Page down

（3）　| F3 ⌂ | ：Back main contents

6.3.3　Set up an input for numbers：

（1）　Input numbers as your request from 0~9.

（2）　Press $\boxed{\text{F9}\diagup\!\!\rightarrow}$ again, the input is finished. If you want to give up the input that

you set, press $\boxed{\text{F8}\diagup\!\!\text{ESC}}$ to give up.

6.3.4　Usage of key from F1-F9：

（1）　Select F1-F3, please press these three keys directly.

（2）　Select F4-F9, please press and hold $\boxed{⇧\ \text{Shift}}$ key, and then select other

keys as you want.

6.3.5 The operation of keys
6.3.5.1 The function and operation of keys
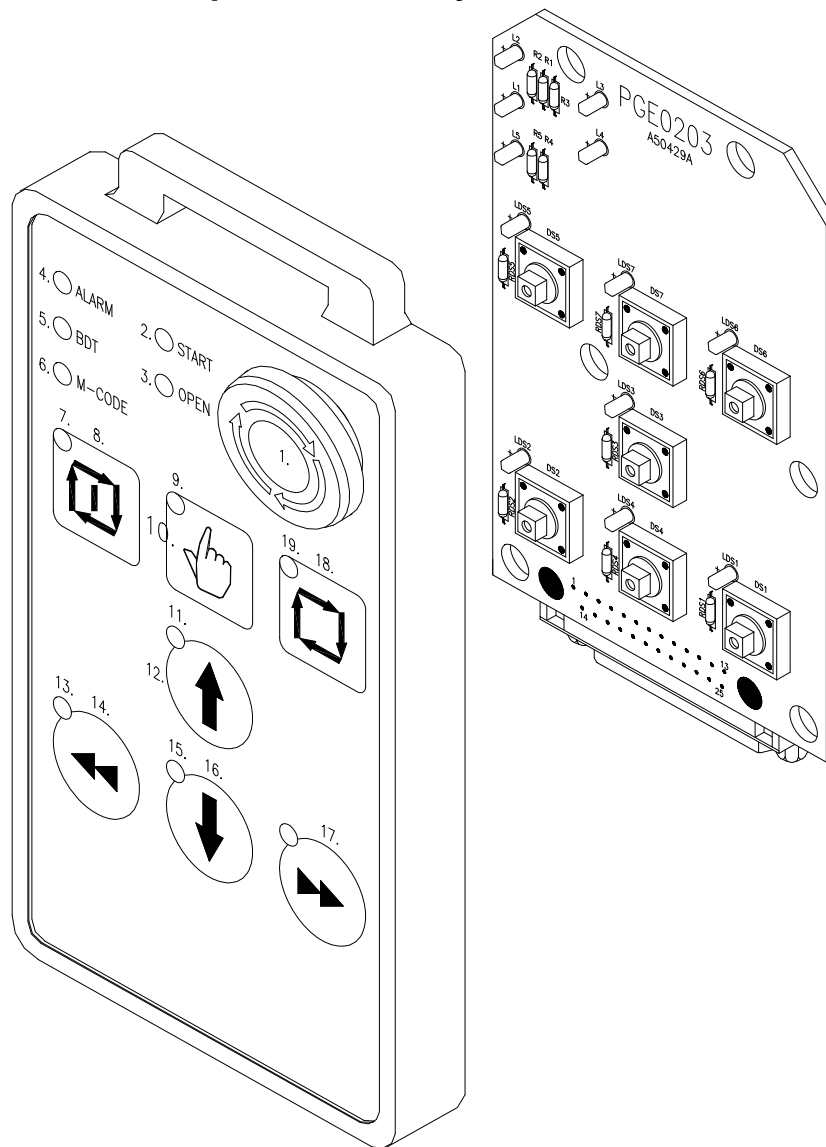
NO.	Code	Function	NO.	Code	Function
1	ES2	Emergency stop	11	LDS3	Clamping in light
2	L3	Start light	12	DS3	Manual clamping in/out
3	L4	Chuck open light	13	LDS2	+Z light(left)
4	L2	Alarm light	14	DS2	-Z Key
5	L1	Bar end light	15	LDS4	Shift light
6	L5	M-Code light	16	DS4	Shift keying
7	LDS5	Automatic start light	17	DS1	+Z Key
8	DS5	Automatic start	18	DS6	Automatic mode
9	LDS7	Manual mode light	19	LDS6	Automatic mode light
10	DS7	Manual mode			

6.3.5.2 Decomposition of remote control pendant
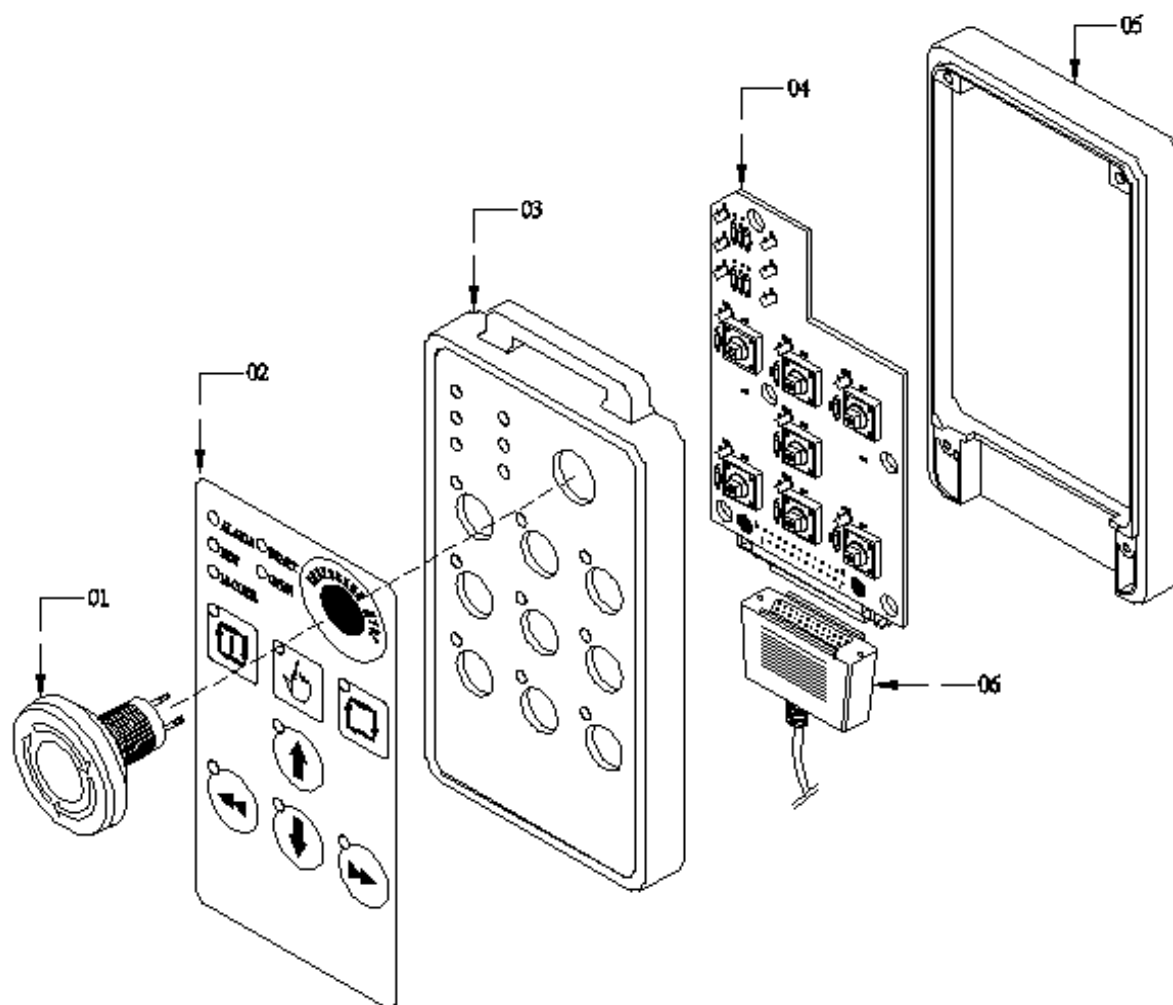
No	Code	Name	Part No.	No	Code	Name	Part No.
01	ES2	Emergency stop	J310702 J460340	04	MPCB	Pc board	J510400
02		Paster	G91120401	05		Bottom	G91120600
03		Top	G91120500	06		Cable	J420600

6.3.6 Description of operation：

Manual operation:

Turn to the manual position 🖐 ; the following 4 keys can start operating.

⬆ ⬇ ⏪ ⏩
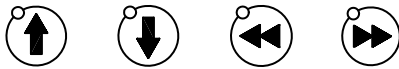
Select Auto start-point：

1. No material in the spindle：

    When 🖐 is lightened, it is under manual mode. At this time please

    press ⏪ until original point of push bar to lighten, press ⬇

    loading a new bar to V channel. When ⏪ and ⬇ are lightened,

    please press 🔲 and 🔲 , then start to

    change the bar automatically.

2. Material in the spindle：

    When 🖐 is lightened, it is under manual mode. When ⬆ is

    lightened, at this time please press 🔲 and 🔲 , then start to

    manufacture automatically.

When you press the emergency stop, the power supply of motor will be shut off

and it will show "Bar feeder emergency stop" on the human machine screen.

In Auto operation, if press the emergency stop or shift to manual or shut off power

supply, it will be quitting of automatic mode. If you want to return to Auto

operation, please return the emergency stop to the original status, and press

automatic 🔲 , then press the start-key 🔲 .

If the position of push bar cannot be in Zero while the push bar move backward in

the origin please. Press ⏪ ⏩ ,then 3S will proceed the origin

regression.

6.4   Circuit diagram

NO	Function specification
1	PCB1.
2	Preparative Relay(RE)contact for increasing functions.
3	The contact for bar feeder send signals to lathe.(refer to 6.7)
4	The contact for lathe send signals to bar feeder .(refer to 6.7)
5	DC24V preparative power.
6	If the lathe send opposite signal to the bar feeder, The jump can be used to avoid wrong motion.

6.5 Solenoid valves diagram
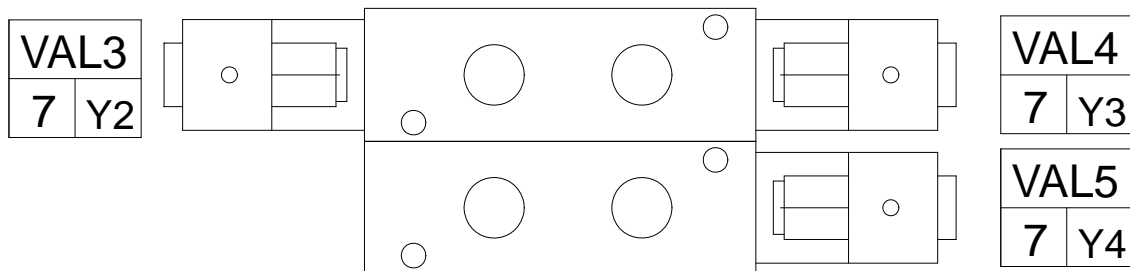
Code	Function	Specification	料號
VAL3	Motion of primary position	4V220-08　DC24V	A12120200
VAL4	Motion of moving		
VAL5	Motion of loading material	4V210-08　DC24V	A12120100

6.5.1 Air pressure circuit diagram

6.6   Main circuit diagram LS2

TYPE	VS65	Approve	Charles			DATE	2009/11/13
Title	Main Circuit	Draft	Charles	Page	1 / 11	REL.	C0

Refer to 108

6   7   E1

F3

8   7

P1-J30

P1-J29

24V

0V   LCD-Monitor
          6310S

E5

E6

TO Door board

TB

E7   TO Electron board

P1-J17   P1-J16
N P   P N

18   COM

Refer to 301   Refer to 301

TYPE	VS65	Approve	Charles		DATE	2009/11/13
Title	Main Circuit	Draft	Charles	Page	2 / 11	REL.	B0

6.6.1 PLC input

| TYPE | VS65 | Approve | Charles | | | DATE | 2009/11/13 |
| Title | PLC IN PUT | Draft | Charles | Page | 3 / 11 | REL. | C0 |

Refer to 310

8 7 COM 18

FX1N−40MR
PLC

RE	⊗ X7	Server farm alam sense
P1−J19 P1−J19		

DS6	⊗ X10	Auto button
P1−DB1 P2−DB1 P2−DB1 P1−DB1 P1−J15		

RA J4	⊗ X11	Chuck open/close
P1−J21		
P3−DB1 L4 R4 P1−DB1		

RB J5	⊗ X12	M-code signal
P1−J21		
P3−DB1 L5 R5 P1−DB1		

MC	⊗ X13	Bar feeder pawer ON detectable
P1−J14 P1−J14 P1−J13		

DS5	⊗ X14	Auto start button

DS7	⊗ X15	Manual button

DS1	⊗ X16	Push bar forward key

DS2	⊗ X17	Push bar fackward key
P1−DB1 P2−DB1 P2−DB1 P1−DB1 P1−J15		

TYPE	VS65	Approve	Charles			DATE	2006/09/16
Title	PLC IN PUT	Draft	Charles	Page	4 / 11	REL.	A0

Refer to 410

8   7   COM

FX1N-40MR
PLC

DS3		X20	Orientation key
P1-DB1 P2-DB1 P2-DB1 P1-DB1 P1-J15 DS4		X21	Displacement key
		X22	
SS1 LS3		X23	Detect covers
P1-J23 LS4			
16			
LS5		X24	Detect axial displacement
P1-J23 P1-J21			
AS1		X25	Detect safety pressure
P1-J14 P1-J14 P1-J13			
RB J6		X26	CNC alarm signal
P1-J21			
LS1		X27	Detect for Loading
P1-J12 P1-J12 P1-J13			

P1-J23   P1-J23 P1-J21

Refer to 601

TYPE	VS65	Approve	Charles			DATE	2006/09/16
Title	PLC IN PUT	Draft	Charles	Page	5 / 11	REL.	A0

6.6.2 PLC output

TYPE	V6S5	Approve	Charles			DATE	2006/09/16
Title	PLC OUT PUT	Draft	Charles	Page	6 / 11	REL.	A0

Refer to 610

8 7

FX1N-40MR
PLC

VAL5 — P1-J2 — DY4 — P1-J2 — P1-J3 — ⊗ Y4 — Loading valve

LVAL5 RVAL5

R1 — DR1 — P1-J18 — ⊗ Y5 — Bar end signal Relay

LR1 RR1

R2 — DR2 — P1-J18 — ⊗ Y6 — Abnormal signal Relay

LR2 RR2

R3 — DR3 — P1-J18 — ⊗ Y7 — Inching signal Relay

LR3 RR3

R4 — DR4 — P1-J18 — ⊗ Y10 — Auto start signal Relay

LR4 RR4

R5 — DR5 — P1-J18 — ⊗ Y11 — Cycle start signal

LR5 RR5

R6 — DR6 — P1-J18 — ⊗ Y12 — Start signal of chuck open

LR6 RR6

BZ — ⊗ Y13 — Buzzer

TYPE	VS65	Approve	Charles			DATE	2006/09/16
Title	PLC OUT PUT	Draft	Charles	Page	7 / 11	REL.	A0

801					801

FX1N-40MR
PLC

Servo Driver

CN1B | Pin7 ——— Light-blue ——— ⊗ Y14   Motor without speed

CN1B | Pin 9 ——— Purple ——— ⊗ Y15   Motor turning

CN1B | Pin 8 ——— Yellow ——— ⊗ Y16   Motor reverse

CN1B | Pin 5 ——— Green ——— ⊗ Y17   Servo ON

CN1A | Pin 8 ——— Dark-blue ———   TL

CN1B | Pin 10 ——— Black ——— ⊗COM5   Servo signal common point

TYPE	VS65	Approve	Charles			DATE	2006/09/16
Title	PLC OUT PUT	Draft	Charles	Page	8 / 11	REL.	A0

6.6.3 Server jumper circuit

MR-J2S-40A
Servo Driver

CN1A	PIN	CN1B	
	1	Gray	TO 2DA (COM1,COM2)
	2	White	TO 2DA (VOUT1,IOUT1)
	3	Pink	
	4		
	5	Green	805 > Servo ON
Black	6		
Red	7	Light-Blue	802 > Motor without speed
Dark-Blue	8	Yellow	804 > Motor reverse
	9	Purple	803 > Motor turning
	10	Black	806 > com
	11		
	12	Red	TO 2DA (VOUT2,IOUT2)
	13	Orange	
	14		
	15	Gray	
White	16		
Green	17		
	18	Brown	
	19		
	20	Gray	

A < 303
B < 303
TL < 805
$\overline{A}$ < 303
$\overline{B}$ < 303

20

21

J19/-I   RE   J19/+I

DRE

LRE   RRE

TYPE	VS65	Approve	Charles			DATE	2006/09/16
Title	SERVER JUMPER CIRCUIT	Draft	Charles	Page	11 / 11	REL.	A0

6.6.4 Circuit in the remote control pendent

| TYPE | VS65 | Approve | Charles | | | DATE | 2006/09/16 |
| Title | CONTROL BOX CIRCUIT | Draft | Charles | Page | 9 / 11 | REL. | A0 |

6.7 Interface signal circuit

TYPE	VS65	Approve	Charles			DATE	2006/09/16
Title	Interface signal circuit	Draft	Charles	Page	10 / 11	REL.	A0

6.7.1 Working cycle－CNC lathe

■ : Movement area ▨ : Probable movement area

Right-side cycle labels (top to bottom):

- Chuck close then retreat
- New material feed to primary posit — R6
- Primary poaition
- Bar-P forward+Z
- Bar-P forward-Z
- Morent — Cycle
- Load material
- Bar-P return to the origin — R5
- Bar-P return — R5
- Remnant push out
- Chuck close then retreat
- Feed to primary position — R5
- Chuck open then feed
- After cutting off N products
- Chuck close then retreat
- Feed to primary position — R5
- Chuck open then feed
- Auto start
- Auto status
- Manual status

	Signal	Description
RA	Chuck signal	
RB	M-CODE	
RC	Permiting to chanae material	
RD	CNC alram	
R1	Chuck open ON / Chuck open PLS / Chuck open ON / Chuck open PLS	Bar end mode
R2	Alarm signal	
R3	Inching signal	
R4	Auto state	
R6	Mode 1 / Mode 2 / Mode 3 / Mode 4 / Mode 5	Start signal
R5		
Encoder	Bar end position / Remnant push out	Work&Check
DS6	Automatic	
DS5	Auot start	
	Movement of signal	Bar end mode / Movement of bar feeder

Description of interface signal

6.8 Description of settings and parameter

6.8.1 HMI Program selection

1. F1 · F1 ⌃ Press the key : 👆 F4 / F1

2. F2 · F2 ⌄ Press the key : 👆 F5 / F2

3. F3 · F3 ⌂ Press the key : 👆 F6 / F3

4. F4 · Press the key : 👆 ⇧Shift ✚ F4 / F1

5. F5 · Press the key : 👆 ⇧Shift ✚ F5 / F2

6. F6 · Press the key : 👆 ⇧Shift ✚ F6 / F3

7. F7 · Press the key : 👆 ⇧Shift ✚ F7 / 2

8. F8 · Press the key : 👆 ⇧Shift ✚ F8 / ESC ←

9. F9 · Press the key : 👆 ⇧Shift ✚ F9 / ↵

6.8.2 Parameter picture driftage

I

F4 change the working mode
F5 Parameter recorder
F6 Language select
F2 ⌄ F3 🏠

👆 F5/F2

F4 change the working mode
👆 ↑Shift + F4/F1

- Operation Mode
- Remnant Handling
- Feeding mode
- Facing distance mode
- Select bar shapes

F5 Parameter recorder
👆 ↑Shift + F5/F2

F6 Language select
👆 ↑Shift + F6/F3

F4 Program version
F1 ⌃ F3 🏠

F4 Program version
👆 ↑Shift + F4/F1

II

F4 Change program
F5 Test Interface
F6 Change Time
F2 ⌄ F3 🏠

👆 F5/F2

F4 Change program
👆 ↑Shift + F4/F1

- Change start mode
- M-Code signal mode
- Change bar signal mode
- Change bar end mode
- Change start mode
- Metric / Inch mode

F5 Test Interface
👆 ↑Shift + F5/F2

F6 Change Time
👆 ↑Shift + F6/F3

F4 None LOGO
F1 ⌃ F3 🏠

F4 None LOGO
👆 ↑Shift + F4/F1

6.8.3 Parameter application
6.8.3.1 Turning parameter

Position	####	mm
Valid Bar	####	mm
Pieces	####	Times
## : ## : ##	F2 ⌄	F3 ⌂

Next page ←

Home page ←

Parameter description：	This monitor can watch present working status at any time.
Watch item：	1：Push bar present position.
	2：Remain effective working length of material.
	3：Remain to wait for working quantities of work piece.

Generally value ：	NO	Setting range ：	NO
Setting value ：	NO		

Position	#### mm
Finish product length Set-up	### mm
	F1 ⌃ F2 ⌄ F3 ⌂

Previous page ←

Next page ←

Home page ←

Parameter description：	The finished product length will be the workpiece length adding the cutter thickness. This parameter setting may affect the bar end setting.
Setting method：	Input the required length.
For example：	Workpiece 47mm + thickness of cutter 3mm = The finished product length 50mm . So we will set finished finished product Length to be 50mm.

Generally value ：	50 mm	Setting range ：	0~500 mm
Setting value ：			

Position	#### mm
Long feed safety Set-up	### mm
	F1 ⌃ F2 ⌄ F3 ⌂

Previous page ←

Next page ←

Home page ←

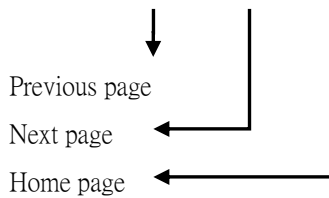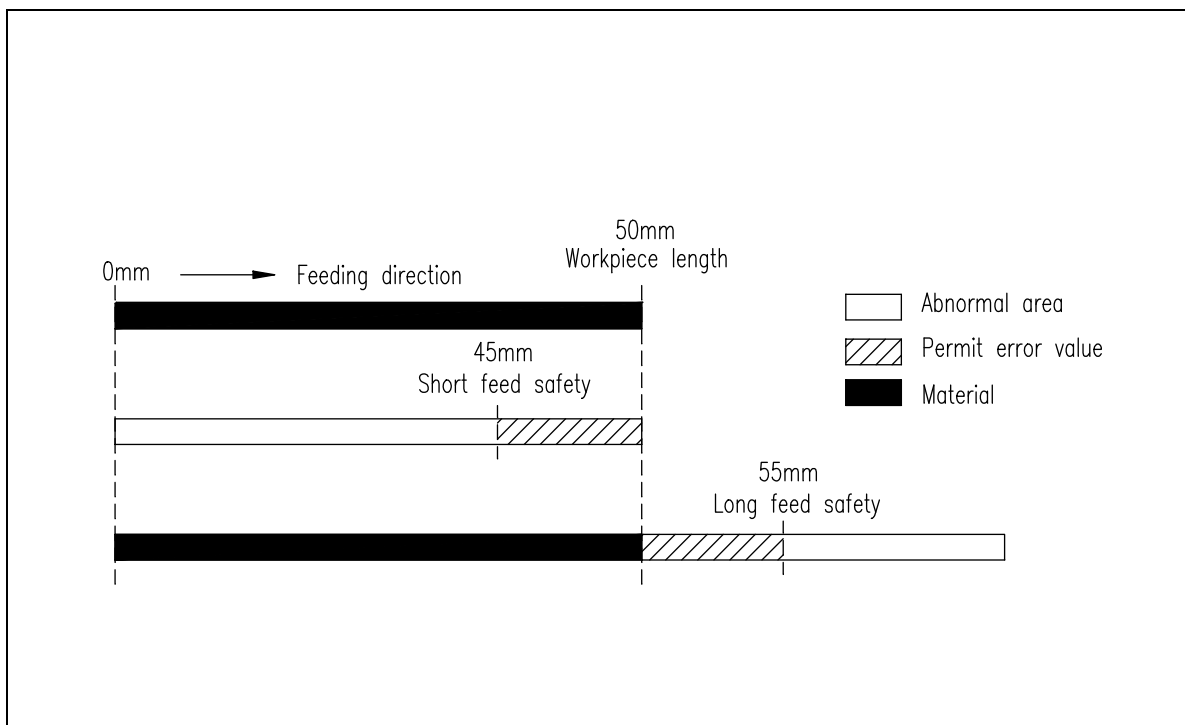|	
Parameter description：	This parameter setting will let feed material more stable and ensure the material to be sent to request location. But if no need to use this function that you can set it to be "0" directly .
Setting method：	This parameter will be finished product length to add 5 mm automatically after finished product length setting. This parameter can also be set finished product length to add tolerance.
Ex：	Finished product length + Tolerance = Long feed safety
Refer to figure 1：	

Generally value ：	75 mm	Setting range ：	0~500 mm
Setting value ：			

Position **####** mm	
Short feed safety Set-up **###** mm	
F1 ⌃ F2 ⌄ F3 ⌂	

↓

Previous page

Next page ←

Home page ←

Parameter description：This parameter setting will let feed material more stable and ensure the material to be sent to request location. But if no need to use this function that you can set it to be "0" directly .

Setting method： This parameter will be finished product length to deduct 5 mm automatically after finished product length setting. This parameter can also be set finished product length to deduct tolerance.

Ex： Finished product length - Tolerance = Short feed safety

Refer to figure 1：

Generally value ：	25 mm	Setting range ：	0~500 mm
Setting value ：			

(Figure 1)

50mm
Workpiece length

0mm → Feeding direction

45mm
Short feed safety

☐ Abnormal area

▨ Permit error value

■ Material

55mm
Long feed safety

```
Position    ####  mm
Speed of chuck        ##
open set-up           %
     F1 ⌃ F2 ⌄ F3 ⌂
```

↓

Previous page

Next page ←

Home page ←
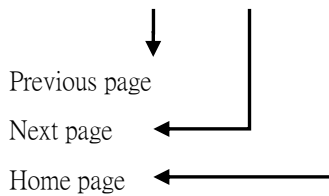
Parameter description：	The speed of the pusher during in automatic mode when lathe chuck open.
Setting method：	According to the bar material size and torque of chuck close to adjust speed.
Note：	When setting value is too high it could cause servo failure.

Generally value ：	40 %	Setting range ：	0~99 %
Setting value ：			

```
Position    ####  mm
Torque of chuck       ##
open set-up           %
     F1 ⌃ F2 ⌄ F3 ⌂
```

↓

Previous page

Next page ←

Home page ←
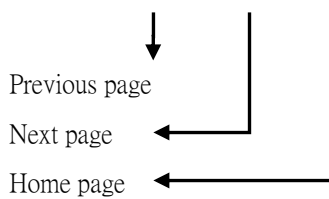
Parameter description：	The torque of pusher moves forward when automatic mode and lathe chuck open.
Setting method：	According to the bar material size and speed of chuck open to adjust torque .
Note：	When setting value is too high it could cause servo failure.

Generally value ：	40 %	Setting range ：	0~99 %
Setting value ：			

```
Position    ####  mm
Speed of manual       ##
set-up                %
     F1 ⌃ F2 ⌄ F3 ⌂
```

↓

Previous page

Next page ←

Home page ←
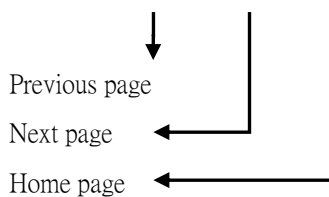
Parameter description：	The pusher speed of manual operation.
Setting method：	According to the required speed and manual operation torque to adjust speed.

Generally value ：	40 %	Setting range ：	0~99 %
Setting value ：			

Position **####** mm Torque of manual set-up ┃ **##** % F1 ⌃ F2 ⌄ F3 ⌂	Parameter description：The torque of bar pusher moves forward in manual operation mode. Setting method： According to required torque and speed of manual operation mode to adjust torque.
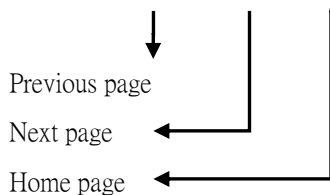
↓

Previous page

Next page ←

Home page ←

Generally value ：	40 %	Setting range ：	0~99 %
Setting value ：			

Position **####** mm First feeding speed set-up ┃ **##** % F1 ⌃ F3 ⌂	Parameter description： The first feeding block will require moving speed in a state of first feeding. Setting method： Input to require speed into the parameter of first feeding speed.
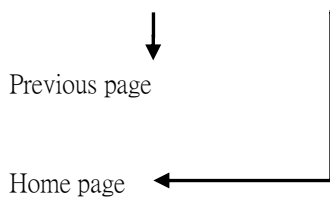
↓

Previous page

Home page ←

Generally value ：	60 %	Setting range ：	0~99 %
Setting value ：			

6.8.3.2 Fixed parameter/ enter password "258"

Position	#### mm
Bar push return stroke set-up	### mm
	F2 ▼ F3 ⌂

↓ Next page

↓ Home page

Parameter description：If bar pusher position is less than setting value that pusher will retreat to setting position when chuck close.

Setting method：   Input the required pusher retreating distance.

For example ：   If the value of parameter is set to 30mm and the bar pusher is within the A area, the bar pusher will retract to 30mm after chuck closed.

Reference figure 2：

Generally value ：	50 mm	Setting range ：	0~300 mm
Setting value ：			

(Figure 2)
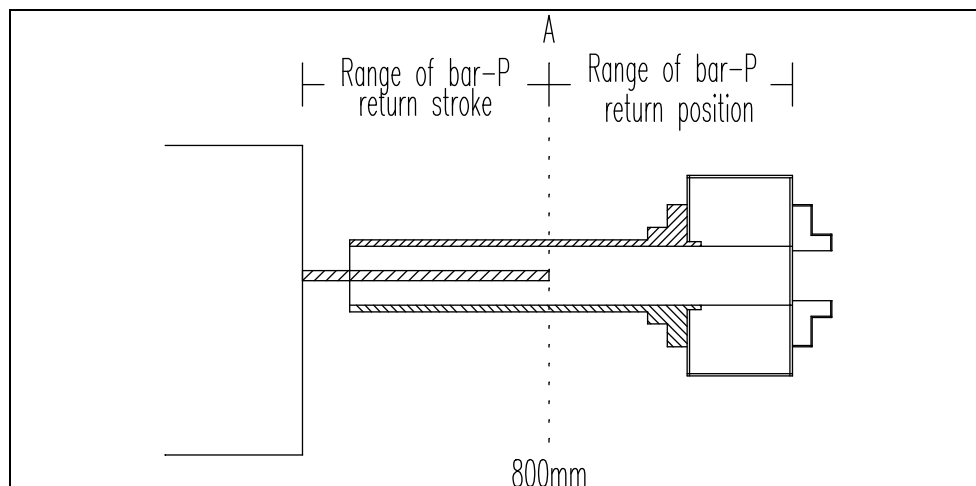
Position	#### mm
Bar push return position set-up	#### mm
	F1 ⌃ F2 ▼ F3 ⌂

↓ Previous page

↓ Next page

↓ Home page

Parameter description：If bar pusher position is over than setting value that pusher will retreat to setting position when chuck close. In order to prevent friction and vibration caused from pusher going into the lathe spindle too long.

Setting method：   By manual operation let the bar pusher move into the spindle inside around 1 / 3 of its length. To ensure not to touch the spindle and input the current position.

For example ：   If the value of parameter is set to 800mm and the bar pusher is out of the A area, the bar pusher will retract to 800mm after chuck closed.

Reference figure 2：

Generally value ：	500 mm	Setting range ：	0~1500 mm
Setting value ：			

```
Position      ####  mm
Bar end position    ####
set-up
                    mm
     F1 ⌃  F2 ⌄  F3 ⌂
```

Previous page

Next page

Home page
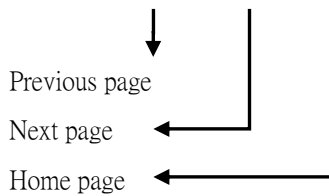
Parameter description：This position is the maximum working limit. If pusher position value is bigger than bar end setting that bar feeder will offer a bar end signal to notice lathe to prepare loading new bar material

Setting Mode for fixed lathe：In the manual mode let pusher into lathe spindle untill 5~10mm before lathe chuck . Then confirm the value of monitor to input it to be bar end position.

Ex： Reference figure 3, the distance of A is about 30 mm , C is the parameter of "Bar End Position". If the length of product is 40 mm, the area of bar end range is 960 mm to1000 mm.

1.2M Generally value：	800 mm	Setting range ：	0~1700 mm
1.5M Generally value：	1100 mm	Setting value ：	

(Figure 3)
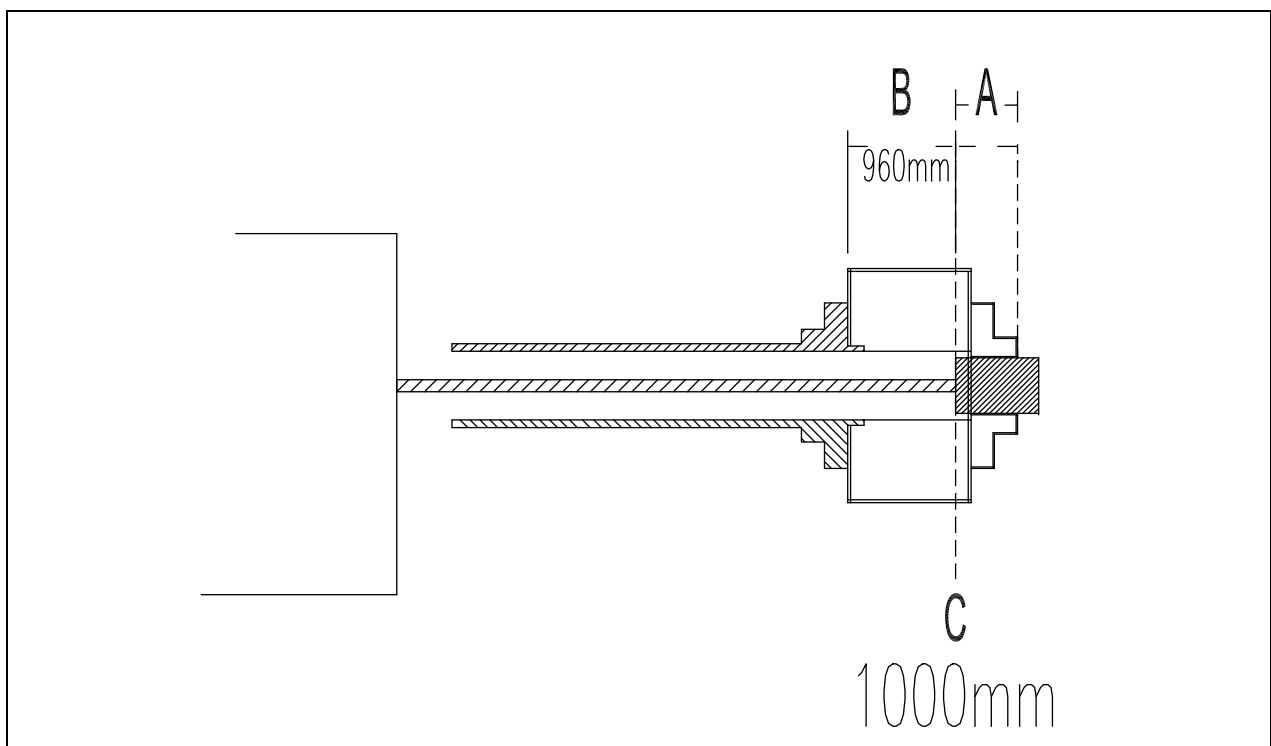
```
Position    ####  mm

Safety position   ####
set-up
                  mm
       F1 ⌃  F2 ⌄  F3 🏠
```

↓ ← Previous page

Next page ←

Home page ←

| Parameter description：Chuck facing position is the distance between cutter facing detection to cutter facing position.　We can not know if the new bar material has been pushed to chuck facing position until loading a new bar material. |
| Setting method： To measure the distance between chuck facing detection position and cutter position after center adjustment. |
| Ex： Reference figure 4,push the bar pusher to the turret(position A),if the value display on Man Machine is 1200mm, so that 1700mm is the value of "Facing position". |

1.2M Generally value： 900 mm	Setting range ： 0~2000 mm
1.5M Generally value： 1200 mm	Setting value ：

(Figure 4)

A
1200mm

Previous page

Next page

Home page

Parameter description：This distance is the position that bar pusher pushes out the remnant into the lathe.

Setting method： Push the pusher to exceed chuck position 20mm by manual operation. Then confirm the value showing in monitor and input this value.

Ex： Reference figure 5 ,the distance of B is about 20mm ; the Position A is about 1200mm for the parameter of "Remnant Push out position.

1.2M Generally value ：	900 mm	Setting range ：	0~1700 mm
1.5M Generally value ：	1200 mm	Setting value ：	

(Figure 5)
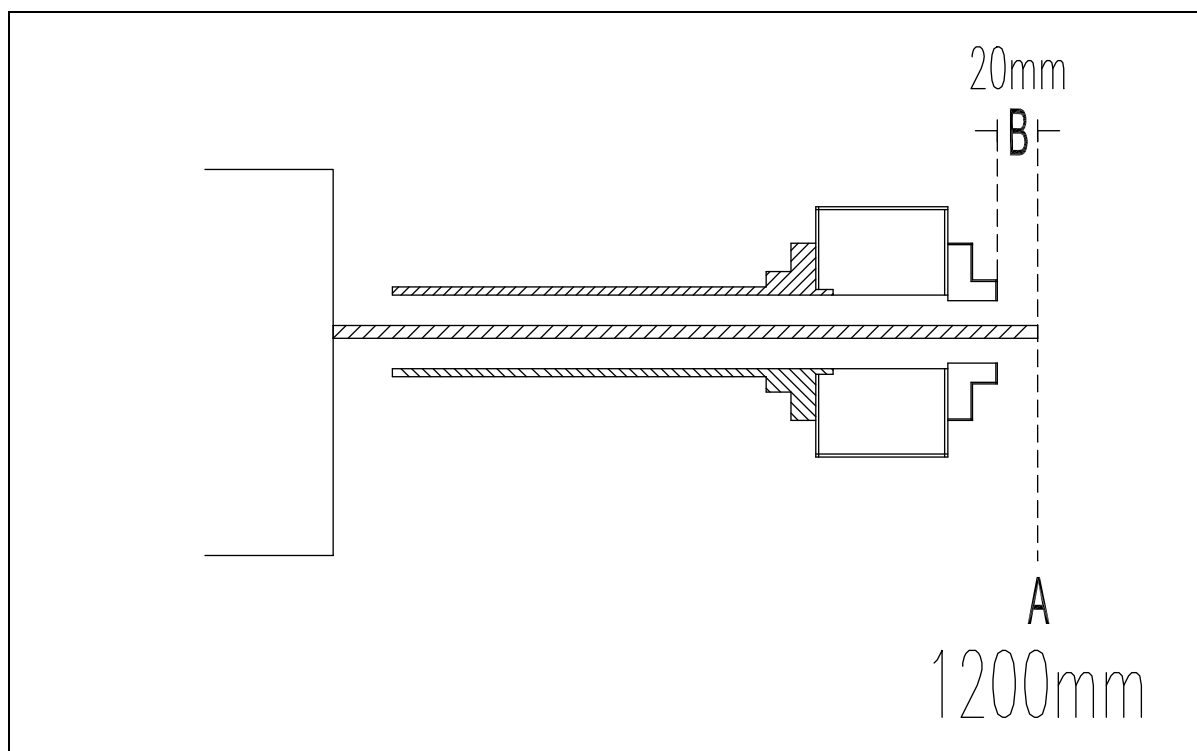
```
Position    ####  mm

Impulse number      ##
set-up
                    Pls
      F1 ⌃ F2 ⌄ F3 ⌂
```

↓

Previous page

Next page ←

Home page ←
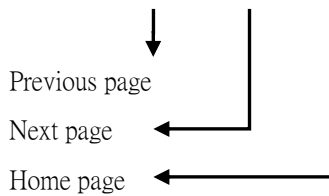
Parameter description：If the pusher can not push the new bar material to chuck
facing position because it is blocked or other reasons that the
pusher will have inching movement.　But if it exceeds
setting frequency that bar feeder will Alarm17.

Setting method：　　Input the required frequency.

Generally value ：	5	Setting range ：	0~50
Setting value ：			

```
Position    ####  mm

Thrust lag of       #.#
chuck close
setting             Sec
      F1 ⌃ F2 ⌄ F3 ⌂
```

↓

Previous page

Next page ←

Home page ←
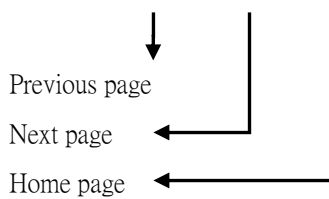
Parameter description：In automatic working mode , pusher pushes bar material into
lathe and chuck close to work. To ensure that material will
not move during the chuck close.　Set the delay time for
bar pusher to chang the speed and torque .

Setting method：　　Input the required time.

Generally value ：	0.5	Setting range ：	0~9.9
Setting value ：			

```
Position    ####  mm

LS2
                    ###

  ⟵ mm ⟶           mm
      F1 ⌃ F2 ⌄ F3 ⌂
```

↓

Previous page

Next page ←

Home page ←
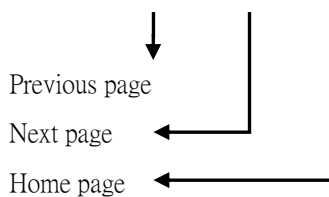
Parameter description：This setting is for LS2 of the bar feeder to detect the position
of the opening of the lathe, which has not judged by bar
feeder. Please input indeed

Generally value ：	200 mm	Setting range ：	0~1000 mm
Setting value ：			

Position	#### mm
First feed end position	#### mm
F1 ⌃	F3 ⌂

↓

Previous page

Home page ←

Parameter description : The pre-feeding pusher will push the bar material forward until the bar material can go into collet smoothly when bar pusher is up..
Setting method : Push pre-feeding pusher to stop position and input current position .

1.2M Generally value :	1295 mm	Setting range :	0~1700
1.5M Generally value :	1595 mm	Setting value :	

6.8.3.3 System function/ enter password "258"

```
   Operation Mode
□ 0: Normal mode    ┌──────┐
□ 1: One piece      │  #   │
                    │ Mode │
                    └──────┘
              ┌───┐┌───┐
              │F2▽││F3⌂│
              └───┘└───┘
```

```
   Operation Mode
□ 2: Slug load mode  ┌──────┐
□ 3: Sub-spindle     │  #   │
                     │ Mode │
                     └──────┘
          ┌───┐┌───┐┌───┐
          │F1△││F2▽││F3⌂│
          └───┘└───┘└───┘
```

Previous page

Next page

Home page

Parameter description： "0：Normal"：

Normal working.

"1 & 2：One piece machining"：

Under working status, the bar feeder just can push one time, the bar feeder will change bar. When the chuck is open next time, the pusher bar will push the new bar in of the spindle, then next working.

"3：Sub-spindle Mode"：

Under Auto working, when the chuck open, the material pull out sub-spindle of the lathe, The pusher bar won't push, but the bar feeder will still calculate the end of bar position for change bar.

Generally value ：	00	Setting range ：	0~3
Setting value ：			

```
   Remnant Handling
■ 0: By Pusher      ┌──────┐
  1: By New         │  #   │
□    bar            │ Mode │
                    └──────┘
          ┌───┐┌───┐┌───┐
          │F1△││F2▽││F3⌂│
          └───┘└───┘└───┘
```

Previous page

Next page

Home page

Parameter description： "0：By Pusher"：

Under Auto working status, when the chuck is open next time, pusher bar will push the remains out of the spindle, then changing a bar.

"1：By New Bar"：

Under Auto working status, After the end of bar, bar feeder will change bar, When the chuck is open next time, the new bar will push the remains out of the spindle, then next working.

Generally value ：	0	Setting range ：	0~1
Setting value ：			

Feeding mode

■ 0: To the stop   #
□ 1: In position   Mode

F1 ⌃ F2 ⌄ F3 ⌂

↓

Previous page

Next page ←

Home page ←
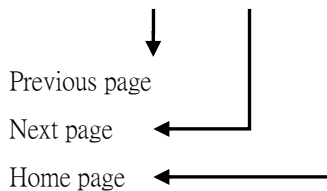
Parameter description： "0：Stop point"：

Under Auto working status, when the chuck is open, the pusher bar will send the material to required finish product length, at this time the cutter must be situated in outer of the spindle to wait the material. When the material has been sending to hit the cutter, bar feeder will wait the chuck to close.

"1：Position point"：

Under Auto working status, when the chuck is open, the pusher bar will send the material to required finish product length, when the material arrives, the pusher bar will stop the movement, awaiting the chuck to close.

Generally value ：	0	Setting range ：	0~1
Setting value ：			

Facing distance mode

■ 0: To the stop   #
□ 1: In position   Mode

F1 ⌃ F2 ⌄ F3 ⌂

↓

Previous page

Next page ←

Home page ←
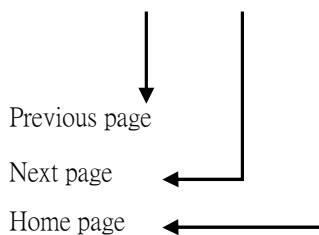
Parameter description： Select either one mode of bringing a new bar to facing position automatic or a new bar pushed to the setting facing position by bar pusher during bars changed.

"0：To the stop"： The new bar will be pushed to the chuck facing position and keep pushing until the lathe chuck closed.

"1：In position"： The new bar will be pushed to the setting chuck facing position by the parameter and the bar pusher will stop right away.

Generally value ：	0	Setting range ：	0~1
Setting value ：			

Select bar shapes

■ 0:Circle shape
□ 1:Complicated shape
　　# mode
　　F1 ⌂　　F3 ⌂

↓

Previous page

Home page ←

Parameter description： "0：Circle shape" ：	
While the bar feeder had the action of inching then the bar feeder will send the signal of inching to lathe. "1：Complicated shape" ： While the bar feeder had the action of inching then, bat the signal of inching won't send out.	
Generally value ：　　　0	Setting range ：　　　0~1
Setting value ：	

Parameter recorder

1:Parameter in value
2:Parameter out value
　　# Selection
　　F3 ⌂

Home page ←

Parameter description：Set up this function especially for user in order to user can record and save all present setting parameters. If need to save parameter, please press enter parameter; If want to read the saving parameter out, please press read parameter. It will be covered with original saving parameter if new parameter was saved every time.	
Generally value ：　　　NO	Setting range ：　　　1~2
Setting value ：　　　NO	

Langue select

0:Chinese
1:English
2:Simplified chinese
　　# Mode
　　F3 ⌂

Home page ←

Parameter description：　Select the proper language of the information displayed： 0：Traditional Chinese 1：English 2：Simplified Chinese	
Generally value ：　　　1	Setting range ：　　　0~2
Setting value ：　　　1	

```
PLC: -#######-Z
HMI:  6503206

                F3🏠
```

Home page

Parameter description：	To verify the version number of PLC and HMI programs.	
Generally value ：	Setting range ：	NO
Setting value ：		

6.8.3.4   Particular function / enter password "258"

```
Change bar feeder mode
■ 0:ON-line mode        #
■ 1:Demo mode          mode
              F2 ⌄  F3 🏠
```

Next page

Home page

Parameter description：	Set two modes to normally operate, if set the mode to "0：ON-line mode", bar feeder starts operating along with lathe. If need bar feeder to cycle automatically without connective, please set the mode for "1：Demo mode".		
Generally value ：	0	Setting range ：	0~1
Setting value ：	0		

```
Feeding mode
■ 0:M-Code no         #
■ 1:M-Code yes       mode
         F1 ⌃ F2 ⌄ F3 🏠
```

Previous page

Next page

Home page

Parameter description：	The lathe gives a feeding signal to the bar feeder are two modes: 1. Chuck Signal 2. M-Code. If the interface of lathe and bar feeder only connect "Chuck Signal", please set for "0: M-Code No Use". If the interface of lathe and bar feeder connect "Chuck Signal" and "M-Code", please set for "1: M-Code Use".		
Generally value ：		Setting range ：	0~1
Setting value ：			

```
Feeding mode
■:Change bar no       #
■:Change bar yes     mode
         F1 ⌃ F2 ⌄ F3 🏠
```

Previous page

Next page

Home page

Parameter description：	The lathe gives a changing bar signal to the bar feeder are two modes: 1. Chuck Signal 2. Permit to change bar signal. If the interface of lathe and bar feeder only connect "Chuck Signal", please set for "0: Permit to change bar signal No Use". If the interface of lathe and bar feeder connect "Chuck Signal" and "Permit to change bar signal", please set for "1: Permit to change bar signal Use".		
Generally value ：		Setting range ：	0~1
Setting value ：			

Change bar end mode

0:Open ON 2:Close ON
1:Open PLS 3:Close PLS

\#
mode

F1 △ F2 ▽ F3 🏠

↓

Previous page

Next page ←

Home page ←
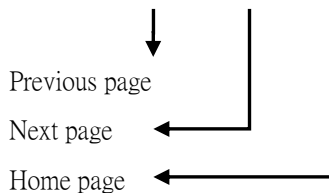
Parameter description：This is the bar feeder required a bar end signal to send the timing for CNC program, relative to the description of sequence, please refer to the description of sequence of movement signal in article 6.7.1.			
Generally value ：	2	Setting range ：	0~3
Setting value ：			

Change start mode

0: Mode1 3: Mode4
1: Mode2 4: Mode5
2: Mode3

\#
mode

F1 △ F2 ▽ F3 🏠

↓

Previous page

Next page ←

Home page ←
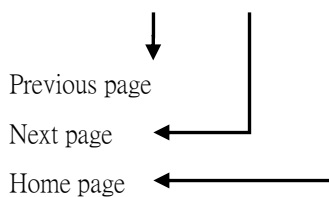
Parameter description：This is the bar feeder required a start signal to send the sequence for CNC program, relative to the description of sequence, please refer to the description of sequence of movement signal in article 6.7.1.			
Generally value ：	0	Setting range ：	0~4
Setting value ：			

Metric / Inch mode

☐ 0: Metric
■ 1: Inch

\#
mode

F1 △ F3 🏠

↓

Previous page

Home page ←
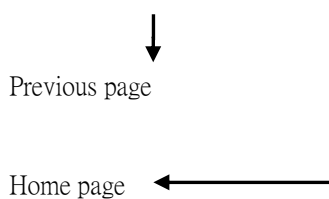
Parameter description：Feeder pusher position display and parameter setting of the benchmark changes. This fixed parameter will affect other setting. If you change this parameter that it should return the initial value as soon as possible. So we suggest that do not change this parameter as possible.			
Generally value ：	0	Setting range ：	0~1
Setting value ：			

F1 Bar emd	F5 New bar start
F2 Alarm	F6 Chuck open start
F3 Inching	
F4 Auto start	F7
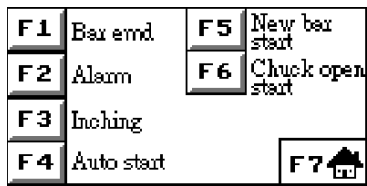
Home page ←

Parameter description：	This parameter allow technician to test each signal output on interface is continued to lathe.
Setting method：	To executive this parameter must be under manual mode both lathe and bar feeder or could cause danger.

Generally value ：	NO	Setting range ：	NO
Setting value ：	NO		

## YY	## MM	## DD
## HH	## MI	## SS
Set-up/Now		F4 Set
## YY	## MM	## DD
## HH	## MI	## SS	F3

Home page ←

Parameter description：	Set the date and time of system to record data.

Generally value ：	NO	Setting range ：	NO
Setting value ：	NO		

F4	None LOGO
F1	F3

↓

Previous page

Home page ←

Parameter description：This function can shift the Logo on the screen of the man machine.

Generally value ：	NO	Setting range ：	NO
Setting value ：	NO		

6.9   Refer alarm message

6.9.1   HMI Alarm Message

ERROR / CAUSE	CURE
⚠ ALARM:01 F3🏠 Bar move forward over the setting length.	※ Please check the value of long feed safety is correct ※ Check the turret whether it is at correct position of stopping material
⚠ ALARM:02 F3🏠 Bar move forward less than the setting length.	※ Please check whether the setting value of shortest length would be proper. ※ Check the turret whether it is at correct position of stopping material.
⚠ ALARM:03 F3🏠 -X axis move not smooth.	※ Check compressed air whether it is enough. ※ Pull out the tube of the F.R.L combination and then insert the tube again.
⚠ ALARM:04 F3🏠 +X axis move notsmooth	※ Check compressed air whether it is enough. ※ Pull out the tube of the F.R.L combination and then insert the tube again.
⚠ ALARM:05 F3🏠 SR3 and SR4 ON at the or breakdown time.	※ Please refer to **(6.2)**, check **SR3** and **SR4** whether have unidentified object to adhere to them.
⚠ ALARM:06 F3🏠 SR5 error motion or breakdown.	※ Please refer to **(6.2)**, check whether **LS2** was blocked by any unidentified objects.
⚠ ALARM:07 F3🏠 LS1 error motion or breakdown.	※ Please refer to **(6.2)**, check whether **LS1** was blocked by any unidentified objects.
⚠ ALARM:08 F3🏠 The safety cover isn't close.	※ Please refer to **(6.2)**, **LS3** and **LS4** are operative while **SS1** is opened. ※ Please close the covers.

ERROR / CAUSE	CURE
⚠ ALARM:09 F3🏠 The sliding rail not yet be orientation.	※ Please refer to **(6.2)**, **LS5** is operative while **SS1** is opened. ※ Please push the bar feeder to correct position of working.
⚠ ALARM:10 F3🏠 Air pressure not enough.	※ Check the pressure of the compressed air. ※ Please refer to **(6.2.1)**, check whether **AS1** has a breakdown.
⚠ ALARM:11 F3🏠 No material on the frame.	※ Please check whether have any materials on the bar feeder or in the spindle.
⚠ ALARM:12 F3🏠 CNC Alarm.	※ Before machining, please solve the alarm of **CNC**.
⚠ ALARM:13 F3🏠 The chuck close during change a new bar.	※ Please check the start signal was sent from the bar feeder whether it is correct with **CNC's** sub-program.
⚠ ALARM:14 F3🏠 During change a new bar and push bar cannot return to the origin.	※ Remove unidentified object.
⚠ ALARM:15 F3🏠 Remnant can't be push out.	※ When the **CNC** program runs to sub-program, check whether the return stroke of axis **Z** is enough to push out remnant. ※ Check whether the value of "Remnant push out" is correct, Setting method refer to(page**6.8.1**).
⚠ ALARM:16 F3🏠 When the bar feeder send start signal running.	※ Please check whether the interface signal code **R5 Relay** has a motion. ※ Check whether the lathe receive the signal from **R5 Relay**.
⚠ ALARM:17 F3🏠 During the impulse phase, the bar didn't arrive to the facing position.	※ Please check the setting of facing position. Please refer to (page **6.8.1**).

ERROR / CAUSE	CURE
⚠ ALARM:18 　F3🏠 Servo is breakdown.	※ Check the **alarm** No. on **LCD** display of servo whether it is abnormal. If yes, please inform the relevant technician about abnormal code to analyze reasons.
⚠ ALARM:19 　F3🏠 Bar feeder has not been auto start status when the lathe is running.	※ Check the bar feeder was in auto status when CNC is machining normally, otherwise bar feeder can't feed material.
⚠ ALARM:20 　F3🏠 The push bar is in incorrect position and need to readjust.	※ Please refer to the description of returned original point in article **(6.3.6)**.
⚠ ALARM:21 　F3🏠 No material inside spindle or run short of materisl.	※ Check spindle inside whether has a material. ※ Change a enough bar for length.
⚠ ALARM:22 　F3🏠 While the material move forward but can not move into lathe's spindle.	※ Check whether has an unidentified object to block the front of the bar.
⚠ ALARM:23 　F3🏠 While the material go back and push bar cannot return to the origin.	※ Check whether has an unidentified object to obstruct the push block.
⚠ ALARM:24 　F3🏠 Emergency stop.	※ Please release the button of emergency stop.
⚠ ALARM:26 　F3🏠 The length of new bar is too long can not process.	※ Please check whether the setting of facing position would be correct. ※ The length of new bar whether would be suitable.

6.9.2 SV List of alarm message

	Display	Name
LIST OF SERVO DRIVER ALARM		
	AL. 10	Under voltage
	AL. 12	Memory error 1
	AL. 13	Clock error
	AL. 15	Memory error 2
	AL. 16	Encoder error 1
	AL. 17	Board error 1
	AL. 19	Memory error 3
	AL. 20	Encoder error 2
	AL. 24	Ground fault
	AL. 25	Absolute position erase
	AL. 30	Regenerative error
	AL. 31	Overspeed
ALARMS	AL. 32	Overcurrent
	AL. 33	Overvoltage
	AL. 35	Command pulse frequency alarm
	AL. 37	Parameter error
	AL. 45	Main circuit high heat
	AL. 46	Servo motor overheat
	AL. 50	Overload 1
	AL. 51	Overload 2
	AL. 52	Error excessive
	AL. 8A	Overtime
	AL. 8E	error
	88888	time-out warning
	AL. 92	Open battery cable warning
	AL. 96	Zero setting error
	AL. 9F	Battery warning
	AL. E0	Excessive regenerative load warning
	AL. E1	Overload warning
WARNINGS	AL. E3	Absolute position counter warning
	AL. E5	ABS time-out warning
	AL. E6	Servo emergency stop
	AL. E9	Main circuit off warning
	AL. EA	ABS SV ON warning
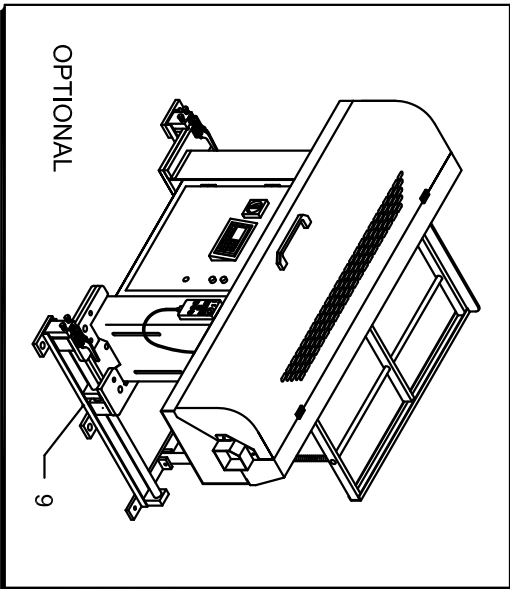
PICTURE INDEX

010	BRACKET DEVICE
020	CHANGEOVER
030	BAR PUSHER
040	FEEDING-EXTRACTION CONTROL DEVICE
050	FRAME
060	STAND
070	COVER
080	FEEDING
090	SLIDING RAIL (OPTIONAL)

VS-65

OPTIONAL

Tab. 000 / 2

BRACKET DEVICE

Tab. 010 2
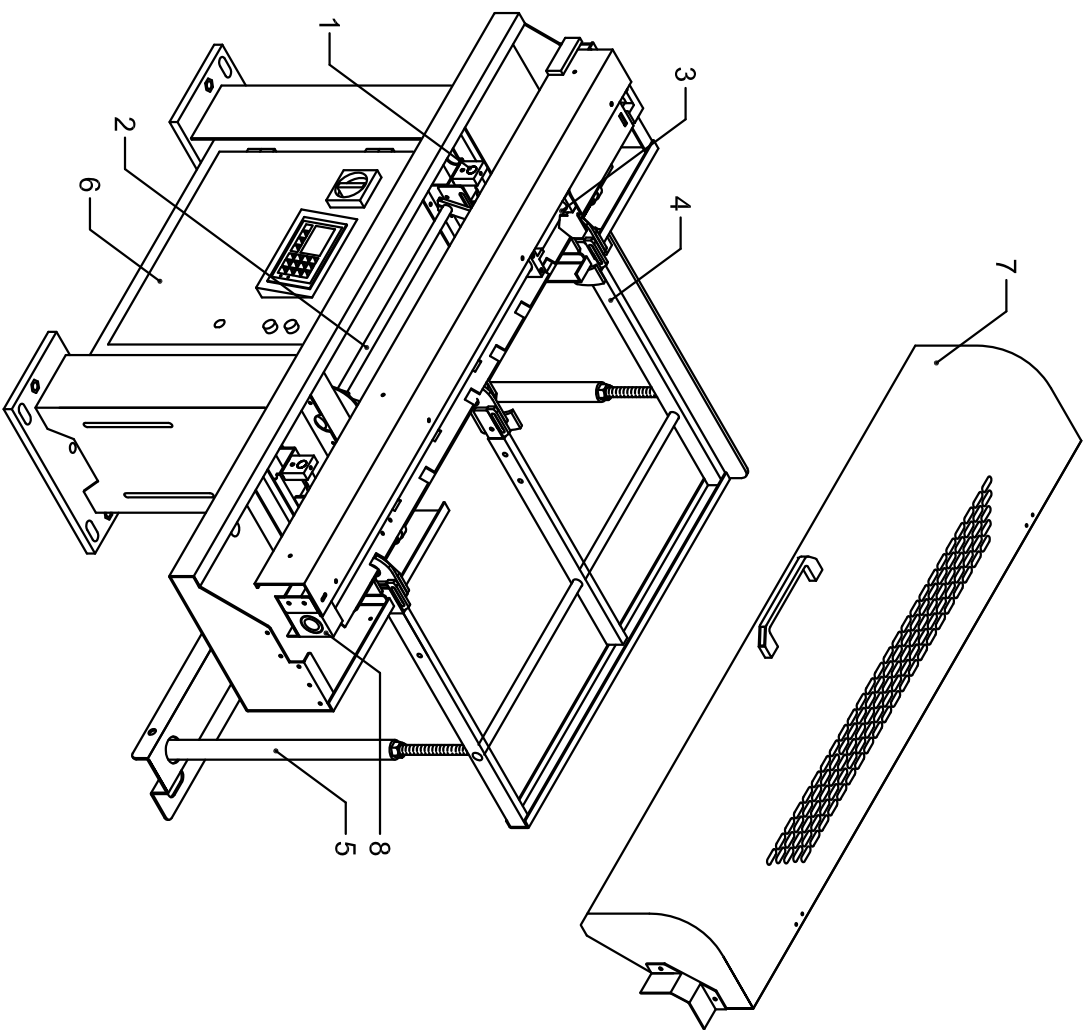
N.	Code	Denomination
1	G52120100	Support
2	G52120101	Support
3	G52120200	Bearing anchor
4	G52120400	Anchor
5	G52120500	Anchor
6	G52120501	Anchor
7	G52120700	Anchor
8	G52120900	Plate
9	B 608ZZ	Bearing
10	G51121000	Bearing
11	G52121100	Spring
12	G54120100	V Plate
13	G54150100	V Plate
14	G54120300	Anchor
15	G41120200	Beam
16	G41150200(L)	Beam
17	G71120400	Sheel Steel
18	G71150400 (L)	Sheel Steel
17	G41120300	Cover
18	G41150300 (L)	Cover
18	G42120100	Collet
19	B6004zz	Bearing
20	P13200600	Bush
21	G42120500	Gear wheel Z=55
22	G42120400	Gear wheel Z=20
23	G42120300	Plate
24	J220302	Motor
25	G41120400	Plate

CHANGEOVER
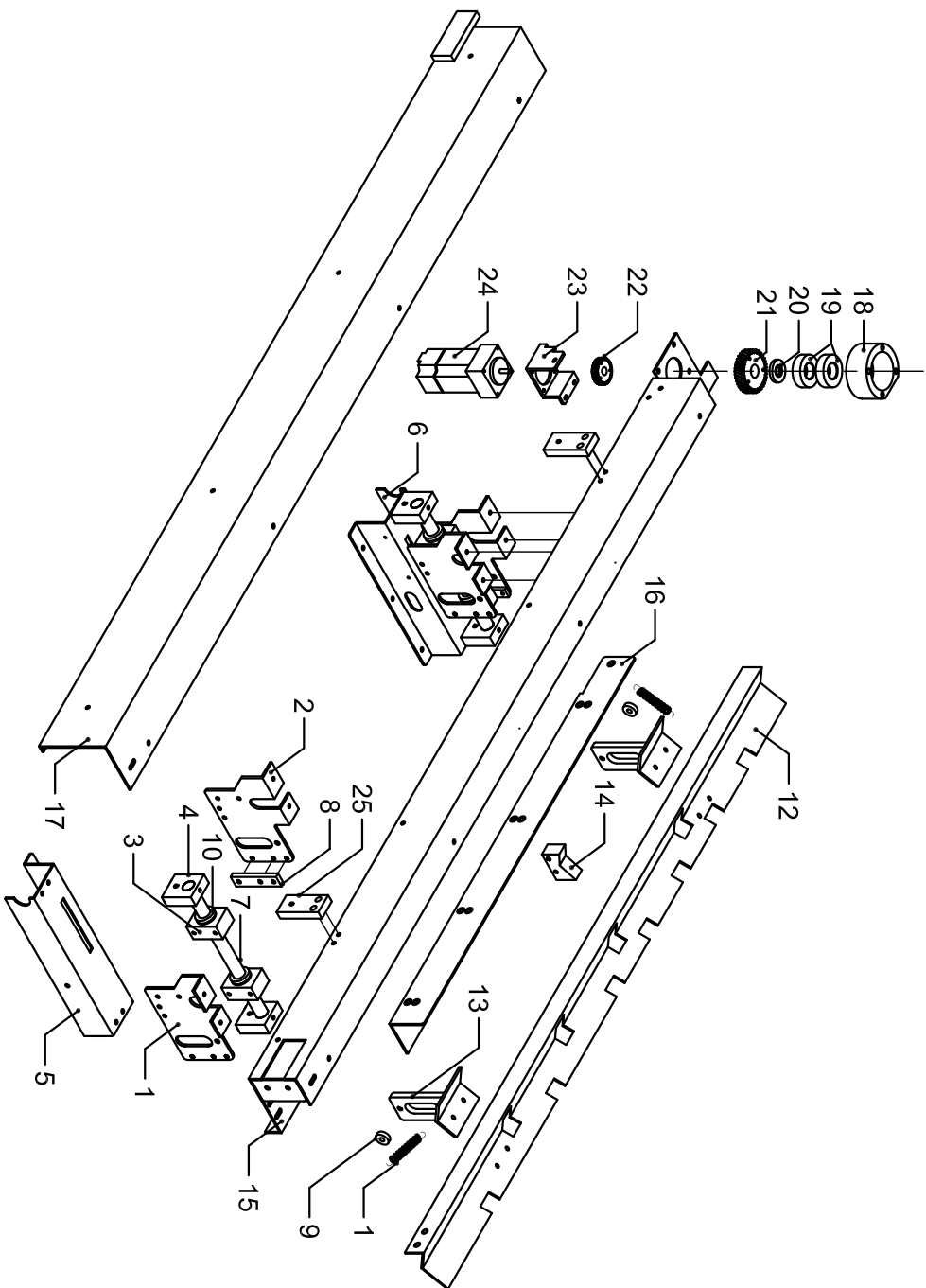
VS-65
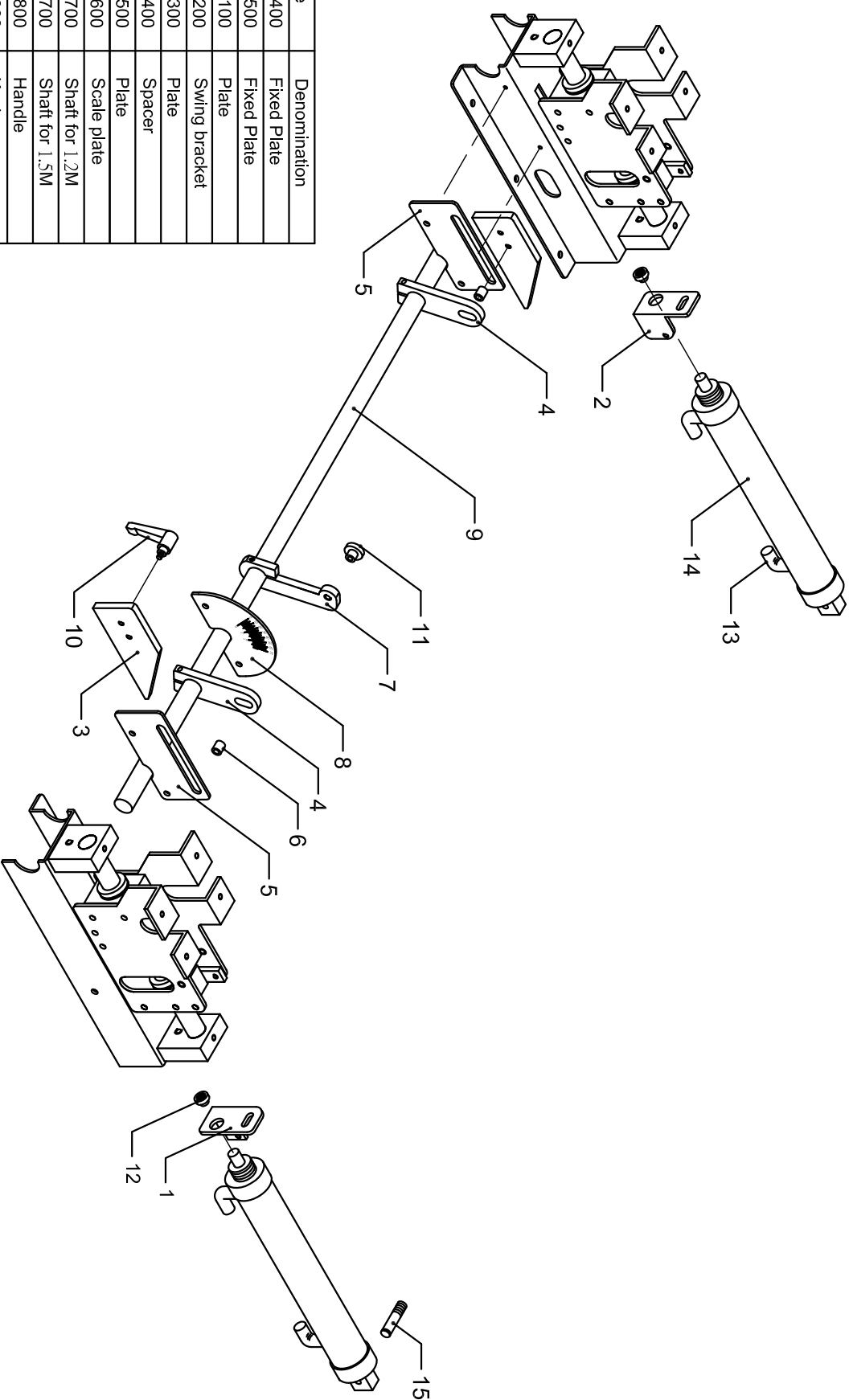
N.	Code	Denomination
1	G52121400	Fixed Plate
2	G52121500	Fixed Plate
3	G53120100	Plate
4	G53120200	Plate
5	G53120300	Swing bracket
6	G53120400	Plate
7	G53120500	Spacer
8	G53120600	Plate
9	G53120700	Scale plate
9	G53120700	Shaft for 1,2M
10	G53120800	Shaft for 1,5M
11	G53120900	Handle
12	G52121600	Knob
13	A13120300	Spacer
14	A11110100	Bended connectir
15	G61121300	Piston Cylinder
		Bolt

Tab. 020 3

Vs-65

BAR PUSH

Tab. 030 3

N.	Code	Denomination
1	G55120110	Support
1-1	G55120100	Support
1-2	G55120200	Rod
1-3	G55120300	Arbor
1-4	G55120900	Steel ball
2	G55120400	Plate
3	G55120401	Plate
4	G55120500	Push bar
4	G55150500(L)	Push bar
4-1	G55120501	Anchor rod
4-2	G55120503	Bar
5	G51120306	PE rod
6	G55120600	Push bar
6	G55150600(L)	Push bar
6-1	G55120601	Anchor rod
6-2	G55120602	Piston
6-3	G55120603	Bar
6-3	G55150603(L)	Bar
7	G51120312	PE rod
8	G55120700	Push bar
8	G55150700(L)	Push bar
8-1	G55120701	Anchor rod
8-2	G55120702	Piston
8-3	G55120703	Bar
8-3	G55150703(L)	Bar
9	G51120320	PE rod

FEEDING-EXTRACTION CONTROL DEVICE

Tab. 040 3
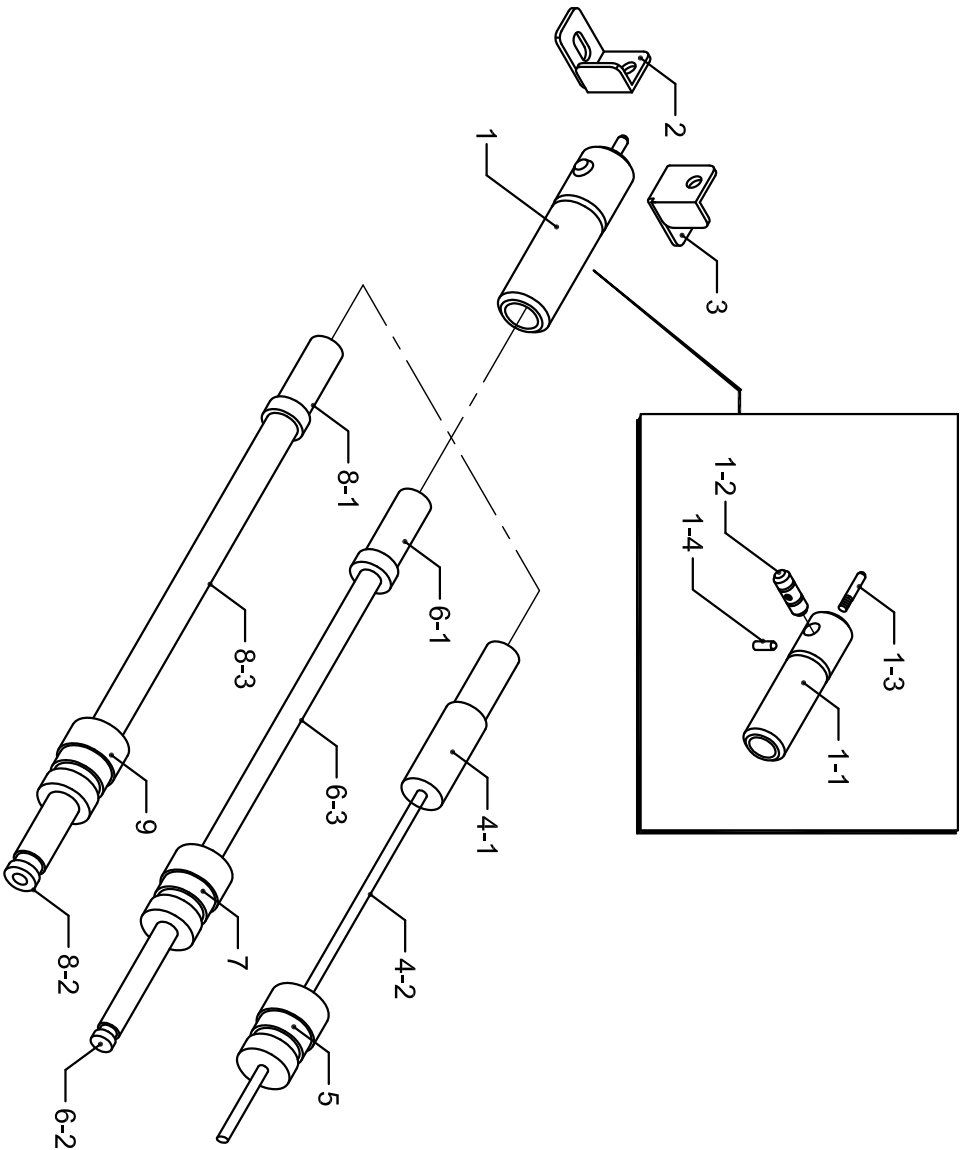
N.	Code	Denomination	
1	G61120100	Plate	
2	G61120200	Plate	
3	G61120301	Plate	
4	G61120400	Plate	
5	G61120500	Spacer	
6	P5320040O	Cylinder anchor	
7	G61120700	Plate	
8	G61120800	Plate	
9	G61120900	Hexagon Shaft	
9	G61150900	Hexagon Shaft	
10	A1110100	Cylinder MAL-CA-32x75	
11	A1310100	L type joint	
12	G61121000	Spacer	L=24
13	G61121100	Spacer	L=16,5
14	G61121200	Spacer	L=9
15	G5312040O	Spacer	
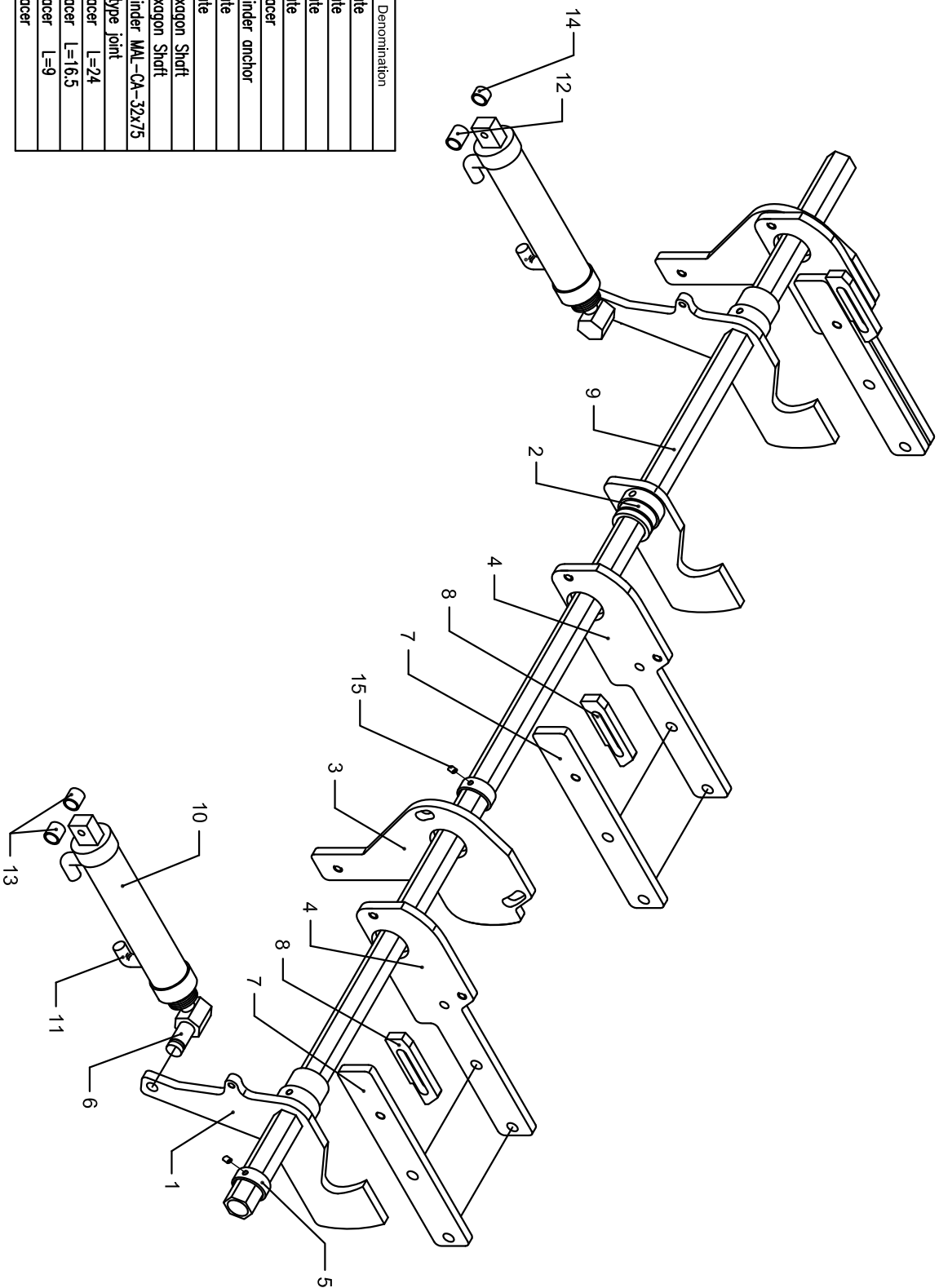
VS-65
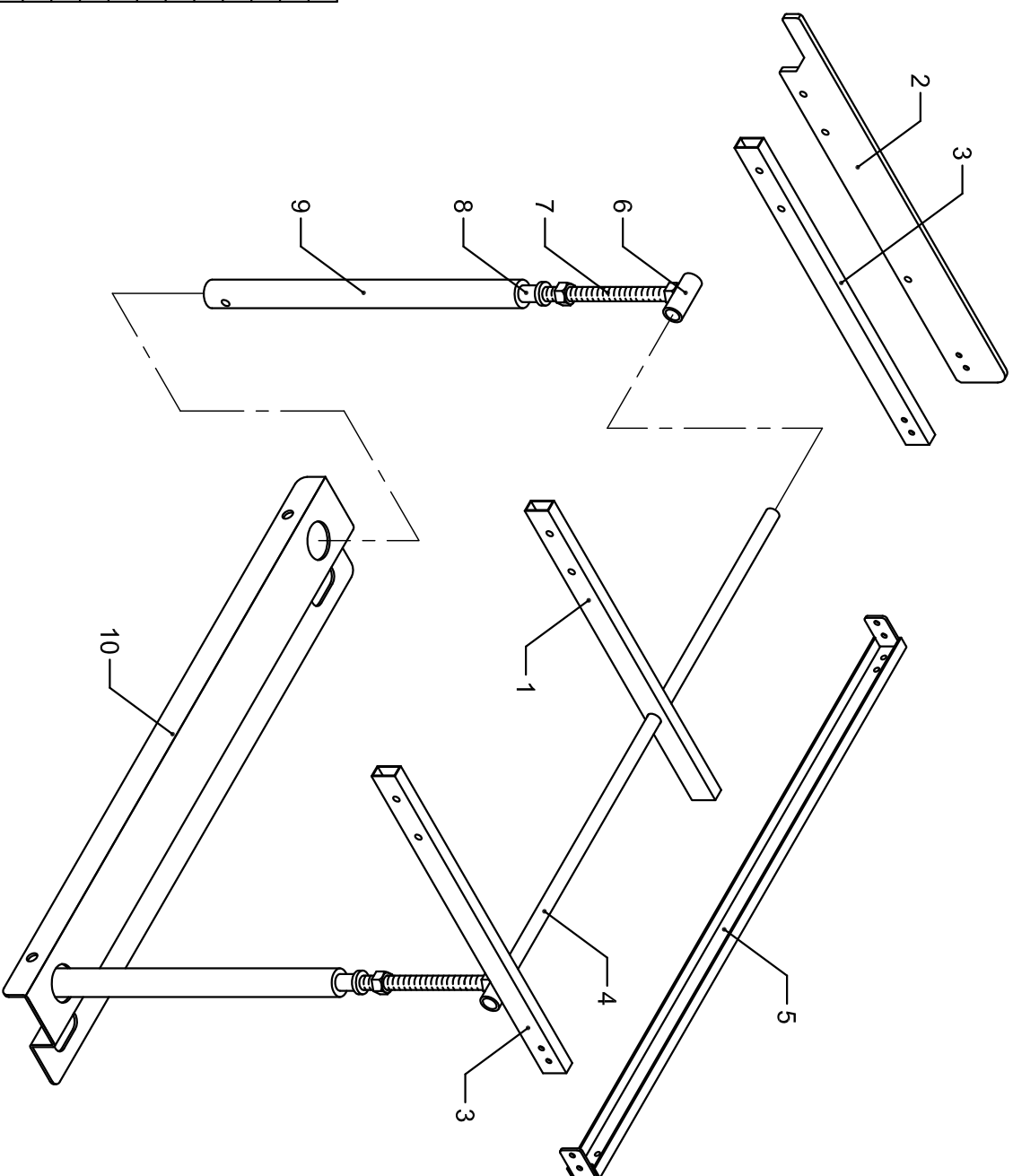
N.	Code	Denomination
1	G62120100	Support
2	G62120200	Plate
3	G62120300	Plate
4	G62120400	Bar
4	G62150400(L)	Bar
5	G62120500	Plate
5	G62150500(L)	Plate
6	G62120600	Spacer
7	G62120700	Thread bar
8	G62120800	Spacer
9	G62120900	Support
10	G62121000	Plate
10	G62151000(L)	Plate

FRAME

Tab. 050 2
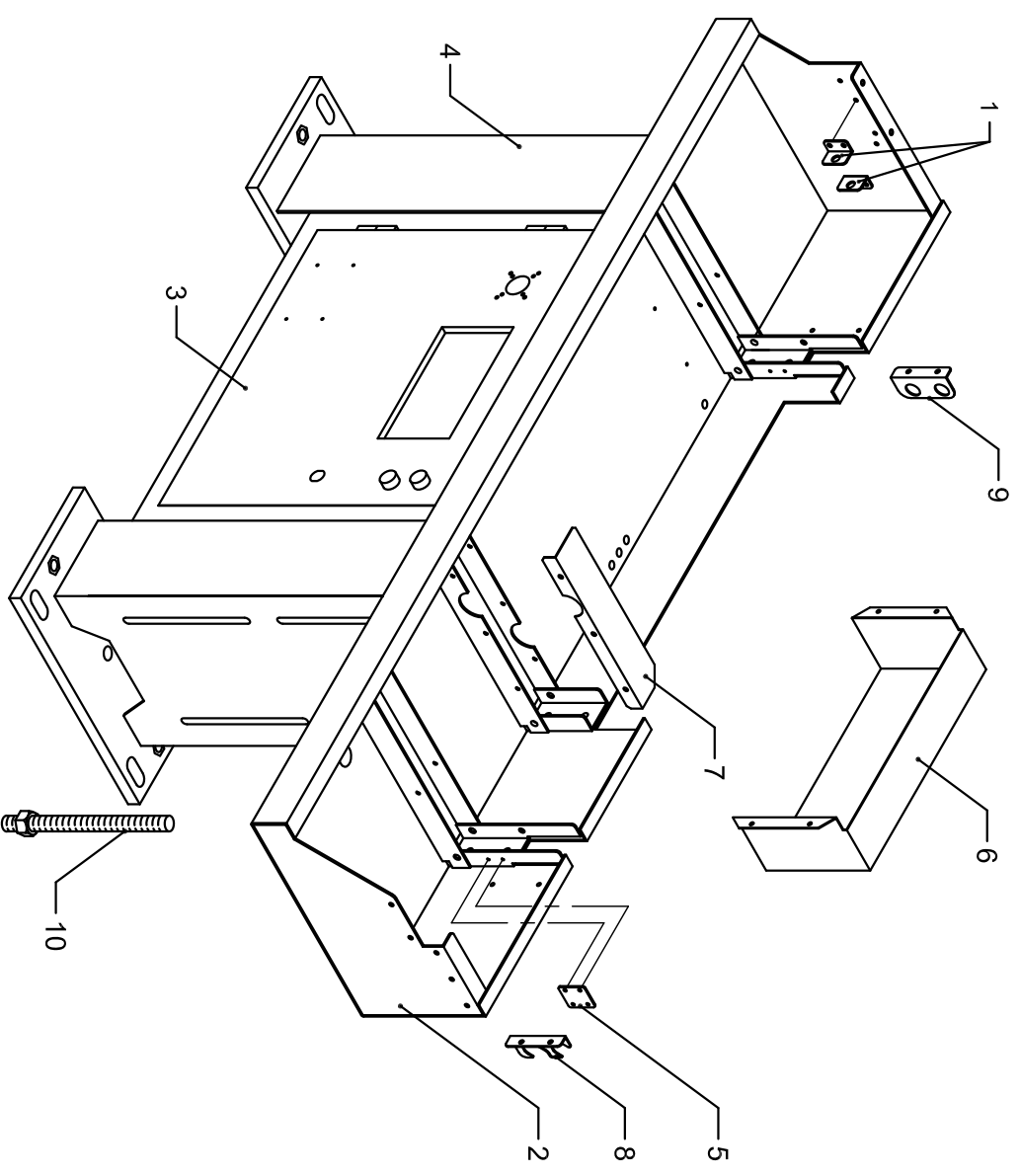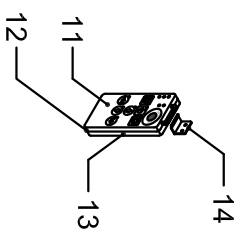
STAND

N.	Code	Denomination
1	G71120300	Plate
2	G72120100	Beam
2	G72150100(L)	Beam
3	G72120300	Beam
4	G72120400	Stand
5	G72120600	Plate
6	G72120700	Plate
7	G72120800	Cover
8	G81120700	Cover
9	G81120800	Plate
10	G62120701	Rod L=500
11	G91120400	V-Paster
12	G91120500	Top
13	G91120600	Bottom
14	G91120700	Plate

Tab. 060 4

VS-65

COVER

N.	Code	Denomination
1	G81120100	Cover
1	G81150100(L)	Cover
2	G81120200	Cover
3	G81120300	Cover
4	G81120400	Cover
4	G81150400(L)	Cover
5	G81120500	Plate
6	G81120900	Handle
7	G81121000	Anchor
8	G81121100	Hinge
9	G81121101	Steel Shaft
9	G81120402	Plate
10	AV51BA3500	Plate

Tab. 070 3

N.	Code	Denomination
1	G41120100	Solder
2	G43120200	Belt VS-65
3	G43150200	Belt VS-65L
4	G42120200	Pulley 17Z
5	G41120500	Anchor
6	T16120700	Separated plate
7	T16120600	Plate
8	T16121000	Shim
9	G41120700	Base
10	B6002ZZ	Bearing
11	T16130400	Arbor
12	T16130300	Pulley
13	G43120100	Linear rail VS-65
14	G43150100	Linear rail VS-65L
15	G41120600	Anchor
16	G41120210	Solder VS-65
17	G41150210	Solder VS-65L
18	G92120200	Support
19	G92120300	Plate
20	G92120400	Support
21	G92120600	Spring
22	G92120700	Arbor
23	G72120600	Switch Sheet
24	G41120800	Spacer
25	J310403	Micro Switch
26	G42120201	Stoper

VS-65

FEEDING DEVICE

Tab. 080 4

SLIDING RAIL (OPTIONAL) V-MX
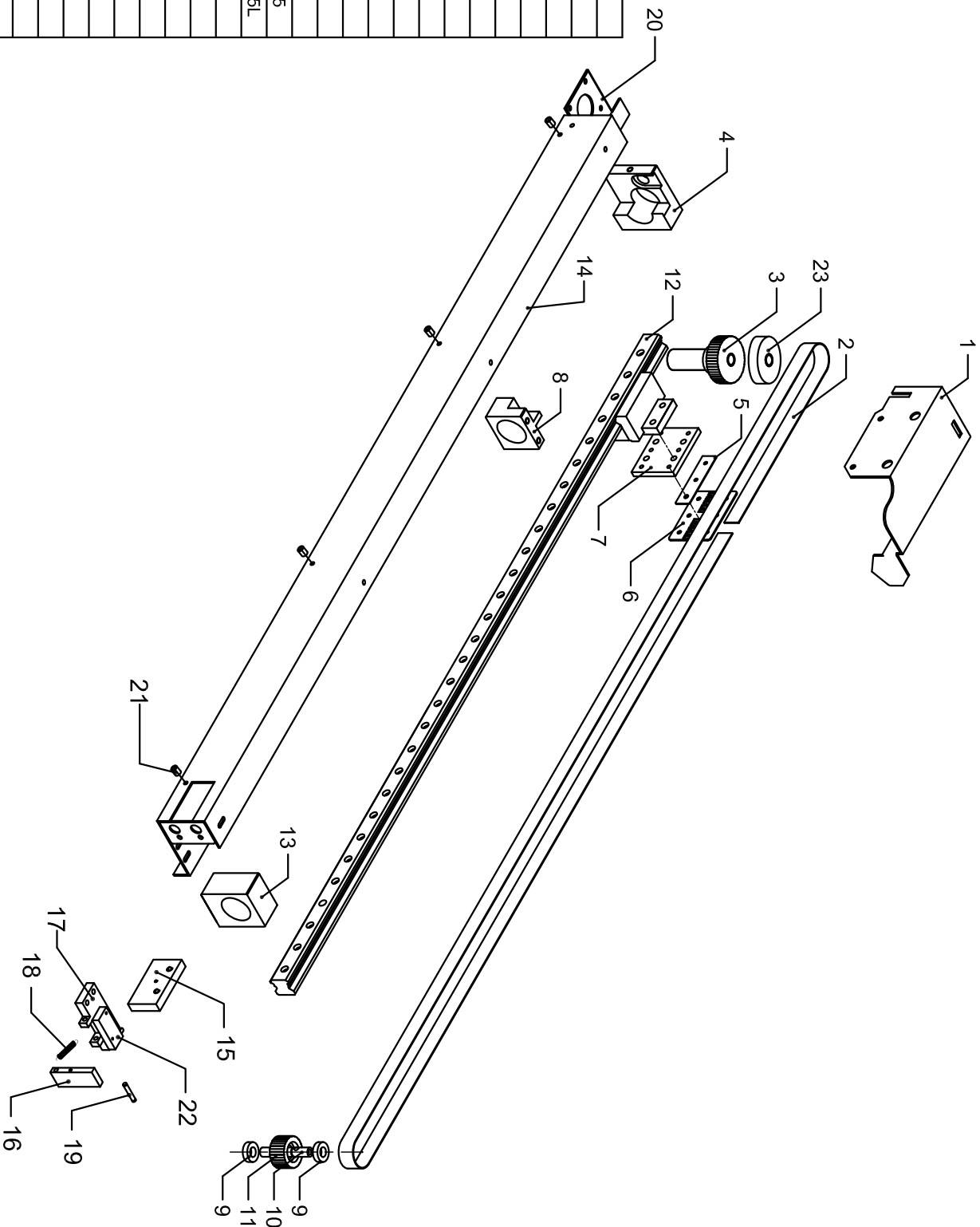
N.	Code	Denomination
1	G73120100	Plate
2	G73120200	Plate
3	G73120300	Bearing group
4	G73120400	Electric box
5	G73120500	Support
6	G73120600	Support
7	G73120601	Beam
8	G73120602	Support
9	G73120700	Plate
10	G73120800	Bolt
11	G73120900	Bar
12	B LB30UU	Bearing

Tab. 090 2
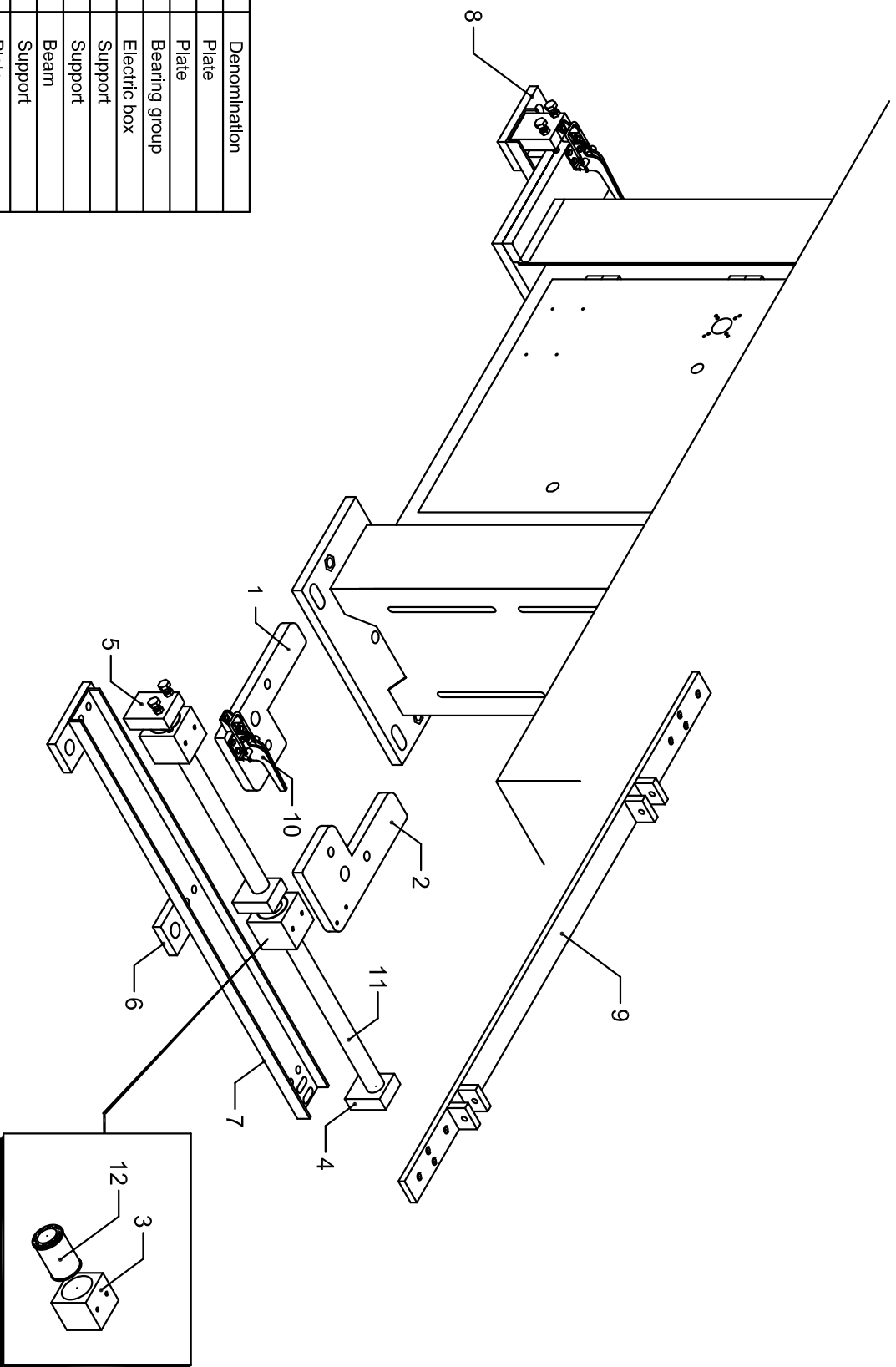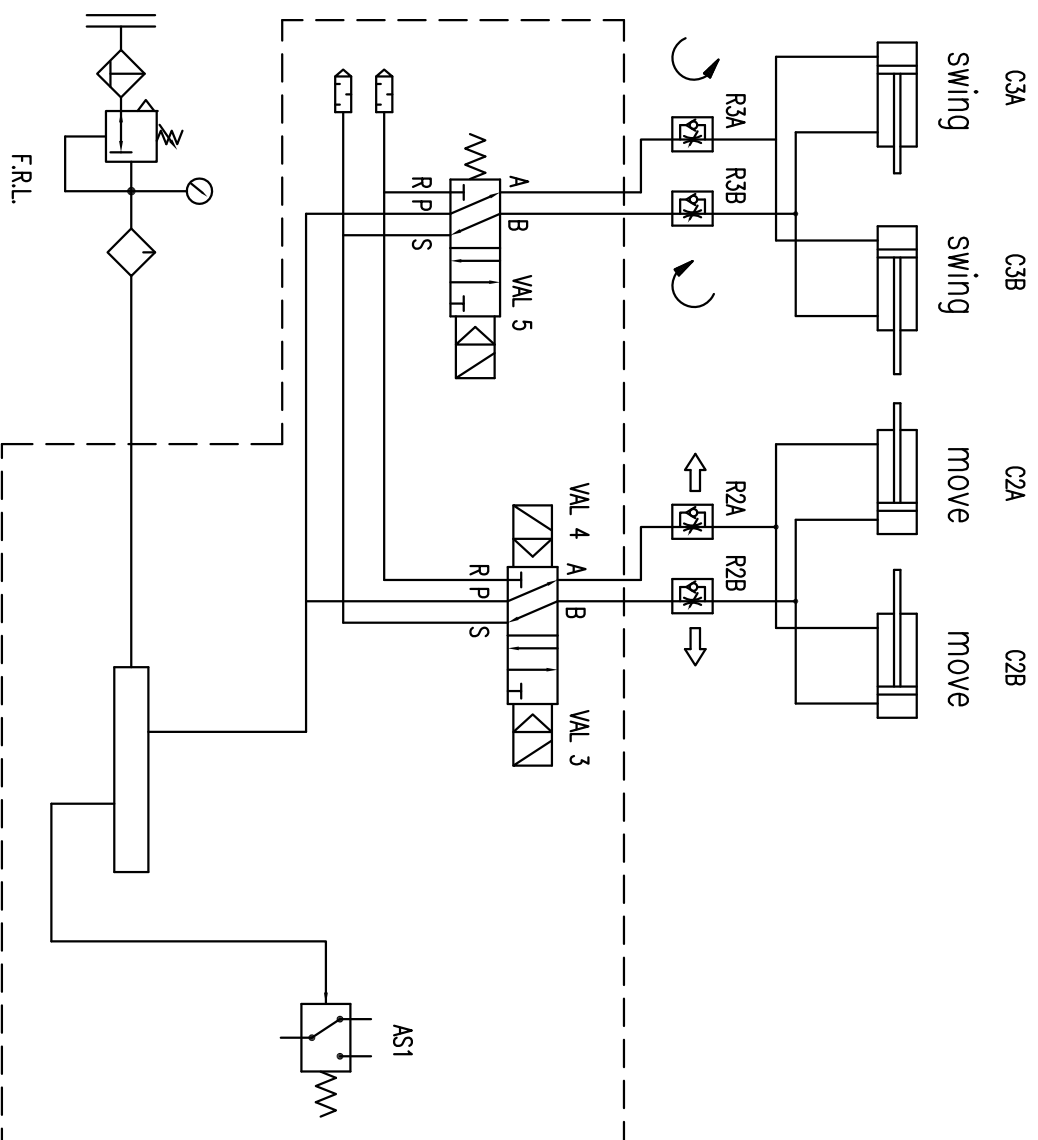
AIR PRESSURE DIAGRAM

Tab. 100 2

F.R.L.

C3A swing

C3B swing

R3A

R3B

R P S

A
B

VAL 5

VAL 4

VAL 3

R P S

A
B

R2A

R2B

C2A move

C2B move

AS1

Drawing No	Item designation	Description and function	Technical data	Quantity	Supplier	Suppliers reference	Remarks
A12110100	F.R.L.	FILTER,REGULATOR, LUBRICATOR	1.0-10kgf/cm²	1	AIRTAC	AFC-2000	
A12120300	AS1	PNEUMATICALLY-ACTUATED ELECTRICAL MICROSWITCH	1.5-8kgf/cm²	1	FESTO	PE-1/8-1N	
A12120200	VAL 3 VAL 4	5/2 WAY VALVE	DC24V	1	AIRTAC	4V220-08	VLMH9465
A12120100	VAL 5	5/2 WAY VALVE	DC24V	1	AIRTAC	4V210-08	VLMH9465
A11110100	C2A	PISTON CYLINDER	1.0-9.9kgf/cm²	1	AIRTAC	MAL-CA32*75	ISO 6432
	C2B			1			ISO 6432
	C3A			1			ISO 6432
	C3B			1			ISO 6432
A12130100	R2A	FLOW REGULATOR	1-10 bar	1	AIRTAC	JSC 6-01	ISO 9001
	R2B		1-10 bar	1			ISO 9001
A12130200	R3A	FLOW REGULATOR	1-10 bar	1	AIRTAC	SPA-6	ISO 9001
	R3B		1-10 bar	1			ISO 9001