

AUTOMATIC BAR FEEDER

ATTACHMENTS LIST
MANUAL FOR USE AND MAINTENANCE
KEYBOARD INSTRUCTION MANUAL
SPARE PARTS BOOK
SCHEMATICS
EC CONFORMITY DECLARATION FOR MACHINE

MASTER 880-VERSO P/F MASTER 880r-VERSO P/F

EN

MANUAL FOR USE AND MAINTENANCE

Rel. 1

Date 15/07/2011

Cod.



S/N

COMPILER Bosi Andrea

ON APPROVAL Sbarzaglia Ivan

This manual is a translation of the original document

MANUFACTURER IEMCA division of IGMI S.p.A.

ADDRESS Via Granarolo, 167 - 48018 Faenza (RA) - ITALY

Tel. 0546/698000 - Fax. 0546/46338 - 0546/46224

TLX 550879

TYPE OF DOCUMENT MANUAL FOR USE AND MAINTENANCE

PRODUCT AUTOMATIC BAR FEEDER

MODEL MASTER 880-VERSO P/F

MASTER 880r-VERSO P/F

INDEX

1	GENERAL INFORMATION MASTER 880/880r VERSO	1
1.1	WARRANTY CONDITIONS.....	2
1.2	PURPOSE OF THE MANUAL.....	3
1.3	MANUFACTURER AND BAR FEEDER IDENTIFICATION.....	4
1.4	ASSISTANCE REQUEST.....	5
1.5	ATTACHMENT LIST	5
2	TECHNICAL INFORMATION MASTER 880/880r VERSO	1
2.1	BAR FEEDER GENERAL DESCRIPTION.....	2
2.1.1	Bar feeder - Main components.....	4
2.1.2	MASTER 880 P Rack magazine - Main components.....	6
2.1.3	MASTER 880F Bar bundle magazine - Main components.....	7
2.1.4	Hydraulic system - Main components.....	8
2.1.5	Pneumatic system - Main components.....	9
2.2	OPERATING CYCLE - GENERAL DESCRIPTION	11
2.2.1	OPERATING CYCLE.....	11
2.2.2	MASTER 880 P Rack magazine - Operating cycle.....	16
2.2.3	MASTER 880 F bar bundle magazine - Operating cycle.....	17
2.3	SAFETY DEVICES - POSITION AND DESCRIPTION.....	19
2.3.1	Bar feeder - Safety devices	19
2.3.2	MASTER 880 P rack magazine - Safety devices.....	20
2.3.3	MASTER 880 F bundle magazine - Safety devices	21
2.4	SAFETY PLATES - LOCATION AND DESCRIPTION.....	22
2.5	VERSION DESCRIPTION	23
2.6	TECHNICAL DATA	25
2.6.1	Noise levels	33
2.7	ACCESSORIES - FOREWORD.....	34
2.7.1	Bush holder device - Description	34
3	SAFETY PROCEDURES - GENERAL INFORMATION MASTER 880/880r VERSO.....	1
3.1	GENERAL SAFETY REGULATIONS	2
3.2	HANDLING AND INSTALLATION - Safety	3
3.3	ADJUSTMENTS AND SETUP - Safety.....	3
3.4	USE AND OPERATION - Safety.....	4

INDEX

3.5	BAR FEEDER MAINTENANCE - Safety	5
3.6	EC CONFORMITY DECLARATION	6
3.7	General Description of Supply	7
3.8	RESIDUAL RISKS	8
3.9	FORESEEABLE MISUSES	13
4	HANDLING AND INSTALLATION MASTER 880/880r VERSO	1
4.1	PACKAGING	2
4.2	LIFTING	2
4.2.1	Bar feeder without packaging - Lifting	3
4.2.2	Bar feeder with pallet - Lifting	5
4.2.3	Bar feeder with crate - Lifting	5
4.3	INSTALLATION AREA - FEATURES	6
4.4	BAR FEEDER INSTALLATION - FOREWORD	7
4.4.1	Backing plates and support feet - Installation	7
4.4.2	Height - Adjustment	8
4.4.3	Preliminary positioning	10
4.4.4	Sleeve - Installation	11
4.4.5	Levelling and alignment	12
4.4.6	Bar feeder fastening	17
4.5	LUBRICATION OIL - FILLING	18
4.6	ELECTRICAL CONNECTION	18
4.7	PNEUMATIC DEVICE LAYOUT	19
4.7.1	PNEUMATIC CONNECTION	21
4.7.2	BAR FEEDER MOVEMENT WITHOUT POWER SUPPLY	21
4.8	SOFTWARE PARAMETERIZATION	22
5	ADJUSTMENTS AND SETTING-UP MASTER 880/880r VERSO	1
5.1	ADJUSTMENT AND SETUP - FOREWORD	2
5.2	GENERAL ADJUSTMENTS - FOREWORD	2
5.2.1	Feeding chain - Adjustment	2
5.2.2	Remnant conveyor belt - Adjustment	4
5.2.3	Elevator carriage chains - Adjustment	4
5.2.4	MASTER 880 F displacement belts - Adjustment	5

INDEX

5.2.5	MASTER 880 F Displacement belt drive chain - Adjustment	6
5.2.6	MASTER 880 F elevator carriage drive chain - Adjustment	7
5.2.7	MASTER 880 F lifting belt control cams - Adjustment	8
5.3	BAR FEEDER SETUP	9
5.3.1	Guide channels, half-bushings, bar pusher and collet - Replacement.....	9
5.3.2	BAR PUSHER REPLACEMENT PROCEDURE	17
5.3.3	Remnant passage door spring - Adjustment	19
5.3.4	REMNANT DROP CHUTE — ENABLING	20
5.4	RACK MAGAZINE SETUP - MASTER 880 P	21
5.4.1	Bar supporting brackets - Setup	21
5.4.2	Elevator drive - Adjustment	22
5.4.3	Elevator carriages - Setup.....	23
5.5	BAR BUNDLE MAGAZINE SETUP - MASTER 880 F	25
5.5.1	Bar stop levers - Adjustment	25
5.5.2	Pressure foot - Adjustment.....	26
5.5.3	Separation push-rods - Adjustment.....	28
5.5.4	Bar selection — Setup.....	29
5.5.5	Elevator drive - Adjustment	33
6	USE AND OPERATION MASTER 880/880r VERSO.....	1
6.1	CONTROL DESCRIPTION.....	2
6.2	KEYBOARD CONTROL DESCRIPTION	4
6.3	MAGAZINE PUSH-BUTTON PANEL - CONTROL DESCRIPTION	8
6.4	LIGHT INDICATOR - SIGNAL DESCRIPTION	10
6.5	BAR FEEDER TOOLING	11
6.6	BARS TO BE MACHINED - FEATURES AND PREPARATION	11
6.6.1	BAR STRAIGHTNESS - Measurement.....	13
6.7	BAR MAGAZINE - LOADING.....	15
6.8	AUTOMATIC CYCLE START.....	18
6.9	BAR LOADING - PROCEDURE.....	19
6.10	LUBRICATING OIL - FLOW ADJUSTMENT	22
6.11	BAR FEEDER STOP.....	22
6.12	CYCLE PERFORMING MODE IN THE "STEP-BY-STEP" FUNCTION.....	23

INDEX

7	棒材送料机保养 MASTER 880/880r VERSO	1
7.1	保养 — 通则	2
7.2	计划保养	3
7.2.1	润滑油 - 油位检查	4
7.2.2	润滑油 - 换油	5
7.2.3	滤油器 - 清洗	6
7.2.4	空气过滤器装置 - 检查	7
7.3	润滑点示意图	8
8	TROUBLES - CAUSES - CURES MASTER 880/880r VERSO	1
8.1	GENERAL FAILURES	3
8.2	ELEVATOR CARRIAGES - FAILURES	3
8.3	FEEDING INTO COLLET — Failures	4
8.4	BAR FEEDING - Failures	4
8.5	REMNANT MOVEMENT - FAILURES	4
9	PART REPLACEMENT MASTER 880/880r VERSO	1
9.1	FEEDING CHAIN – REPLACEMENT	2
9.2	ELEVATOR CARRIAGE DRIVE SAFETY JOINT - REPLACEMENT	2
9.3	REPLACEMENT OF THE GUIDE CHANNELS WITH INSERTS WITH POLYURETHANE GUIDE CHANNELS	3
9.3.1	Disassembly of insert guide channels	3
9.3.2	Polyurethane guide channel assembly	5
9.3.3	Insert guide channels – Replacement for bar diameter variation	9
9.3.4	Insert guide channels – Replacement due to failure	17
9.4	REMNANT CONVEYOR BELT - REPLACEMENT	20
9.5	PLC BATTERY – REPLACEMENT	21
9.6	RECOMMENDED SPARE PARTS	22
9.7	DISPOSAL OF THE BAR FEEDER OR PARTS OF IT	22
10	GUIDE CHANNELS-BAR PUSHER-REVOLVING TIPS MASTER 880/880r VERSO	1
10.1	GUIDE CHANNELS AND BAR PUSHER	2
10.2	REVOLVING TIP - TABLE	3
10.3	Revolving tips øGR 20÷25 - Table	5

INDEX

10.4	Revolving tips \varnothing GR 20÷25 - Table	6
10.5	Revolving tips \varnothing GR 32÷45 - Table	7
10.6	Revolving tips \varnothing GR 51÷85 - Table	9
11	COLLETS MASTER 880/880r VERSO	1
11.1	CONVERSION TABLES 001	3
11.2	HEXAGONAL BARS (unit of measurement "millimetres") - Table	3
11.3	SQUARE BARS (unit of measurement "millimetres") - Table	5
11.4	HEXAGONAL BARS (unit of measurement "inches") - Table	6
11.5	ROUND BARS - (unit of measurement "inches") - Table.....	7
11.6	CONVERSION TABLE Inches/Millimetres	8
11.7	COLLETS FOR 011P BARS	10
11.8	COLLET FOR BARS - Table	10
11.9	PIPE COLLETS 012-077-377	13
11.10	PIPE COLLETS - Table.....	13
11.11	EJECTOR 336	16
11.12	EJECTOR — Guide channels \varnothing <30 - Table	16
11.13	EJECTOR — Guide channels \varnothing >32 - Table	18
11.14	COLLETS FOR BARS 602P	20
11.15	COLLET FOR BARS - Table	20
11.16	BORING COLLETS FOR BARS 601P	22
11.17	BORING COLLETS FOR SQUARE AND HEXAGONAL BARS - Table.....	22
11.18	EJECTORS 602P..011	24
11.19	EJECTORS —Guide channels \varnothing 13÷28 - Table.....	24
11.20	PIPE COLLETS 603P	26
11.21	PIPE COLLETS - Table.....	26
11.22	COLLETS FOR BARS 076.....	28
11.23	COLLET FOR BARS - Table	28
11.24	COLLETS FOR BARS 381P	31
11.25	COLLET FOR BARS - Table	31
11.26	EJECTORS 381P..011 - 381P..021	34
11.27	381P..021 EJECTORS - Guide channels \varnothing 33÷46 - Table.....	34
11.28	381P..011 EJECTORS - Guide channels \varnothing 52÷86 - Table.....	36
11.29	PIPE COLLETS 386P	38




INDEX

11.30	PIPE COLLETS - Table.....	38
11.31	RINGS FOR COLLETS 078-225	40
11.32	RINGS FOR COLLETS - Table.....	40

INDEX

1.1	WARRANTY CONDITIONS.....	2
1.2	PURPOSE OF THE MANUAL.....	3
1.3	MANUFACTURER AND BAR FEEDER IDENTIFICATION.....	4
1.4	ASSISTANCE REQUEST	5
1.5	ATTACHMENT LIST	5

 Operations described in sections showing this symbol, must be performed by qualified and skilled personnel only, with specific abilities and precise technical competence only. Any other operation can be performed either by qualified personnel and/or by professional bar feeder operators.

 **Before carrying out any operation on the bar feeder, it is of the utmost importance to read this manual carefully.**

1.1 WARRANTY CONDITIONS

The applicable warranty period is subordinated to a correct assembly and coupling of the bar feeder to the lathe. In particular, prior to the first start-up, accurately make sure that the bar feeder is correctly aligned with the lathe and fixed with the expansion plugs as shown in chapter 4.

The product warranty is valid only if the bar feeder is installed by an authorized technician with Original Installation Certificate.

Please ask the technician who will make the installation to show the certificate, in order to ascertain the quality of the technical operations being carried out.

The warranty shall begin from the date on the "Installation Certificate" duly filled in and signed.

The document must be sent by mail to:

**SERVIZIO TECNICO CLIENTI
IEMCA A BUCCI AUTOMATIONS DIVISION
48018 Faenza (Ra) ITALY - Via Granarolo, 167**

 CERTIFICATO DI INSTALLAZIONE N° 0517 /02																	
<small>IMPORTANTE: Il presente modulo, compilato in ogni sua parte, deve essere spedito in IEMCA Italia per dare corso al periodo di garanzia.</small>																	
Installazione e training eseguito da:																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Ditta</th> <th style="width: 50%;">Data</th> </tr> <tr> <td>Tecnico Installatore</td> <td>N° Rapporto di Intervento</td> </tr> </table>	Ditta	Data	Tecnico Installatore	N° Rapporto di Intervento													
Ditta	Data																
Tecnico Installatore	N° Rapporto di Intervento																
Presso:																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Cliente</th> <th style="width: 50%;">Partecipanti</th> </tr> <tr> <td>Nazione</td> <td>(Scrivere specificando i nomi)</td> </tr> <tr> <td>Caricatore</td> <td></td> </tr> <tr> <td>Matricola</td> <td></td> </tr> <tr> <td>Macc./Tipo</td> <td></td> </tr> </table>	Cliente	Partecipanti	Nazione	(Scrivere specificando i nomi)	Caricatore		Matricola		Macc./Tipo								
Cliente	Partecipanti																
Nazione	(Scrivere specificando i nomi)																
Caricatore																	
Matricola																	
Macc./Tipo																	
ARGOMENTO																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Descrizione generale del caricatore e del suo funzionamento, spiegazione del ciclo di lavoro.</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Istruzioni per attrezzare il caricatore e come eseguire il cambio di lavorazione.</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Descrizione e cambio di: guide, spingibarra, pinze, semiboccole, carnotto anteriore e di riduzione.</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Spiegazione tastiera operatore. Spiegazione dei parametri e loro utilizzo.</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Procedure di programmazione in base al tipo di lavorazione da eseguire.</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Errori - Cause - Rimedi: spiegazione dei principali allarmi riportati sui manuali.</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Presenza visione della manualistica e delle indicazioni di manutenzione preventiva; Modalità per contattare l'assistenza tecnica autorizzata IEMCA.</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Presenza visione della manualistica e delle indicazioni di manutenzione preventiva; Modalità per contattare l'assistenza tecnica autorizzata IEMCA.</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	Descrizione generale del caricatore e del suo funzionamento, spiegazione del ciclo di lavoro.	<input type="checkbox"/>	Istruzioni per attrezzare il caricatore e come eseguire il cambio di lavorazione.	<input type="checkbox"/>	Descrizione e cambio di: guide, spingibarra, pinze, semiboccole, carnotto anteriore e di riduzione.	<input type="checkbox"/>	Spiegazione tastiera operatore. Spiegazione dei parametri e loro utilizzo.	<input type="checkbox"/>	Procedure di programmazione in base al tipo di lavorazione da eseguire.	<input type="checkbox"/>	Errori - Cause - Rimedi: spiegazione dei principali allarmi riportati sui manuali.	<input type="checkbox"/>	Presenza visione della manualistica e delle indicazioni di manutenzione preventiva; Modalità per contattare l'assistenza tecnica autorizzata IEMCA.	<input type="checkbox"/>	Presenza visione della manualistica e delle indicazioni di manutenzione preventiva; Modalità per contattare l'assistenza tecnica autorizzata IEMCA.	<input type="checkbox"/>	
Descrizione generale del caricatore e del suo funzionamento, spiegazione del ciclo di lavoro.	<input type="checkbox"/>																
Istruzioni per attrezzare il caricatore e come eseguire il cambio di lavorazione.	<input type="checkbox"/>																
Descrizione e cambio di: guide, spingibarra, pinze, semiboccole, carnotto anteriore e di riduzione.	<input type="checkbox"/>																
Spiegazione tastiera operatore. Spiegazione dei parametri e loro utilizzo.	<input type="checkbox"/>																
Procedure di programmazione in base al tipo di lavorazione da eseguire.	<input type="checkbox"/>																
Errori - Cause - Rimedi: spiegazione dei principali allarmi riportati sui manuali.	<input type="checkbox"/>																
Presenza visione della manualistica e delle indicazioni di manutenzione preventiva; Modalità per contattare l'assistenza tecnica autorizzata IEMCA.	<input type="checkbox"/>																
Presenza visione della manualistica e delle indicazioni di manutenzione preventiva; Modalità per contattare l'assistenza tecnica autorizzata IEMCA.	<input type="checkbox"/>																
<p>Gli argomenti contrassegnati sono stati trattati in modo completo ed esauritivo. I partecipanti si dichiarano completamente soddisfatti del Training effettuato. Firma a lato per accettazione.</p> <p>NOTA - Ferrogazione del periodo di garanzia è subordinata a: - installazione eseguita da un tecnico autorizzato IEMCA - svolgimento del sopraccitato "training"</p>																	
<p>La decorrenza della garanzia si intende valida per 12 mesi dalla data di installazione e comunque, non oltre i 18 mesi dalla data di consegna. La validità della garanzia entra in vigore dalla data di sottoscrizione incondizionata del presente modulo che dovrà essere restituito alla IEMCA, completo di ogni sua parte via posta entro 15 giorni, o tramite il tecnico installatore.</p>	<p>Timbro e firma del cliente</p>																

1.2 PURPOSE OF THE MANUAL

This manual has been written and supplied by the manufacturer, the information herein contained has been written in Italian (manufacturer's language) to be translated to other languages, in order to comply with legal and/or commercial requirements. This manual is integral part of the bar feeder equipment.

The compliance with the instructions herein ensures the operator and bar feeder safety as well as economy of operation and longer life of the bar feeder.

The important parts of this manual have been highlighted in bold type and are preceded by the following symbols:



DANGER - WARNING:

indicates impending danger which might cause serious injuries; exert the maximum caution.



WARNING - CAUTION:

indicates that it is necessary to adopt suitable behaviours so as to avoid accidents or damages to property.



INFORMATION:

these are technical instructions of particular importance.

For a quick search of the topics, see the table of contents.

This manual, which contains all the instructions for the bar feeder operation and maintenance, is supplied with: the "Keyboard instruction manual".

The "Keyboard instruction manual" contains all the instructions on how to use the installed software.

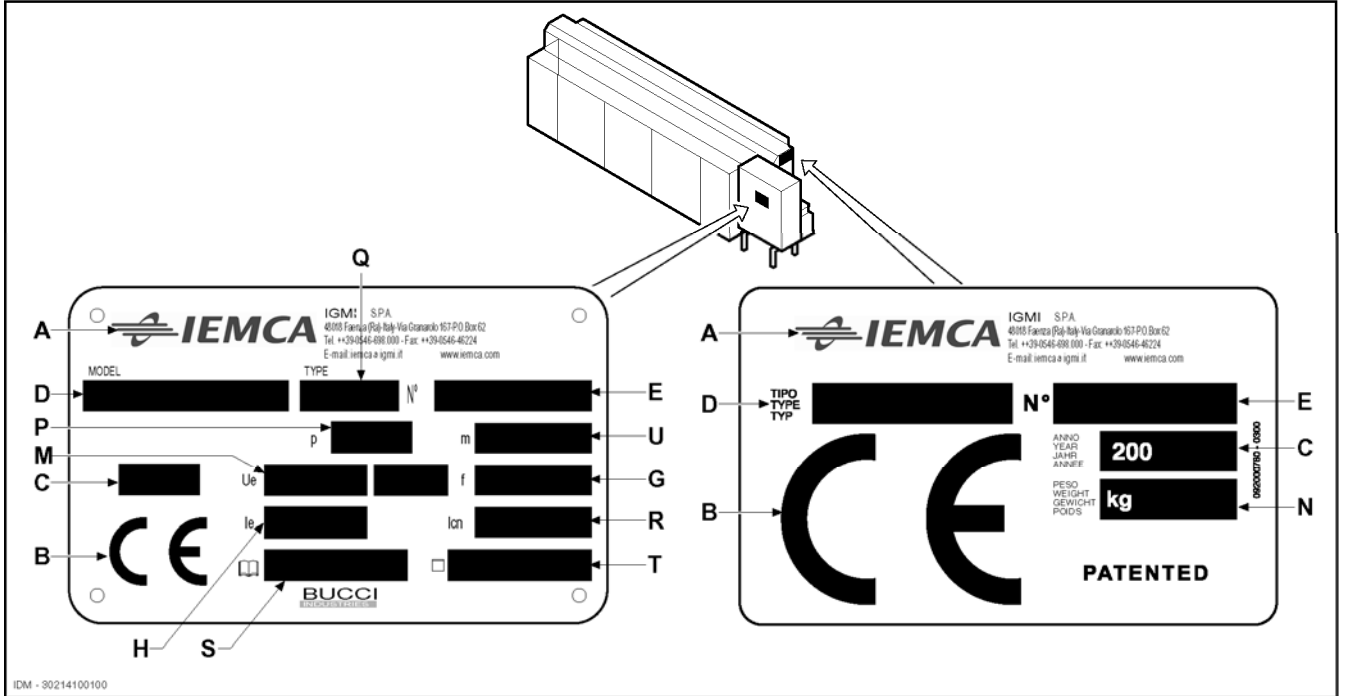


INFORMATION:

The data included in this publication are only given as an example.

IEMCA may apply changes to the model described in this publication at any time for any technical or business reason. Contact IEMCA service department for further information.

1.3 MANUFACTURER AND BAR FEEDER IDENTIFICATION



- A Manufacturer identification.
- B EC mark of conformity.
- C Year of manufacture.
- D Bar feeder model.
- E Serial number.
- G Mains frequency.
- H Power consumption.
- M Supply voltage.
- N Bar feeder weight.
- P Pneumatic system pressure.
- Q Bar feeder and bar pusher length.
- R Interrupting power.
- S Basic Wiring Diagram Number.
- T Interface Wiring Diagram Number.
- U Electric cabinet weight



INFORMATION:

always provide the manufacturer with the above mentioned specifications when requesting information or ordering spare parts, etc.

1.4 ASSISTANCE REQUEST

Whenever necessary, please apply to one of the centres shown in the "LIST OF THE CUSTOMER SERVICE CENTRES".



INFORMATION:

when requesting technical assistance for the bar feeder, always specify the data shown on the identification plate.

1.5 ATTACHMENT LIST

- Spare parts catalogue
- Keyboard instruction manual
- Interface wiring diagram
- CD:
 - Depliant
 - Spare parts catalogue
 - Instruction manual
 - Operation and maintenance manual
 - Guide channel assembly diagram
 - Base wiring diagram
 - List of customer service centres.

INDEX

2.1	BAR FEEDER GENERAL DESCRIPTION	2
2.1.1	Bar feeder - Main components	4
2.1.2	MASTER 880 P Rack magazine - Main components.....	6
2.1.3	MASTER 880F Bar bundle magazine - Main components	7
2.1.4	Hydraulic system - Main components	8
2.1.5	Pneumatic system - Main components.....	9
2.2	OPERATING CYCLE - GENERAL DESCRIPTION	11
2.2.1	OPERATING CYCLE	11
2.2.2	MASTER 880 P Rack magazine - Operating cycle.....	16
2.2.3	MASTER 880 F bar bundle magazine - Operating cycle	17
2.3	SAFETY DEVICES - POSITION AND DESCRIPTION	19
2.3.1	Bar feeder - Safety devices	19
2.3.2	MASTER 880 P rack magazine - Safety devices	20
2.3.3	MASTER 880 F bundle magazine - Safety devices.....	21
2.4	SAFETY PLATES - LOCATION AND DESCRIPTION	22
2.5	VERSION DESCRIPTION	23
2.6	TECHNICAL DATA	25
2.6.1	Noise levels	33
2.7	ACCESSORIES - FOREWORD.....	34
2.7.1	Bush holder device - Description	34

2.1 BAR FEEDER GENERAL DESCRIPTION

The MASTER 880 E-volution automatic bar feeder is used in the machine-tool industry and in particular, for automatic lathe feeding.

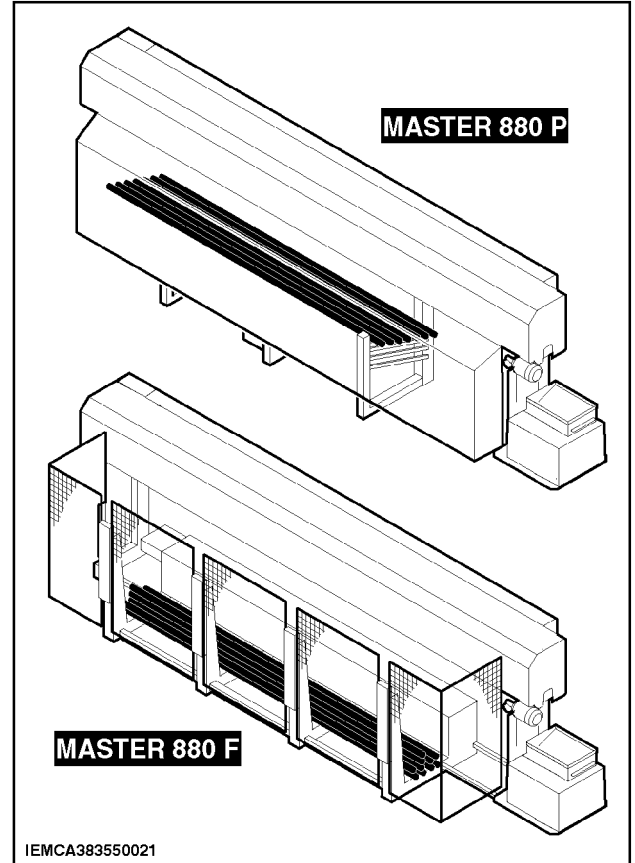
The operating cycle is controlled by a PLC, integrated in the electrical control panel, which is able to communicate with the lathe control system. The digital hand-held keyboard makes programming easier and allows the bar feeder functions to be controlled without leaving the lathe.

The bar feeder can be used to feed bars, pipes and various sections.

The guide channel is completely closed during machining; a pump is provided to maintain a continuous oil flow inside the guide channel, creating a hydrodynamic support effect; these features allow the bar to rotate at high r.p.m., with no vibrations and no surface damaging.

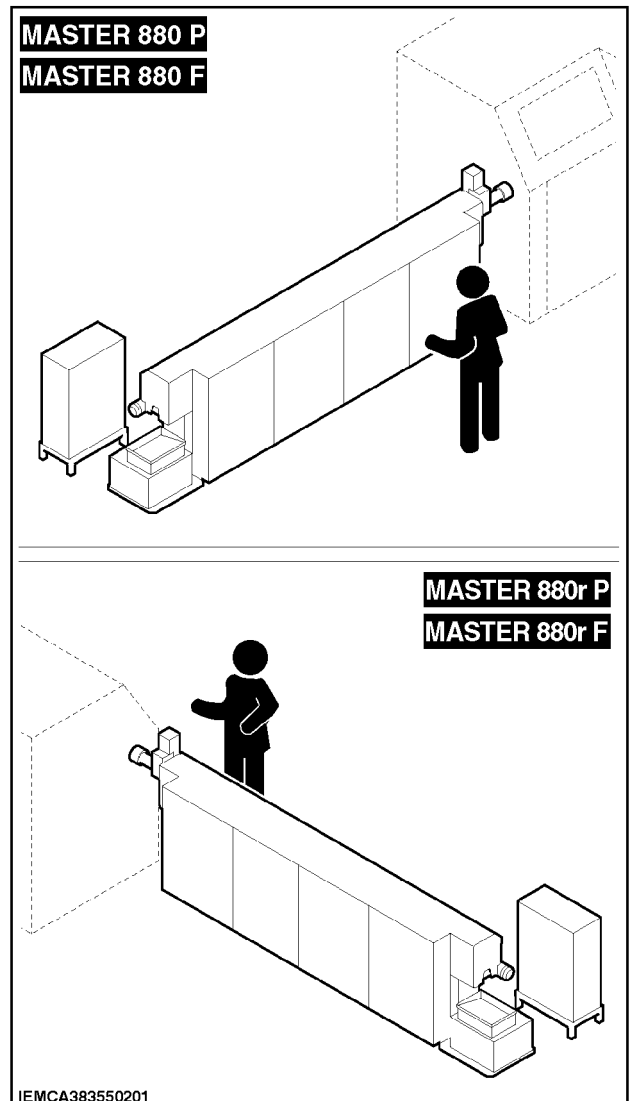
Thanks to the use of a "BRUSHLESS" and electronically controlled motor, the bar speed, torque value and feeding position may be determined at any time during the working cycle. The bar remnant ejection can be performed by the bar pusher feeding or next bar feeding.

The lathe tooling and maintenance can be easily carried out thanks to the axial displacement of the bar feeder body.

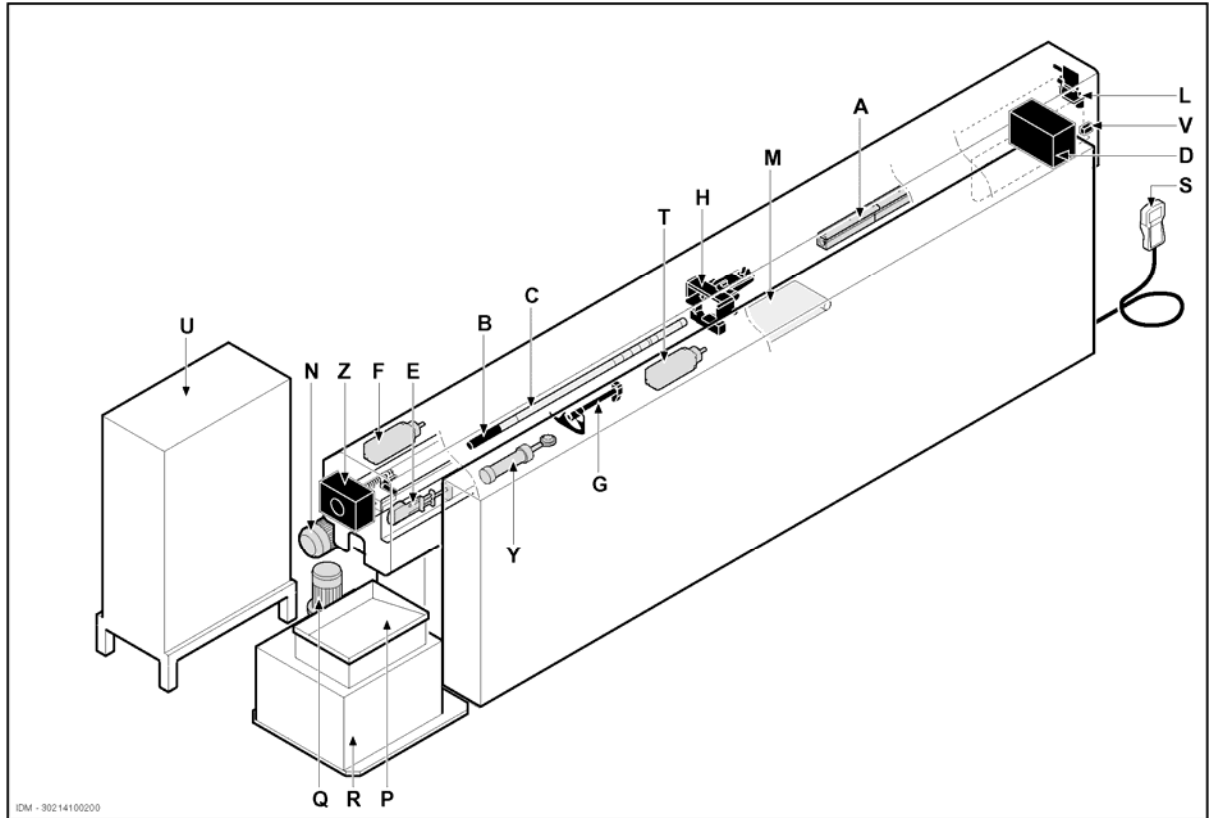


The MASTER 880 E-volution bar feeders are available in the following models:
MASTER 880P (standard version) rack magazine
MASTER 880rP (reversed version) rack magazine
MASTER 880F (standard version) bundle magazine
MASTER 880rF (reversed version) bundle magazine.

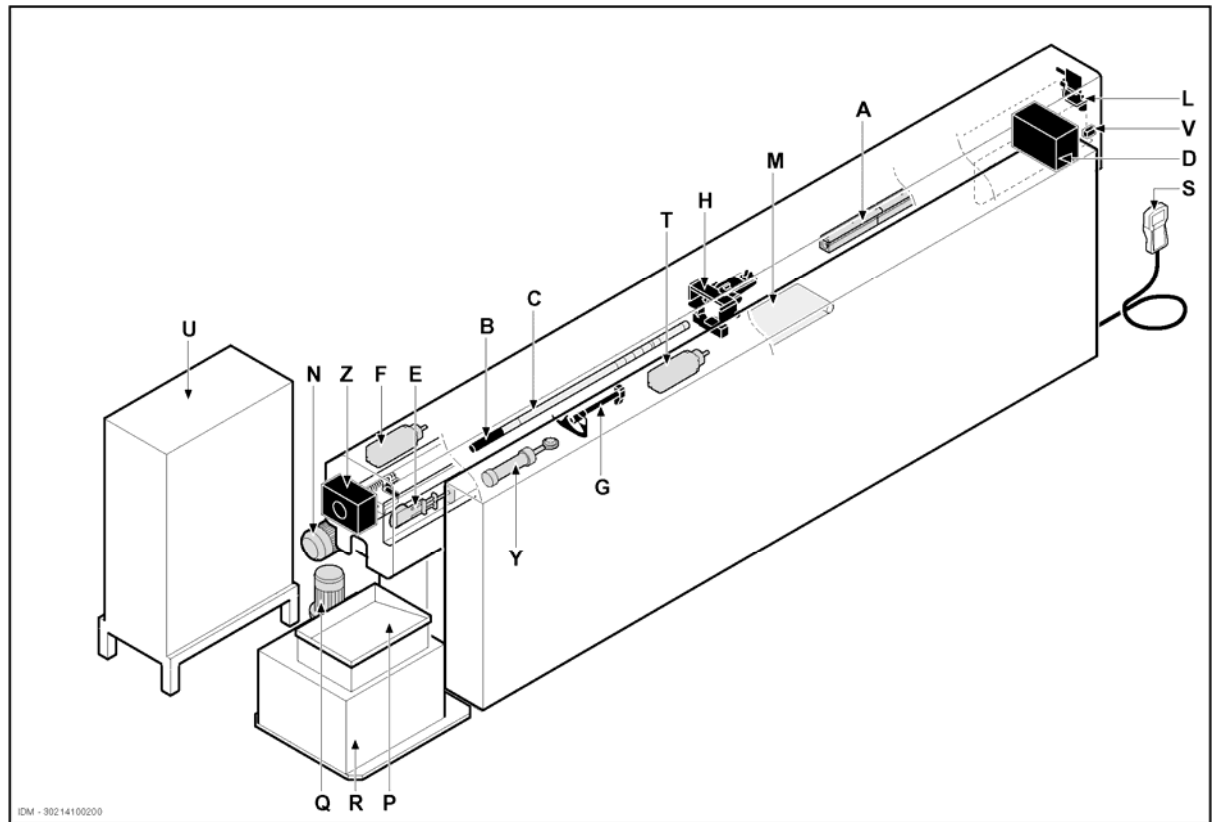
When not otherwise specified, the texts, tables and pictures of this manual refer to the standard version. As far as the reverse version is concerned, consider that the magazine and the electric cabinet are placed on the opposite side.



2.1.1 Bar feeder - Main components

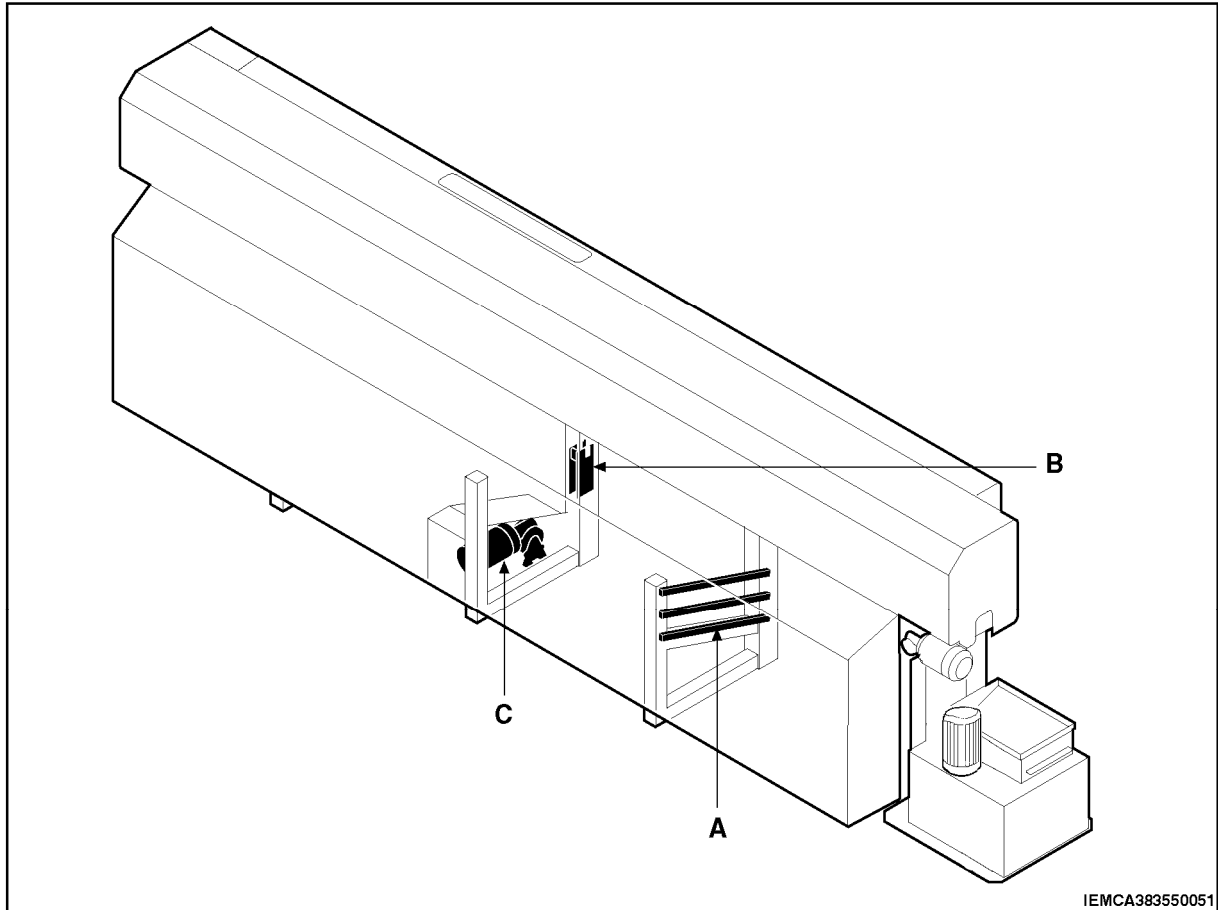


- A GUIDE CHANNELS; drive the bar during the machining.
- B FIRST FEEDING CARRIAGE; moves the bar forwards until the necessary space for the bar pusher introduction has been created.
- C BAR PUSHER; pushes the bar during the machining. The collet is fixed on its front end.
- D BAR PUSHER MOTOR DRIVE; moves the bar pusher.
- E FEED CHAIN; transmits the motion from the motor drive to the bar pusher.
- F GUIDE CHANNEL OPENING/CLOSING CYLINDER
- Y UPPER GUIDE CHANNEL UNLOCKING.
- G PNEUMATIC BAR DROP CONTROL LEVERS; guide the bar during the drop into the guide channels.
- H PNEUMATIC CLAMPS; hold the bar during the loading and removal from the collet of the bar pusher.
- L FACING DEVICE; sends a signal during the bar passage.
- M REMNANT CONVEYOR BELT; carries the bar remnant from the ejection area to the recovery box.
- N REMNANT CONVEYOR BELT DRIVE; it moves the remnant conveyor belt.
- P REMNANT RECOVERY BOX; collects the bar remnant.



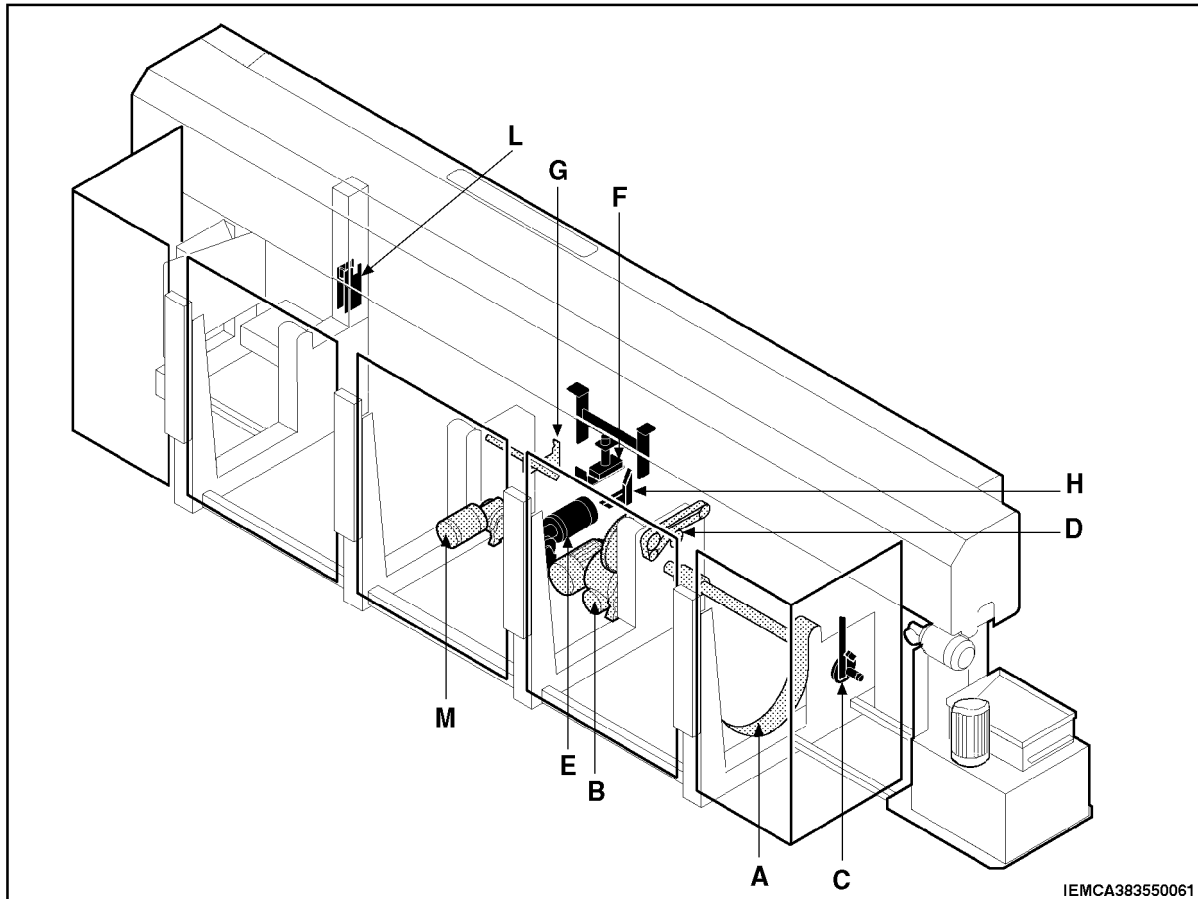
- Q LUBRICATION PUMP; delivers the lubricating oil to the guide channels.
 R OIL TANK; contains the lubricating oil.
 S HAND-HELD KEYBOARD; allows the bar feeder programming and function activation.
 T PNEUMATIC BAR DROP CONTROL CYLINDER
 U ELECTRIC CABINET; houses the electrical control panel.
 V AXIAL DISPLACEMENT; allows moving the bar feeder body away from the lathe.
 Z PNEUMATIC CLAMP CYLINDER

2.1.2 MASTER 880 P Rack magazine - Main components

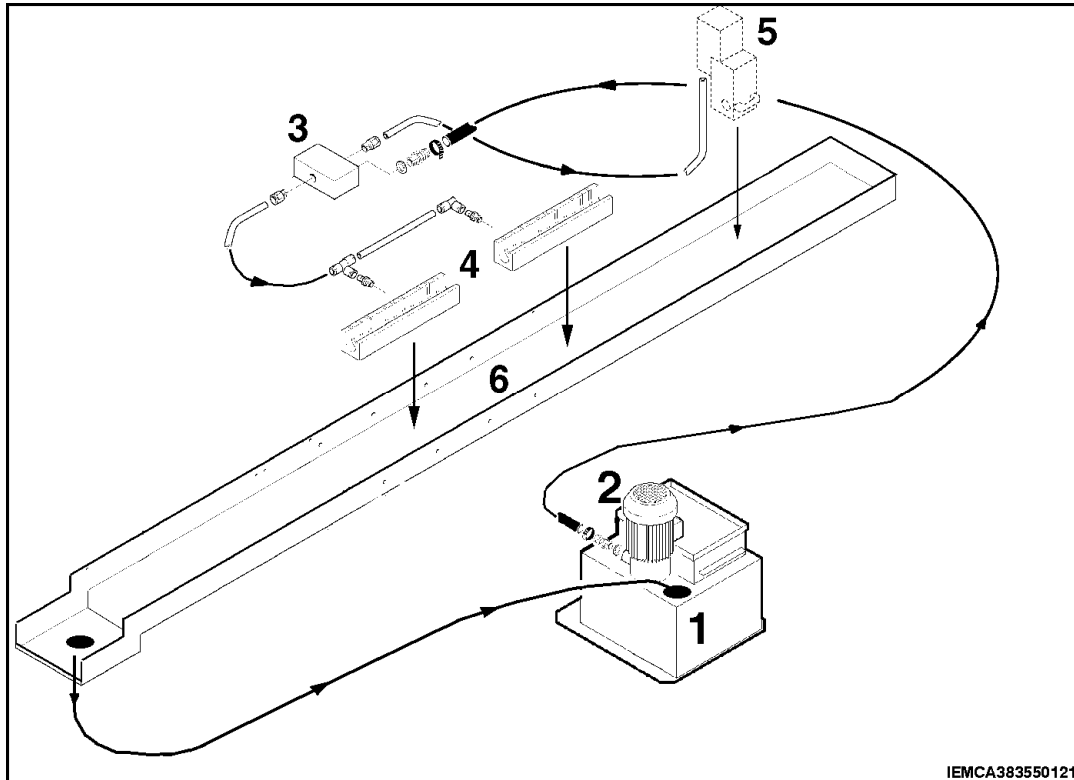


- A BAR SUPPORT BRACKETS; support the bars. Thanks to their inclination, the bars lean against the elevator.
- B ELEVATOR CARRIAGES; move the bars from the magazine to the bar feeder guide channels.
- C ELEVATOR DRIVE; drives the elevator carriages upstroke and downstroke.

2.1.3 MASTER 880F Bar bundle magazine - Main components

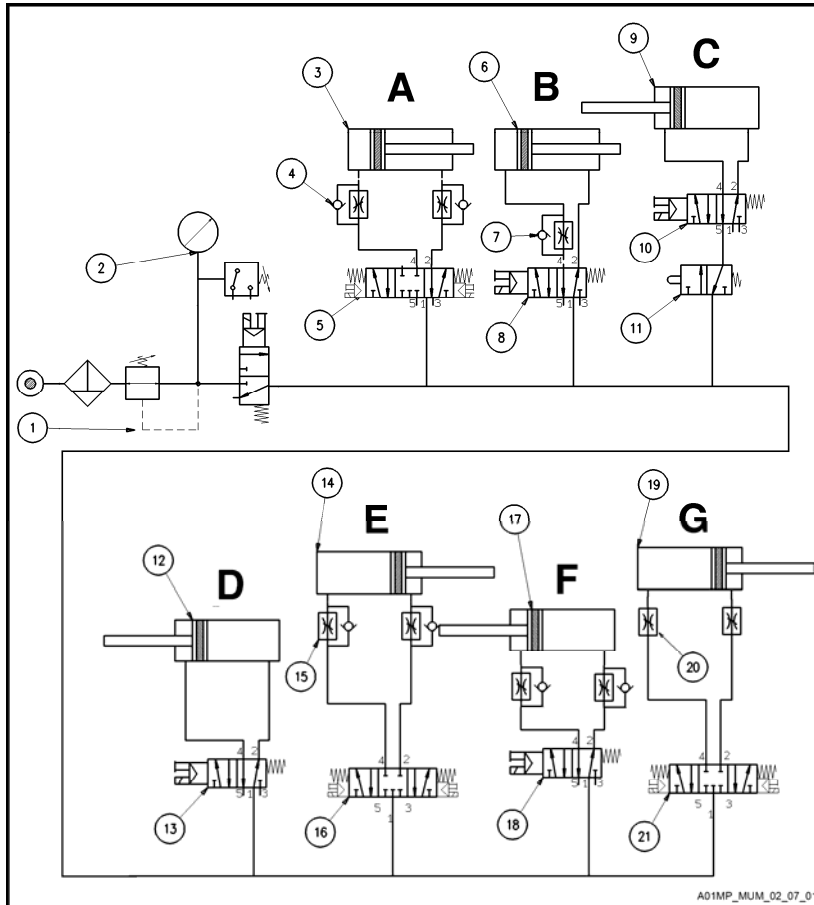


- A LIFTING BELTS; lift the bar bundle so that some of them may fall on the selection table.
- B LIFTING BELT DRIVE; drives the lifting belt upstroke and downstroke.
- C BAR STOP LEVERS; allow the bar controlled fall on the selection table.
- D DISPLACEMENT BELTS; their forwards —backwards movement allows the bars to be selected and displaced.
- E DISPLACEMENT BELT DRIVE; moves the displacement belts.
- F PRESSURE FOOT; keeps the bars pressed against the displacement belts.
- G FEELERS; detect the first bar coming from the displacement belts.
- H LOWER PUSH-RODS; hold the first bar coming from the displacement belts.
- L ELEVATOR CARRIAGES; move the bars from the magazine to the bar feeder guide channels.
- M ELEVATOR DRIVE; drives the elevator carriages upstroke and downstroke.

2.1.4 Hydraulic system - Main components

The oil performs the following cycle: it is forced by pump (2) of tank (1), it flows into the guide channels (4) and bush holder device (5) in order to lubricate the bars during the machining. From these two devices, the oil is gathered in the recovery tank (6) and filtered in the oil tank, from where it flows again for a new lubrication cycle.

2.1.5 Pneumatic system - Main components



- A - PNEUMATIC BAR DROP CONTROL UNIT
- B - FACING CYLINDER
- C - BUSHING DRIVE UNIT
- D - PNEUMATIC CLAMP UNIT
- E - REMNANT DROP UNIT
- F - GUIDE CHANNEL PNEUMATIC LOCKING UNIT
- G - GUIDE CHANNEL OPENING UNIT

POS.	Description
1	FILTER
2	PRESSURE GAUGE
3	CYLINDER
4	REGULATOR
5	SOLENOID VALVE
6	CYLINDER
7	REGULATOR
8	SOLENOID VALVE
9	CYLINDER
10	SOLENOID VALVE
11	VALVE

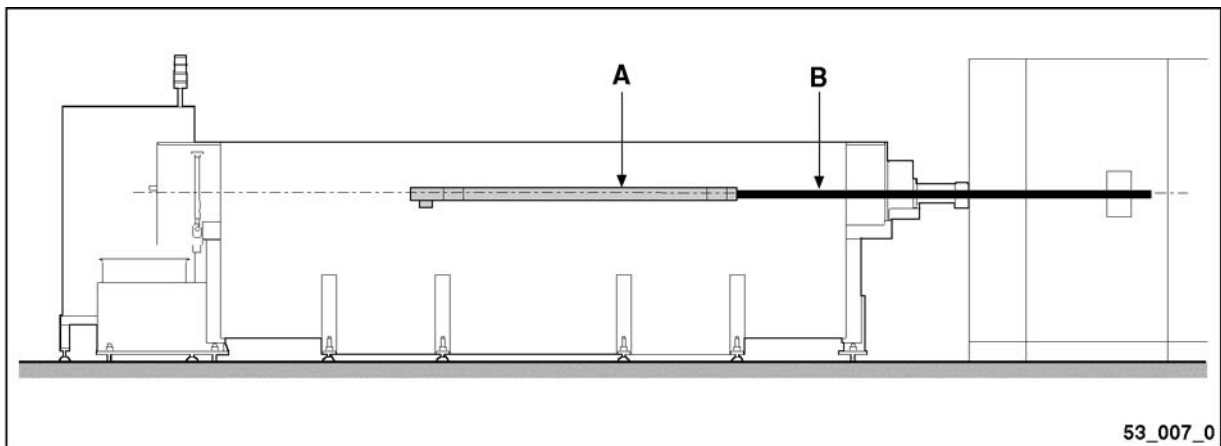
POS.	Description
12	CYLINDER
13	SOLENOID VALVE
14	CYLINDER
15	REGULATOR
16	SOLENOID VALVE
17	CYLINDER
18	SOLENOID VALVE
19	CYLINDER
20	REGULATOR
21	SOLENOID VALVE

2.2 OPERATING CYCLE - GENERAL DESCRIPTION

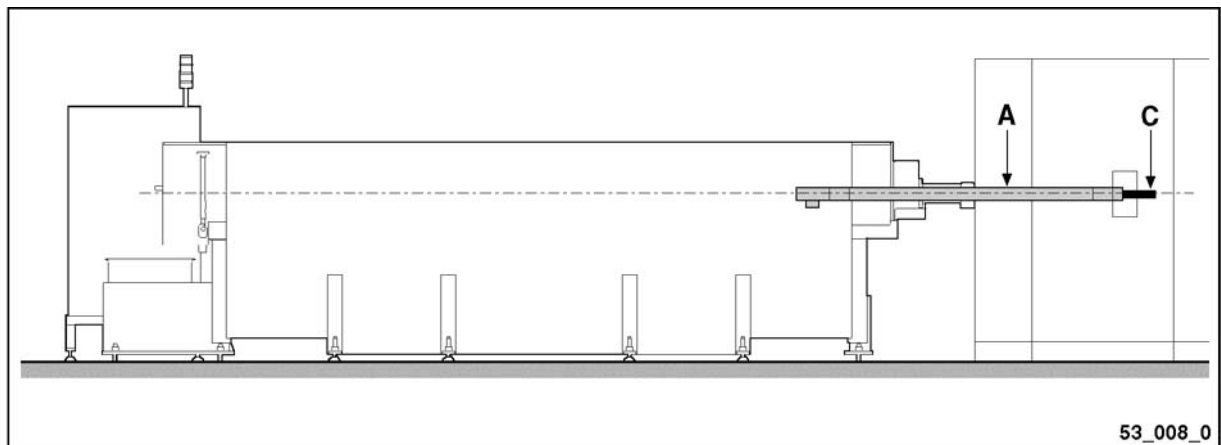
2.2.1 OPERATING CYCLE

The automatic mode controls the movements of the bar feeder according to the sequence described below.

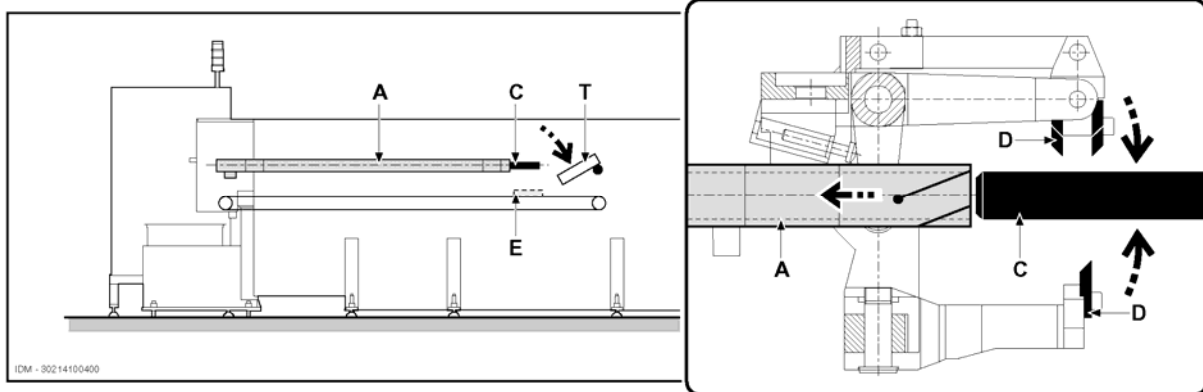
The bar pusher (A) makes bar (B) move forwards, until the bars are finished.



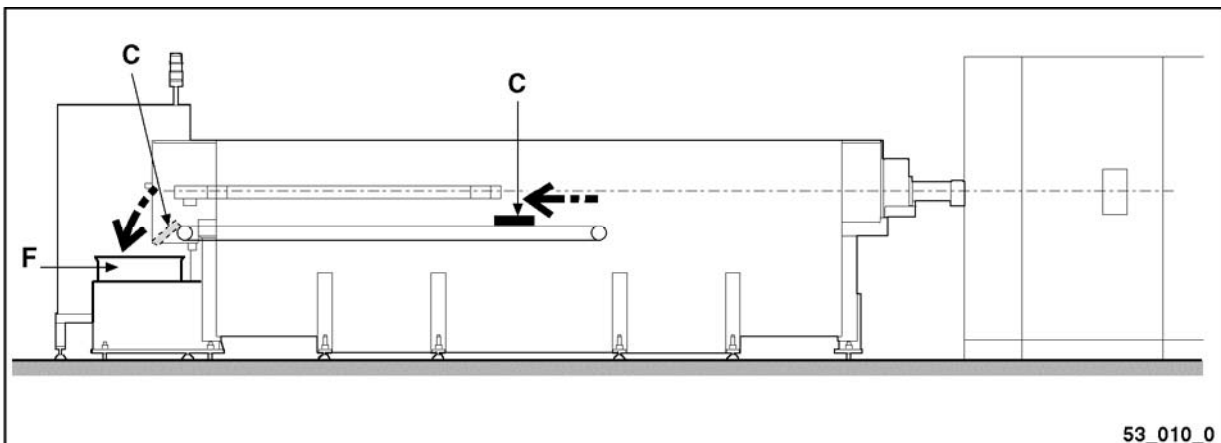
The bar pusher (A) and remnant (C) are in their forwards limit stop position.



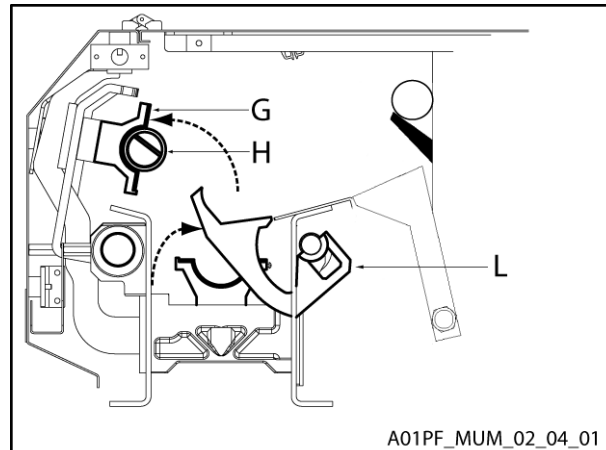
The bar pusher (A) and remnant (C) are in their backwards limit stop position. The clamps (D) close and the bar pusher moves backwards; the remnant is removed from the collet. The clamps open, the bar pusher (A) moves forwards and place the remnant on the drop guide (T), then bar pusher moves backwards, the clamps (D) close and open again for the remnant drop check, and finally the remnant drop guide (T) is lowered and the remnant drops on the remnant conveyor belt (E).



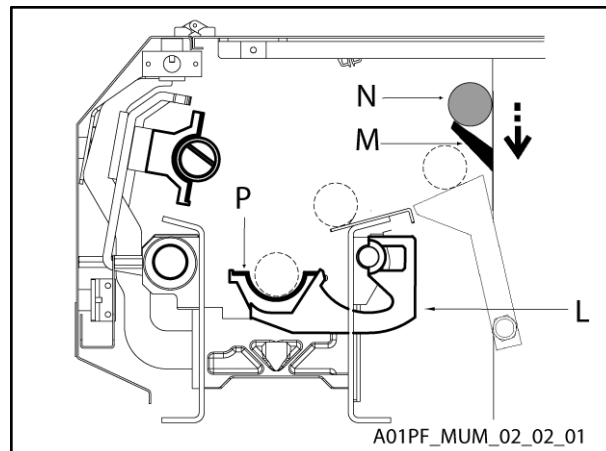
Remnant (C) is driven to the rear side and dropped in box (F). A sensor detects the remnant during the path; if the remnant is still in the bar pusher collet the bar feeder stops, otherwise the cycle goes on.



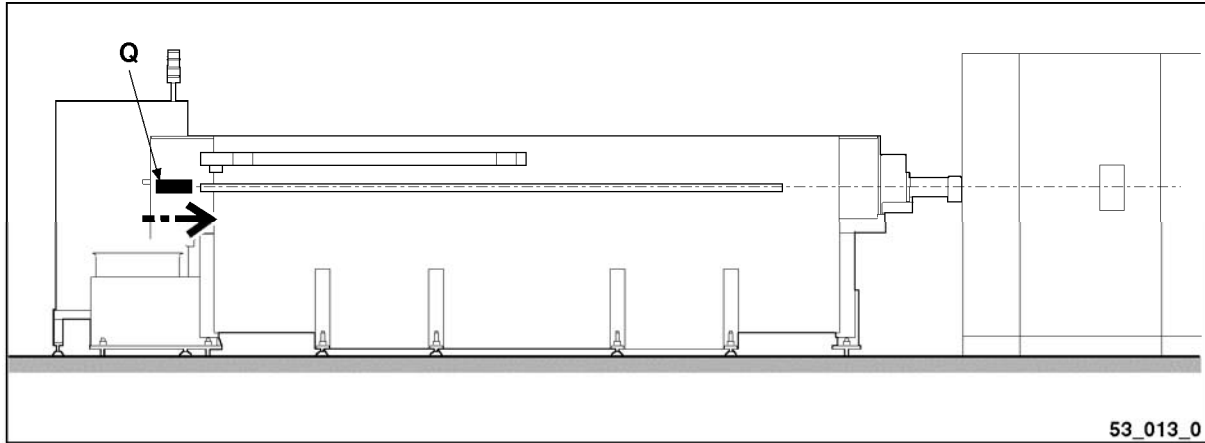
The upper guide channels (G) are lifted together with the bar pusher (H), and also the bar drop control levers L are lifted.



The elevator carriages (M) lower, the bar (N) drops on the lower guide channels (P) accompanied by the levers (L).

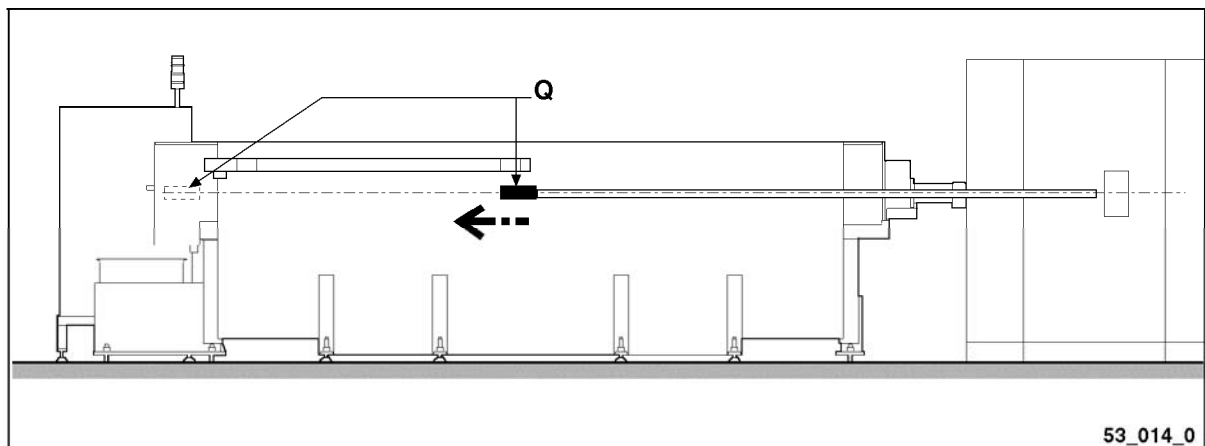


The first feeding carriage (Q) stroke begins.

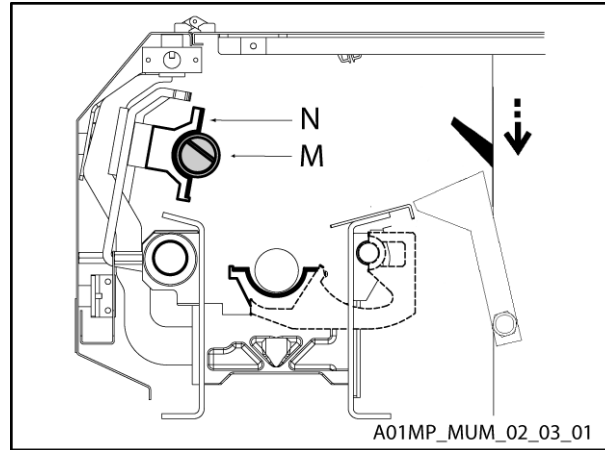


When the first feeding carriage (Q) completes its stroke, the required space for bar pusher introduction has been created.

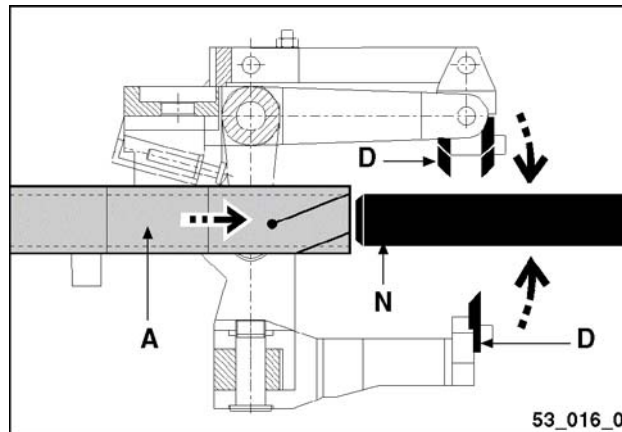
The first feeding carriage performs the return stroke.



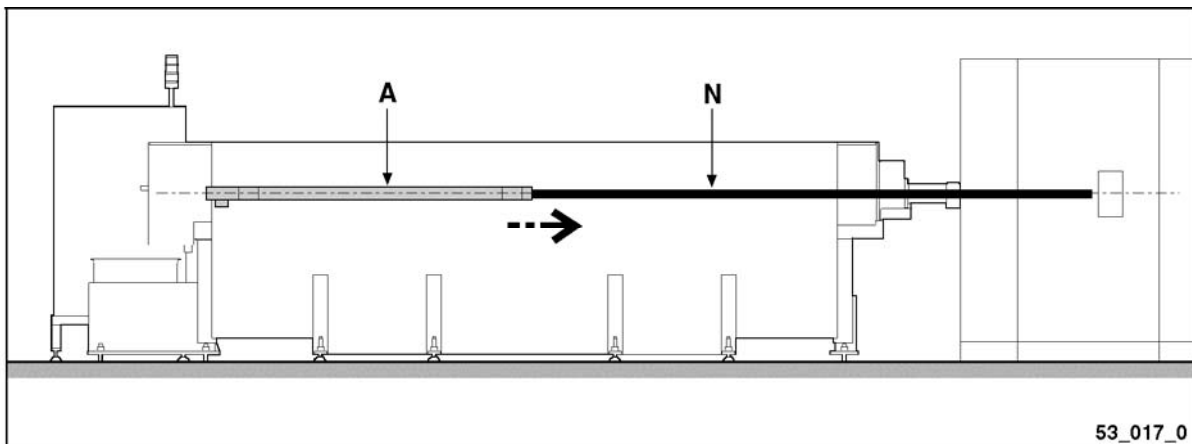
The upper guide channels (N) close; the bar pusher (M) is positioned along the spindle axis.



The clamps (D) close, the bar pusher (A) moves forwards; the bar (N) is inserted into the bar pusher collet.

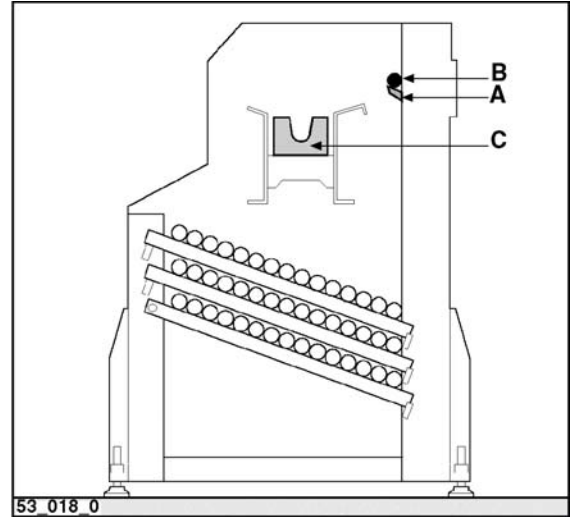


The bar pusher (A) and bar (N) perform the facing stroke. A new automatic working cycle is started.

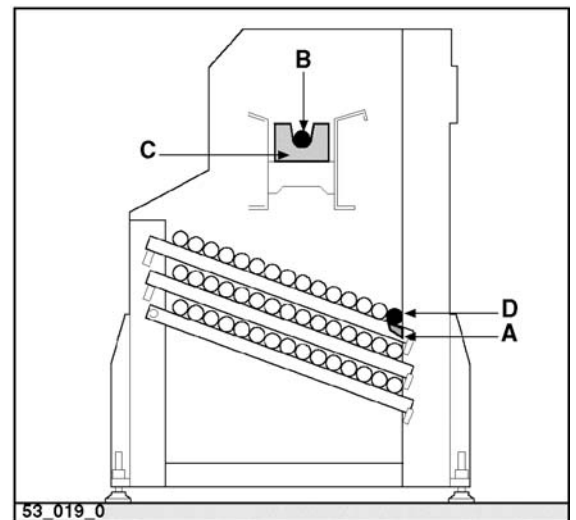


2.2.2 MASTER 880 P Rack magazine - Operating cycle

The automatic mode controls the magazine movements according to the sequence described below.
 The elevator carriages (A) are in the highest position and support bar (B), which is ready to be unloaded in the guide channels (C).
 The elevator carriages (A) lower and let the bar (B) fall into the guide channels (C).
 The elevator carriages (A) lower and let the bar (B) fall into the guide channels (C).

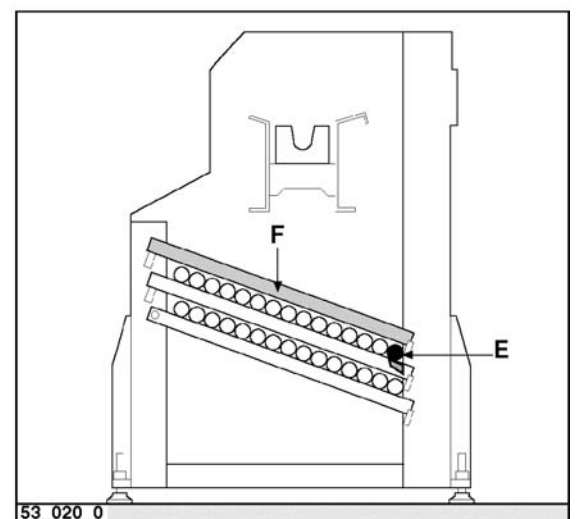


The carriages continue lowering until they reach bar (D) and bring it in the highest position.



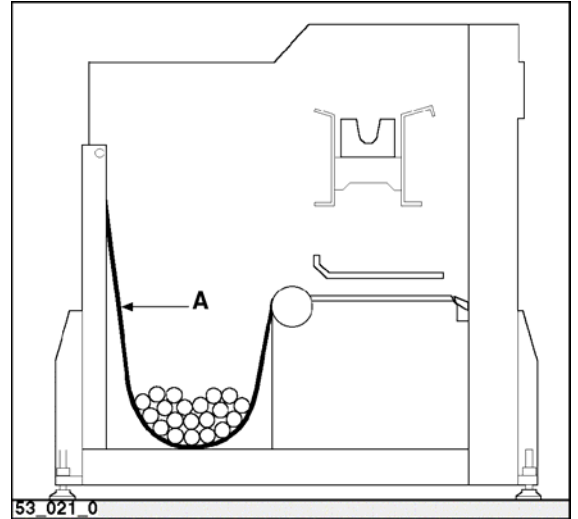
When the bars on the first rack are finished, the upstroke of the first bar (E) of the second rack opens the brackets (F) of the first rack.

The cycle goes on until the bars are finished.

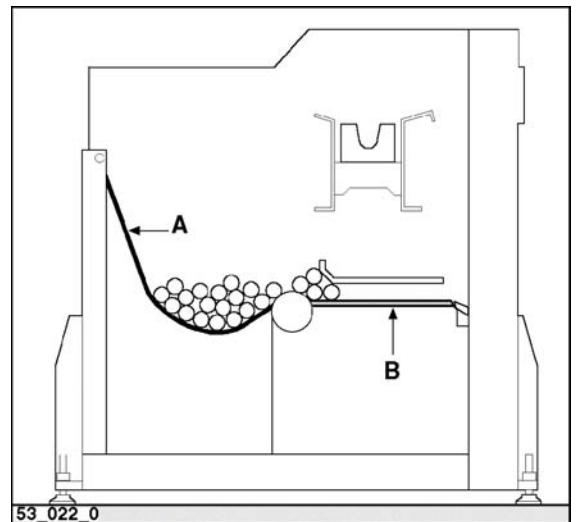


2.2.3 MASTER 880 F bar bundle magazine - Operating cycle

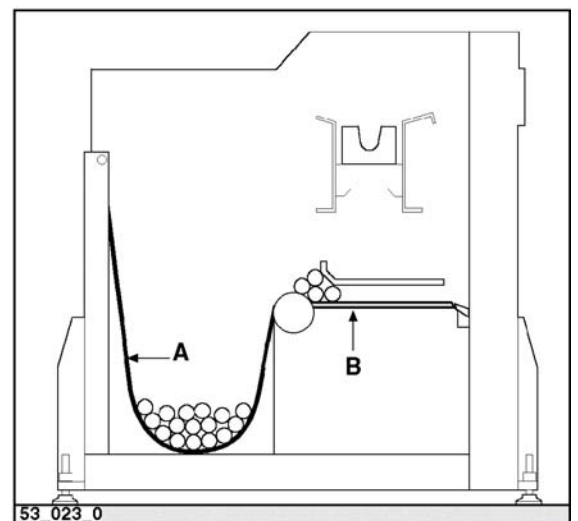
The automatic mode controls the magazine movements according to the sequence described below. The bars are contained in the lifting belts (A).



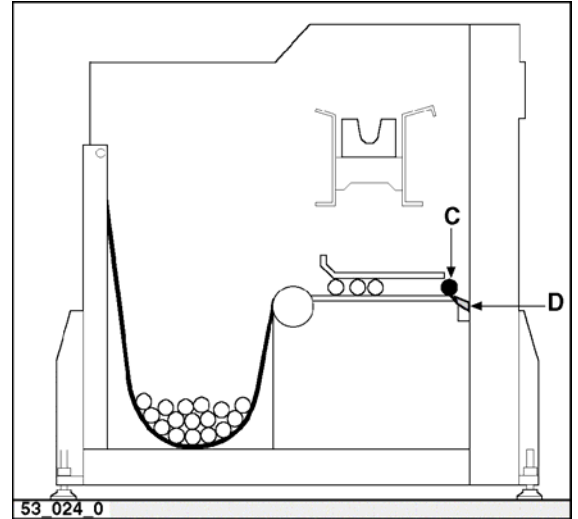
The lifting belts (A) rise until they make some bars fall on the magazine rack (B).



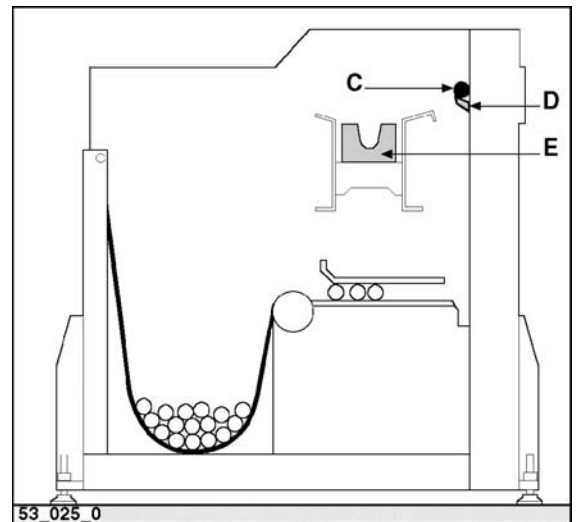
The lifting belts (A) lower; the bar selection on the magazine rack (B) starts.



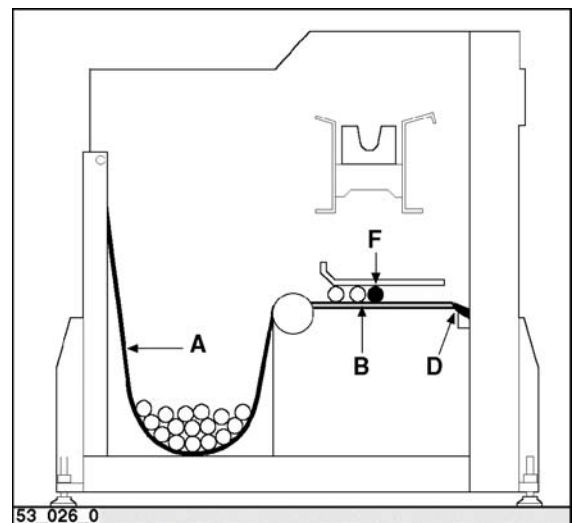
When the selection is over, the first bar (C) is separated from the others and unloaded on the elevator carriages (D).



The elevator carriages (D) reach the top position; the cycle stops.
 When the bar feeder has finished the bar machining, or when it carries out the bar pusher return strokes - if it is the first cycle - a pulse is transmitted, making the elevator carriages (D) lower and making bar (C) fall in guide channels (E).

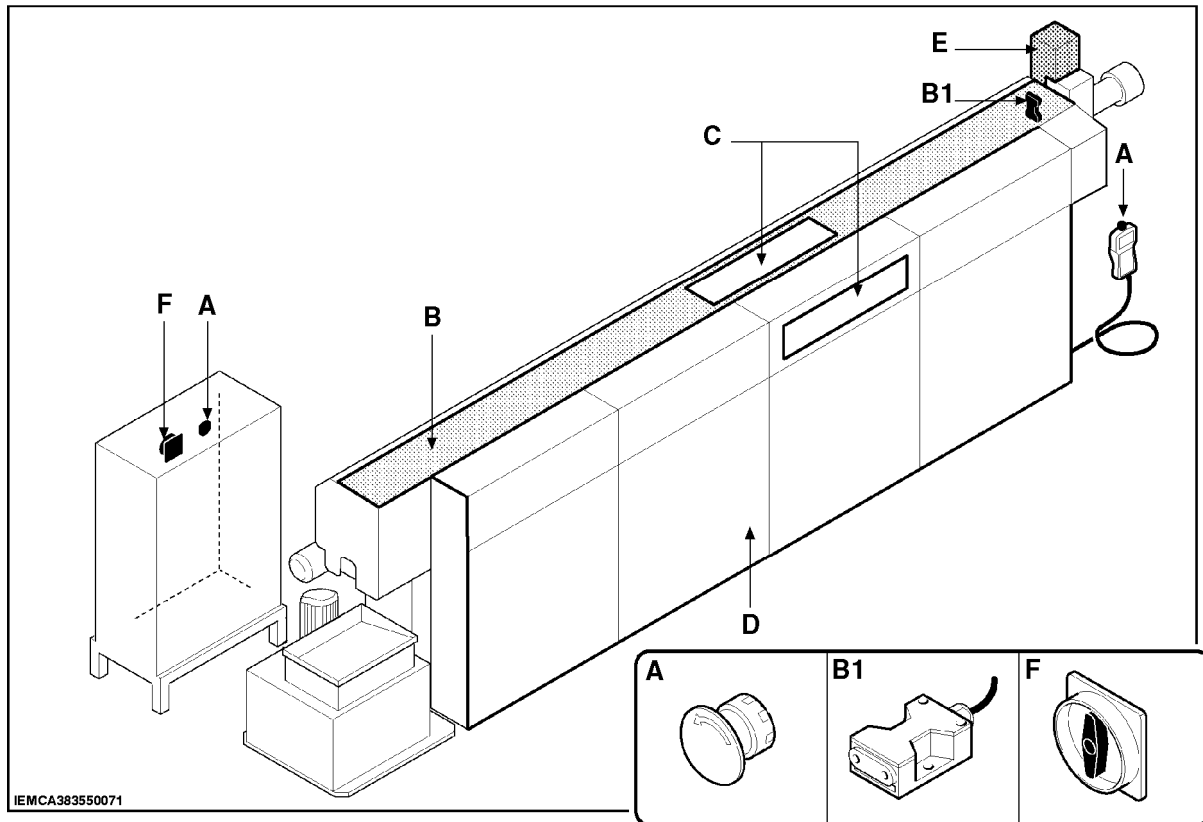


The elevator carriages (D) lower and another cycle begins, which is over when bar (F) is in the top position. The cycles are repeated until the bars on the magazine (B) are finished; then, the lifting belts (A) rise to unload other bars.
 The cycle goes on until the bundle bars are finished.



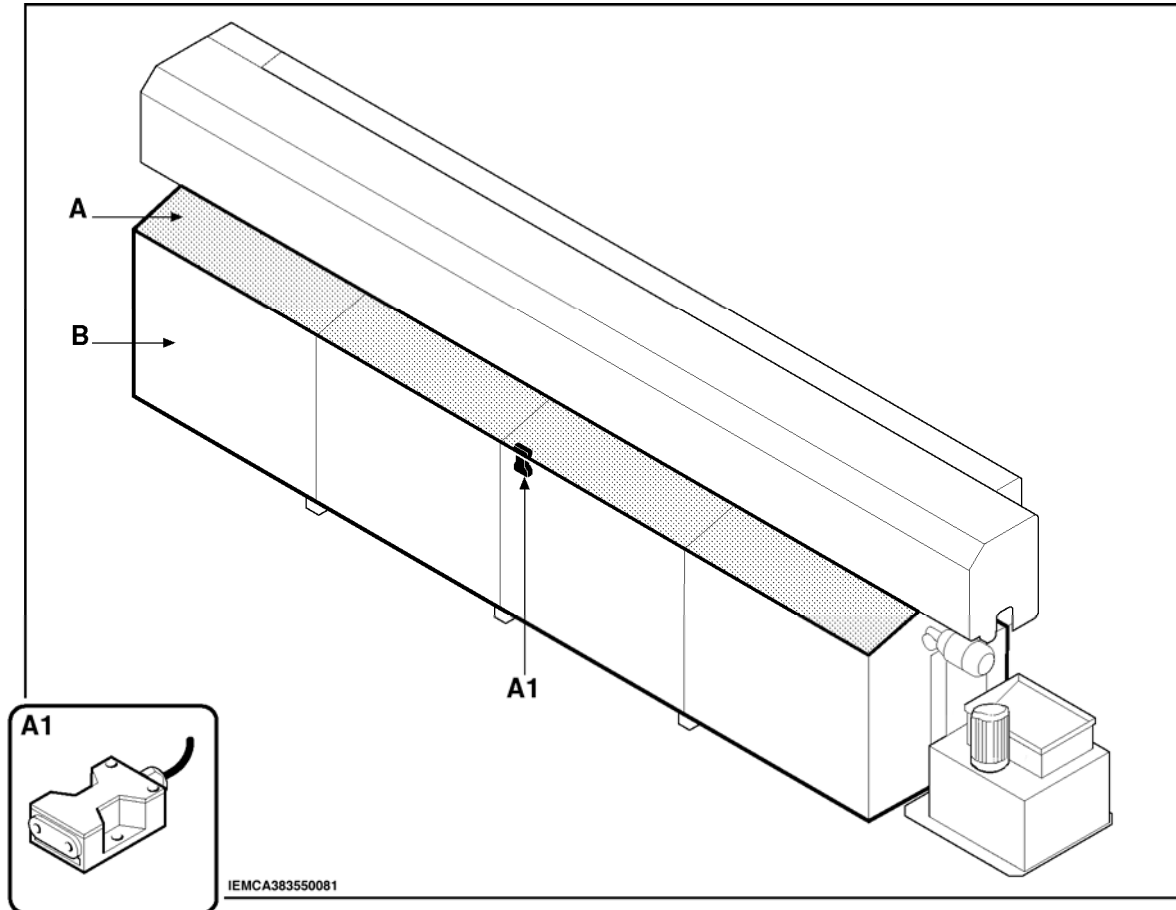
2.3 SAFETY DEVICES - POSITION AND DESCRIPTION

2.3.1 Bar feeder - Safety devices



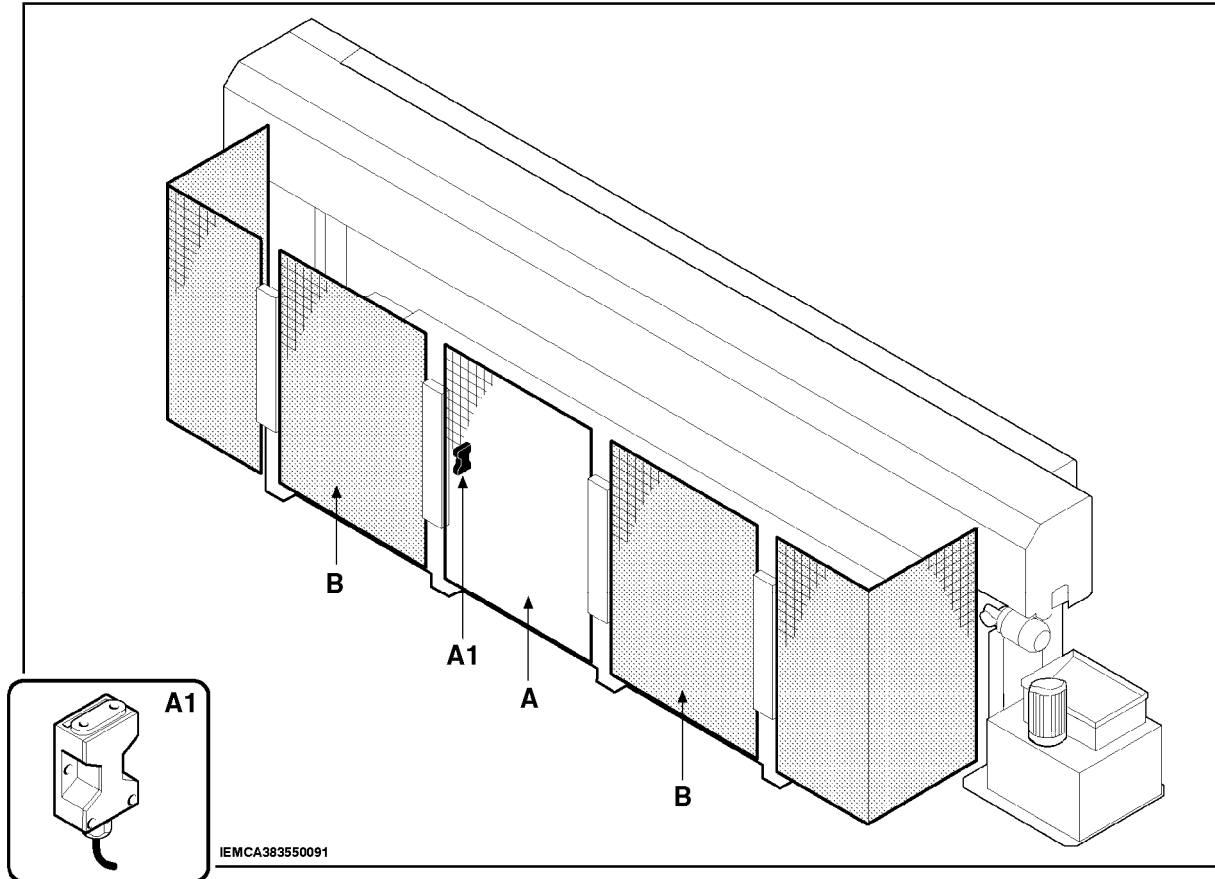
- A EMERGENCY BUTTON; when pressed, all bar feeder and lathe functions are stopped in an emergency condition.
- B INTERLOCKED SLIDING GUARD; linked to microswitch B1. When the guard is opened, the bar feeder and lathe functions are suspended. When the guard is closed, the user can start the cycle again.
- C FIXED GUARD: made of transparent material to allow the visual detection of the bar drop area in the guide channels.
- D FIXED GUARD: hinders an accidental access to the moving components.
- E FIXED GUARD: prevents an accidental access to the bush holder device area.
- F MAIN SWITCH: disconnects the electric power supply during the operations in the electrical control panel, and during the bar feeder inactivity periods.

2.3.2 MASTER 880 P rack magazine - Safety devices



- A INTERLOCKED SLIDING GUARD; connected to microswitch A1. In the automatic cycle at the opening of this guard, the bar feeder and lathe will stop. Only if this guard opening takes place during the feeding phases, the bar feeder and the lathe will continue to work, without causing any risks for the operator.
- B FIXED GUARD; prevents an accidental access to the bar magazine area.

2.3.3 MASTER 880 F bundle magazine - Safety devices



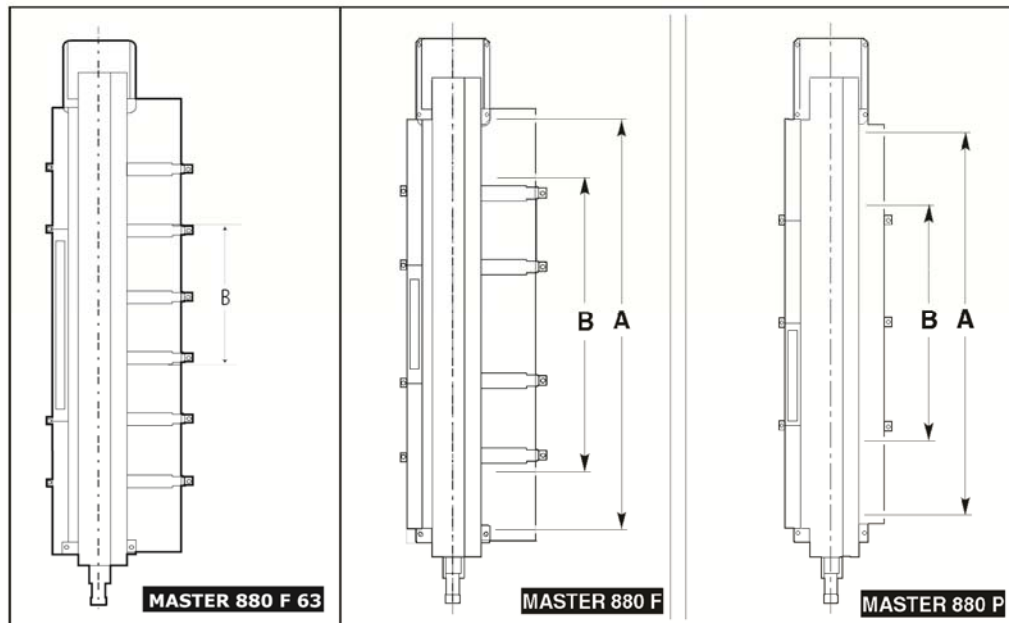
- A Interlocked sliding guard; connected to microswitch A1. When the guard is removed the functions of the bar feeder and lathe are suspended. If the guard is positioned again, the user can start the cycle once again.
- B Fixed guards; prevent an accidental access to the bar magazine area.

2.5 VERSION DESCRIPTION

Bar length

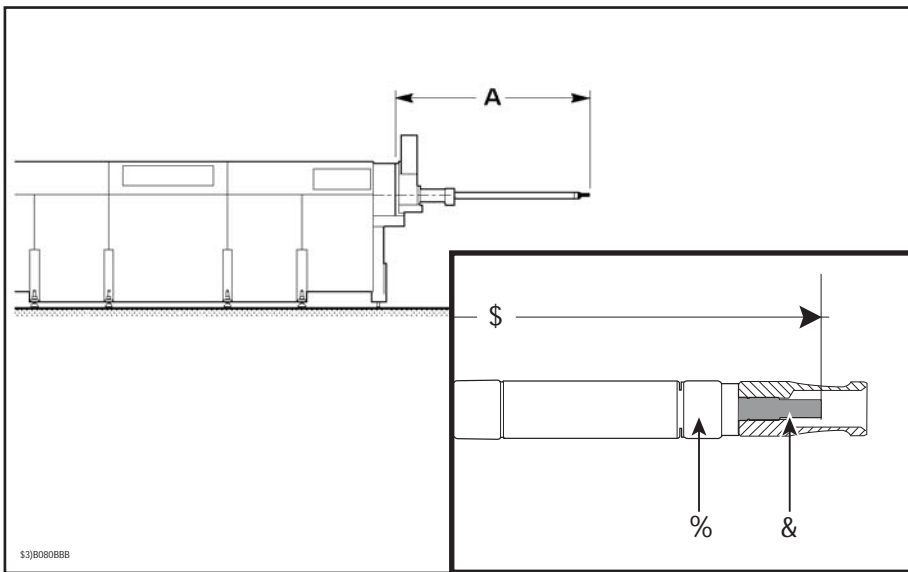
Model	Version	Maximum length mm (ft) - A	Minimum length mm (ft) - B	Intermediate feeler device
MASTER 880 P	33	3300 (10,8)	2000 (6,5)	/
	38	3800 (12,4)	2500 (8,2)	/
	43	4300 (14,1)	3000 (9,8)	/
MASTER 880 F	33	3300 (10,8)	2800 (9,18)	2200 (7,2)
	38	3800 (12,4)	3500 (11,5)	2600 (8,5)
	43	4300 (14,1)	3500 (11,5)	2600 (8,5)
	63	6300 (20,7)	3200(10,5)	/

The bars are to be loaded in the middle of the bundle magazine
Place the bars shorter than 5,000 mm into the 6,300-mm-long bundle magazine, as shown in the figure, position(B).



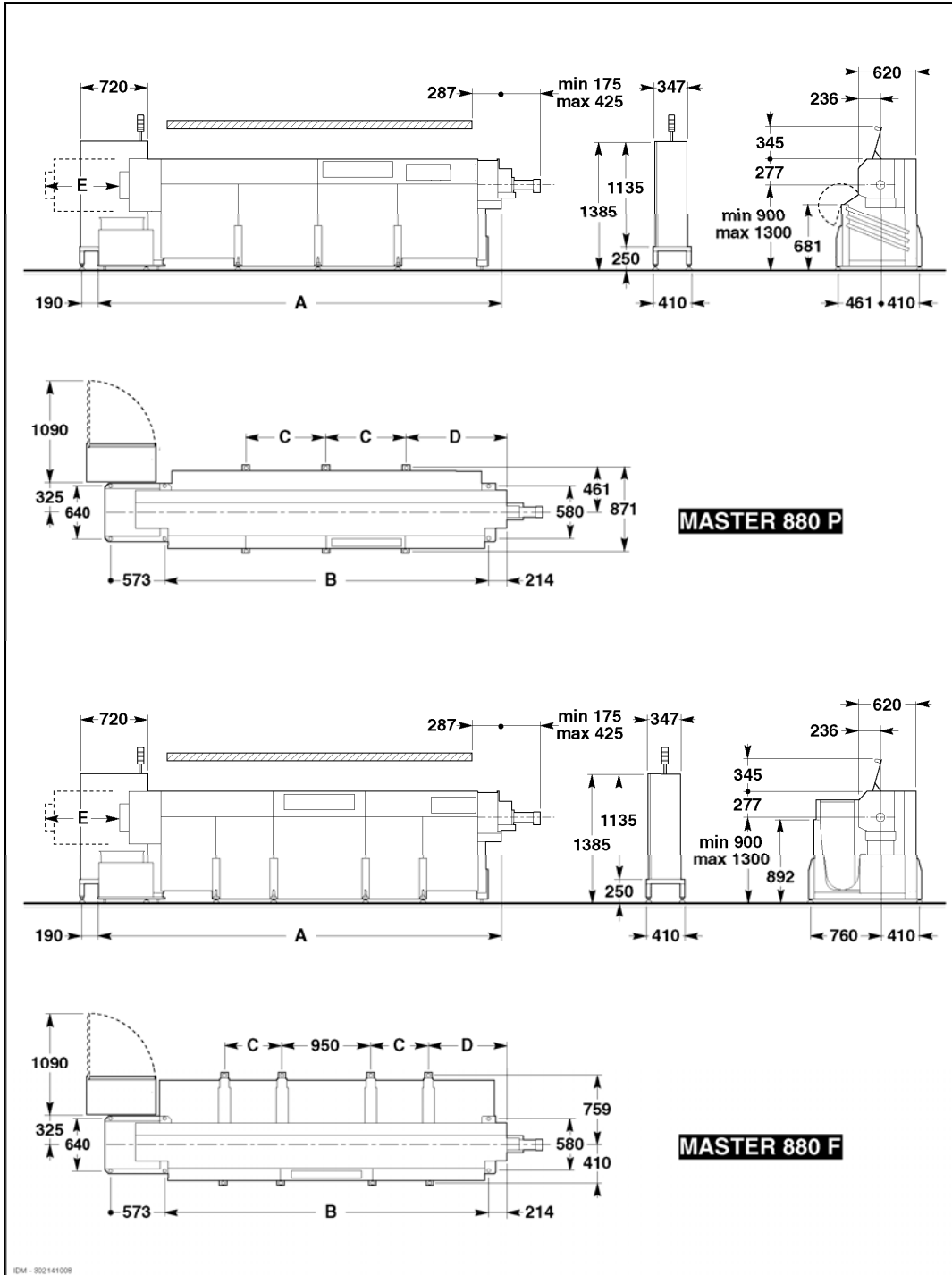
Maximum bar pusher extension

Model	Version	Version	A –Maximum extension(mm)
MASTER 880 P MASTER 880 F	33-38-43	N	1045
	33-38-43-63	L	1295
		LL	1545
		XLL	1795
		XXL	2045



- B - Revolving tip
- C - Nipple

2.6 TECHNICAL DATA



Overall dimensions

Model	Version	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
MASTER 880 P	33	4330	3640	860	1250	800
	38	4830	4140	1110		800
	43	5330	4640	1360		800
MASTER 880 F	33	4330	3640	617	860	600
	38	4830	4140		1110	900
	43	5330	4640	867		900
	63	7320	6640	867	1246	/

General technical data

	MASTER 880 P		MASTER 880 F	
Round bar size	Ø Min 8 mm (5/16")	Ø Max 80 mm (3")	Ø Min 8 mm (5/16")	Ø Max 80 mm (3")
Hexagonal bar size (key socket)	Min7 mm (5/16")	Max65 mm (2" 1/4)	Min7 mm (5/16")	Max65 mm (2" 1/4)
Square bar side	Min7 mm (5/16")	Max50 mm (2")	Min7 mm (5/16")	Max50 mm (2")
Minimum bar length	(*) Ver. 33 – 2000 mm (6,5 ft) Ver. 38 – 2500 mm (8,2 ft) Ver. 43 – 3000 mm (9,8 ft)		Ver. 33 – 2800 mm (9,1 ft) Ver. 38 – 2800 mm (9,1 ft) Ver. 43 – 3800 mm (12,4 ft) Ver. 63 – 3200 mm (10,5 ft)	
Maximum bar length	Ver. 33 – 3300 mm (10,8 ft) Ver. 38 – 3800 mm (12,4 ft) Ver. 43 – 4300 mm (14,1 ft)		Ver. 33 – 3300 mm (10,8 ft) Ver. 38 – 3800 mm (12,4 ft) Ver. 43 – 4300 mm (14,1 ft) Ver. 63 – 6300 mm (20,6 ft)	
Magazine capacity (working width)	Ø8÷45 mm = 1800 mm of working width (e.g.: 10 bars of ø 10mm - 3 racks) 46-80 mm = 1200 mm of working width (e.g.: 14 bars of ø 80 mm - 2 racks)		~ 2500 Kg	
Maximum bar weight	120 kg		120 kg	
(Adjustable) feeding speed	150 mm/sec		150 mm/sec	
(Adjustable) return speed	950 mm/sec		950 mm/sec	
Maximum remnant length	ø 8÷65 mm = 400 mm ø 66÷80 mm = 250 mm		ø 8÷65 mm = 400 mm ø 66÷80 mm = 250 mm	
Minimum remnant length	110 mm		110 mm	
Bar change time (with 3000 mm bar)	40 sec (according to the bar ø)		40 sec (according to the bar ø)	
Power supply voltage	230/400 Volt		230/400 Volt	
Mains frequency	50/60 Hz		50/60 Hz	
Control voltage	24 Volt A.C. - 24 Volt D.C.		24 Volt A.C. - 24 Volt D.C. - 220 Volt A.C.	
Installed power	3 kW		4 kW	
Oil quantity	80 l		80 l	
Air pressure	6 bar		6 bar	
Air consumption	35 NI/bar change		35 NI/bar change	
Bar feeder weight	Ver. 33 - 1500 kg Ver. 38 - 1600 kg Ver. 43 - 1700 kg		Ver. 33 - 2000 kg Ver. 38 - 2200 kg Ver. 43 - 2400 kg Ver. 63 - 2950 kg	
Electric cabinet weight	140 kg		140 kg	

(*) Minimum bar length if accurately positioned:

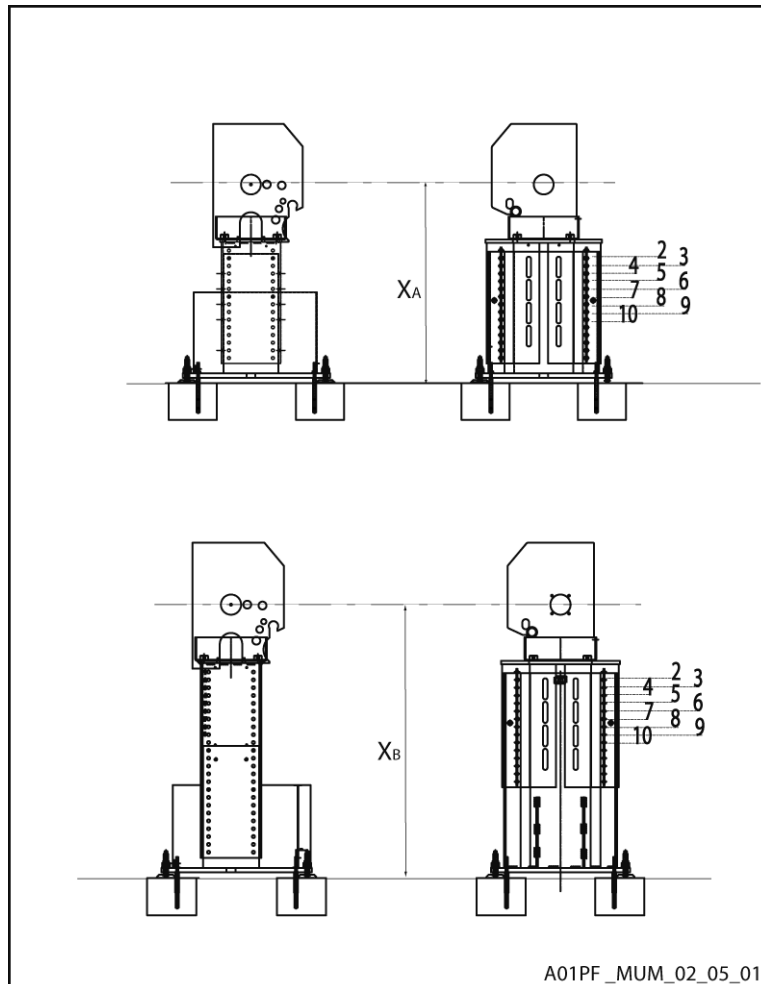
L33=1500 mm (4,9 ft);

L38=1700 mm (5,5 ft);

L43=2000 mm (6,5 ft).

Working axis height

Model	Screw position	X _B (mm) High base	X _A (mm) Low base
MASTER 880 P MASTER 880 F	2	1221 ÷ 1255	906 ÷ 940
	3	1256 ÷ 1290	941 ÷ 975
	4	1391 ÷ 1325	976 ÷ 1010
	5	1326 ÷ 1360	1011 ÷ 1045
	6	1361 ÷ 1395	1046 ÷ 1080
	7	1396 ÷ 1430	1081 ÷ 1115
	8	1431 ÷ 1465	1116 ÷ 1150
	9	1466 ÷ 1500	1151 ÷ 1185
	10	1501 ÷ 1535	1186 ÷ 1220



Guide channel, bar pusher, bar and pipe diameter.

Model	Guide channel diameter(mm)	Bar pusher diameter(m m)	Bar diameter(mm)		Pipe diameter(m m) (*)
			Minimum	Maximum	
MASTER 880 P MASTER 880 F	21	20	8	18	20
	26	25	8	23	25
	33 (**)	32	10	29	31
	36	35	10	32	35
	38	37	11	35	37
	43	42	12	39	42
	46	45	15	42	45
	52	51	18	47	51
	57	56	22	52	55
	61 (**)	60	30	56	59
	66	65	38	61	64
	69	68	48	63	67
	71	70	48	65	69
	73	72	50	67	71
	76	75	50	70	74
	81	80	52	75	79
	86 (**)	85	55	80	80

(*) Valid also for prepared bars or normal bars machined with front remnant ejection.

(**) Recommended guide channel according to the maximum lathe bar passage.

Example: ø85 maximum bar passage — GUIDE CHANNELS 86-61-33.

Example: ø80 maximum bar passage — GUIDE CHANNELS 81-61-33.

Example: ø75 maximum bar passage — GUIDE CHANNELS 76-61-33.



WARNING — CAUTION:

barstock diameters for any guide channel are only given as an example. A barstock diameter approximately 10 mm smaller than the guide channel diameter may cause vibration and failure to the bar feeder. Therefore, it may be necessary to slow down the bar rotation speed or to change the guide channel diameter in order to obtain the best performance.



WARNING — CAUTION:

the collet external diameter should be at least 0.5 mm smaller than the bar pusher external diameter.

**INFORMATION:**

the bar feeder is usually supplied with a bar pusher whose diameter is equal to the spindle drawbar hole. Sometimes, in order to ensure the best working conditions, the use of a bar pusher with a smaller diameter may be necessary.

Guide channel lubricating oils.

ISO/UNI rating	Brand	Name
CLASSE C CKB 150	BP	ENERGOL CS 150
	Agip	Acer 150
	Api	Api Cis 150
	Aral	Aral Degol Tu 150
	Castrol	Magna 150
	Chevron	Circulating Oil 150
	Elf	Movixa 150
	Esso	Nuto 150
	Fina	Solina 150
	IP	IP Hermea 150
	Klüber	Crucolan 150
	Olio FIAT	Daphne Hidrobak 150 HL
	Roloil	Arm V 150
	Shell	Vitrea 150 Tellus C 150
	Tamoil	Hydraulic Oil 100
	Texaco	Rando oil HD 150
Total	Cortis 150	

Oil quantity: 80 litres.

2.6.1 Noise levels

The bar feeder does not cause acoustic noise.

The noise occurs when the lathe, to which the bar feeder is connected, is working and the bar is rotating into the bar feeder guide channels.

In this case, the noise level depends on the following conditions:

- perfect alignment and levelling of the lathe-bar feeder unit;
- proper fixing to the floor both of the lathe and bar feeder;
- suitable bar gripping device fitted on lathe;
- use of a guide channel and a bar pusher with suitable dimensions as regards to the bar diameter;
- use of a front guide bush of suitable diameter (if supplied);
- use of bars with a straightness within the set limits (maximum deflection in mm equal to 0.5 ‰ of the bar length);
- use of a spindle liner having the same diameter as the bar feeder guide channel diameter;
- spindle rotation speed suitable for the material to be machined;
- as to the bar feeder, use of oil having features suitable for the diameter of the bar to be machined;
- all bar feeder guards must be closed.

Should the above mentioned conditions be met, the noise level emitted during the bar rotation into the guide channel, measured in compliance with the international standards, will be within the following limits:

- brass and steel round bars within 80 dbA
- hexagonal steel bars within 83 dbA
- brass hexagonal bars within 85 dbA

2.7 ACCESSORIES - FOREWORD

To increase the bar feeder performance and flexibility, it may be provided with the accessory described below.

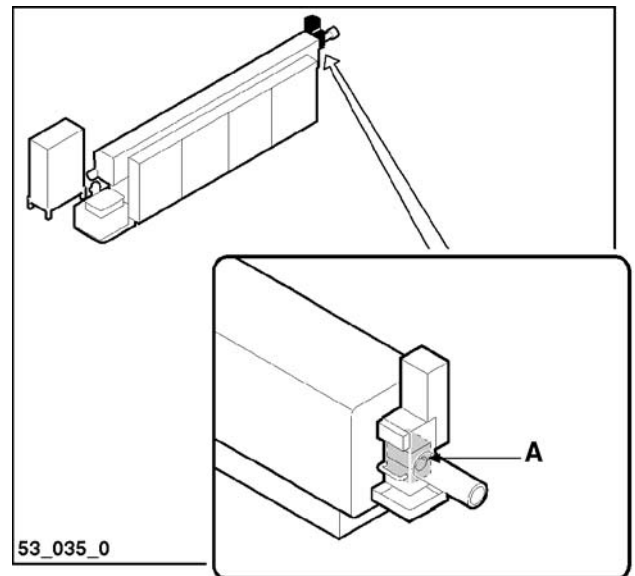
2.7.1 Bush holder device - Description

It is applied to the front part of the bar feeder. Its function is to reduce bar vibrations to a minimum, by keeping the bar centred during the rotation by means of two half-bushings (A), which are coupled to form a round guide channel with a diameter just slightly larger than the one of the bar being machined.

In many cases, this device may be used (by only changing the diameter of the half-bushings) to greatly extend the range of diameters which can be machined without having to replace the guide channel.

OPERATION

- When the bar is dropped into the guide channel, the two half-bushes are open.
- The closing phase is controlled by a pneumatic cylinder when the bar feeder has completed the bar loading cycle. The oil flow for the machined bar lubrication and support starts together with the closing phase.
- When the bar pusher approaches the device, the half-bushes open up to allow its passage; the oil flow stops.
- By enabling subparameter B of Parameter 17 (see INSTRUCTION MANUAL, sec 2) it is possible to close the half-bushings (A) on the bar pusher, making the approach to the lathe spindle liner more stable.



INDEX

3.1	GENERAL SAFETY REGULATIONS.....	2
3.2	HANDLING AND INSTALLATION - Safety	3
3.3	ADJUSTMENTS AND SETUP - Safety.....	3
3.4	USE AND OPERATION - Safety.....	4
3.5	BAR FEEDER MAINTENANCE - Safety	5
3.6	EC CONFORMITY DECLARATION.....	6
3.7	General Description of Supply	7
3.8	RESIDUAL RISKS	8
3.9	FORESEEABLE MISUSES	13

3.1 GENERAL SAFETY REGULATIONS



It is of the utmost importance to read this manual carefully before installing, using, servicing the bar feeder or performing any other work on it. The constant compliance with the instructions in this manual ensures the operator safety.

- The user and expert operator must perform the specified duties only.
- Do not tamper with the safety devices for any reason whatsoever.
- Comply strictly with the health and safety regulations at work issued by the relevant authorities in each country.
- IEMCA declines any liability whatsoever for injury to persons or damage to property if the relevant safety regulations are disregarded.

3.2 HANDLING AND INSTALLATION - Safety

- The bar feeder must be handled using suitable means and methods only.
- People must not stand or transit underneath a suspended load, or within the range of action of the crane, lift truck or other suitable lifting and transport means.
- The bar machining and loading area must be delimited to prevent collisions between the operator and the means of transport or handling of the material to be machined or of other kinds.
- Correct positioning of the bar feeder, lighting and cleanliness of the working environment are of the utmost importance as far as personal safety is concerned.
- The connection to the electrical installation must be carried out by skilled personnel only.
- Make sure that the electrical installation is connected to an efficient earthing system by means of an appropriate cable.

3.3 ADJUSTMENTS AND SETUP - Safety

- Carry out the adjustments as described in the operation manual.
- Do not change the working parameters to obtain performances other than those envisaged in the design and testing phases.
- Do not adjust the bar feeder when running unless expressly requested in the manual.
- Do not feed the machine with bars having dimensions other than those recommended by the manufacturer.
- Do not use flexible pipes as handholds.

3.4 USE AND OPERATION - Safety

- The working area around the bar feeder must always be kept clean and uncluttered so as to allow immediate access to the emergency devices and to perform the bar loading without creating obstructions or danger.
- Perform the starting sequence of the working cycle as recommended.
- Do not put hands or anything else near or inside the moving parts or parts in tension.
- Remove bracelets, watches, rings and ties.
- If necessary, use strong work gloves with five fingers, which do not reduce the grip sensitivity or power.
- Wear work shoes as well as personal protection devices provided for by the safety regulations in force in all countries.
- Inform the maintenance personnel of any operating anomalies.
- Before starting the bar feeder, make sure that there is no personnel engaged in servicing or cleaning the machine.

3.5 BAR FEEDER MAINTENANCE - Safety

- Do not allow unauthorized personnel to carry out maintenance operations.
- Read this manual carefully before carrying out maintenance operations.
- Do not lubricate, repair or adjust the bar feeder while running, unless expressly indicated in the manual.
- Stop the bar feeder in accordance with the foreseen procedures before carrying out the lubrication or other operations.
- Do not use matches, lighters or torches as lighting means during operations with inflammable fluids.
- Keep drain oil in suitable containers and deliver it to companies specialized in the storage and disposal of polluting waste products.
- Avoid environmental pollution.
- Use original IEMCA spare parts only.
- Considering that oil and polyurethane material is used, the disposal of the guide channels will be performed according to the regulations in force in the installation country.

3.6 EC CONFORMITY DECLARATION

EC CONFORMITY DECLARATION (2006/42/ EC Regulation, Enclosure II, Part A)

Dr. Ing. GIAMPAOLO MORANDI, acting as GENERAL MANAGER and delegated by the company I G M I S.p.A. DIVISIONE IEMCA with legal office and establishment in Via Granarolo, 167 – 48018 FAENZA (RA) as manufacturer,

DECLARES

on his own responsibility that the machine:

AUTOMATIC BAR FEEDER

Master	
(type/model)	(registration number)

- is in compliance with the requirements of 2006/42/ EC regulation and with the national implementing regulations,
- is in compliance with the following European regulations:
 - o 2006/95/ EC regulation (low tension);
 - o 2004/108/ EC regulation (electromagnetic compatibility).

Otherwise he declares that is the person in charge for the technical issue at IGMI S.p.a. IEMCA division – Via Granarolo 167 – 48018 Faenza (RA).

Manager

Dr. Ing. GIAMPAOLO MORANDI – General

FAENZA, 17/03/2017

.....
(delegate signature)

3.7 General Description of Supply

The bar feeder you bought is a machine designed to feed machine tools properly prepared for bar machining. It consists of:

A basic unit made up of a metal structure, a control panel, safety devices and protections in compliance with the EU regulations governing this sector.

A set of format parts related to the specific machining processes that the machine will perform. According to the terminology used by Iemca these parts are named: guide channels, bar pushers, revolving tips, collets, bushes and front noses. Because of the kind of use, these parts are subject to wear.

Any additional parts can be supplied upon request.

Applicable Safety Regulation

According to Directive 2006/42/EC article 2B, the bar feeder is an interchangeable equipment and is supplied with the appropriate safety devices.

Together with the supply you will find the EC declaration of conformity in compliance with the above-mentioned Directive.

The list of the safety devices is shown in section 2, paragraph 2.3, of this manual.

The bar feeder should be installed according to the manufacturer's instructions which are highlighted in the supplied check list.

Should the bar feeder be used together with machine tools that do not have the CE marking, Iemca reminds to their clients that they should assess if the device is in compliance with Directive 2009/104/EC and subsequent amendments even after installing the bar feeder.

Safety warning. Only qualified and properly trained personnel can work with machine tools and the related interchangeable equipments.

3.8 RESIDUAL RISKS

- The following residual risks exist:

PNEUMATIC POWER

- Presence of pneumatic energy in the supply system to the machine actuators.

Here are some examples of the warnings referenced above:

Before doing regular maintenance or any other service on the machine pneumatic actuators it is essential to stop the pneumatic energy supply by disconnecting the supply hose (see chapter 4). Make sure that the pressure gauge on the pressure adjustment device is indicating zero.

ELECTRIC POWER

- CAPACITOR
- DISCONNECT THE ELECTRIC POWER VIA THE INTERFACE CABLE OR SWITCH OFF THE LATHE

Here are some examples of the warnings referenced above:

In case of maintenance within the electrical control panel, please note that, even after the bar feeder has been turned off through the main switch, residual voltage remains.

To operate in safety, it is necessary to follow these indications:

- wait 60 sec. until the capacitor is discharged
- remove the three-phase voltage by operating on the disconnecting device upstream from the supply line (or disconnect the interface connector)

FLUID LEAKAGE RISK

- It is forbidden to top up the lubricating oil tank while the oil pump is running.
- Do not let the oil or coolant leak from the lathe out to the bar feeder.

Here are some examples of the warnings referenced above:

Switch off the bar feeder and wait at least 10 minutes for the oil to decant inside the tank.

CRUSHING DANGER

- Crushing danger in the area of the moving parts of the bar feeder.

Here are some examples of the warnings referenced above:

In order to operate safely, always wear your personal protective equipment. Pay attention to the warnings concerning the risk of crushing on the machine.

- 1) Switch off the power supply or press the bar feeder emergency button before starting to replace the front bushes.
- 2) When the bar feeder is in automatic mode and the magazine guard is open, pay attention to avoid any contact with moving parts.

Here are some examples of the warnings referenced above:

1) Bush replacement or maintenance work inside the bushing holding equipment should only be performed after switching the bar feeder off.

2) With the bar feeder in automatic mode, there is a potential crushing risk if you reach your hands and arms into the guide channel area (bar pusher movement).

BAR FEEDER FASTENING IN AN UNSTEADY EQUILIBRIUM

- 1) If during installation the floor proves not to be level, the authorized technician will level out and align the bar feeder using the levelling screws of the fastening plates in the outer part of the bar feeder and in the anti-vibration plugs in the inner part.
- 2) If applicable, from the bar feeder/lathe mechanical interface layout, anchor the bar feeder to the lathe by means of a mechanical anchorage after aligning the bar feeder to the lathe and securing it to the ground.
- 3) If a customer chooses not to secure the bar feeder to the ground, he will be responsible for the bar feeder becoming unstable or falling to the ground.

Here are some examples of the warnings referenced above:

- 1) *Once installation is complete, all supporting screws used to align the lathe spindle line with the bar feeder line should be inserted in the plates supplied with the installation material.*
- 2) *Equipped on all cam lathes and on some CNC sliding-headstock lathes.*
- 3) *The technician will perform installation without securing the bar feeder to the ground. However, in the report to the customer certifying that installation has been completed, he will state that the customer requested that the machine be not secured to the ground.*

BREAKING RISK DURING OPERATION

- 1) After performing scheduled or unscheduled maintenance work, remove any foreign objects from inside the bar feeder inner area.
- 2) Stop lathe spindle rotation during the magazine loading phase.

Here are some examples of the warnings referenced above:

- 2) *Avoid loading the magazine when there are parts rotating inside the guide channels. If they break, they can seriously harm the operator.*

RISKS FROM MOVING PARTS

- 1) When the guard opens during the work phase for loading the bars into the magazine, avoid any contact with moving parts.
- 2) The bar pre-loading area has no guards at all and gives the operator direct access to the work area.

Here are some examples of the warnings referenced above:

- 1) *Bar or revolving tip rotation, bar pusher feeding, moving the synchronization device (if present).*
- 2) *This area has no protection guard. Please note that areas with moving parts (bar pusher) can be reached during the bar change phase.*

FIXED GUARDS

- If you have removed some fixed guards in order to be able to perform maintenance on the bar feeder, put them back in place and secure them soon after completing your work. Make sure they are secured so as to prevent access to moving parts during work.

Here are some examples of the warnings referenced above:

After removing the fixed guards, be sure that the fastening screws remain on the bar feeder frame.

NOISE

- The bar feeder is not a noise source, except for the bar loading phases and the subsequent feeding of the bar into the lathe, which all have a limited duration. However, the noise level will never be higher than 75 dB.

EMISSIONS OF DANGEROUS SUBSTANCES

- Do not open the magazine guard during the work phase to avoid breathing in any gaseous materials from oil atomization or being hit by the oil drops expelled by centrifugal motion during bar rotation.

Here are some examples of the warnings referenced above:

Stop the oil flow using the cock provided, put the bar feeder in manual mode and switch off the oil pump by pressing the key on the keyboard.

ACCESS TO THE INTERVENTION POINTS USED FOR MAINTENANCE

- 1) Press the stop button before moving the bar pusher forward using the crank.
- 2) During the work phase, if protection guards have been removed, it is strictly forbidden to insert the crank into the area used for moving the bar pusher forward and opening the guide channels.

Here are some examples of the warnings referenced above:

- 1) If any third party presses the feed or return button causing the crank to rotate while the operator is moving the bar pusher by means of the crank.
- 2) If work is done on two shifts, there is the chance that a guard is removed mechanically by different operators. Failing to restore will enable direct access to the areas with moving parts. Please train your personnel accordingly.

ALARM DEVICES

- 1) Do not tamper with light indicators, for example by painting them a colour different from the original one.
- 2) Make sure that light indicators are clearly visible from all directions at all times.

Here are some examples of the warnings referenced above:

1) *The colour loses intensity.*

2) *Other pieces of equipment or panels placed too close to the warning lamps on the bar feeder.*

THERE ARE CIRCUITS NOT INTERRUPTED BY THE DISCONNECTING DEVICE

- There is danger caused by voltages from the lathe signals that are not interrupted by disconnectors in the bar feeder.

During installation, check if it is possible to disconnect the system upstream from the bar feeder using protection devices.

SEQUENCE OF PHASES

- It is very important that the operator knows the sequence of the bar feeder work phases. These can be found in the Instruction Manual supplied with the machine.

DIFFERENTIAL CURRENT DEVICE UPSTREAM FROM THE MACHINE, USED TO PREVENT HAZARDOUS CONDITIONS IN CASE OF A FAILURE

- Make sure that the bar feeder is powered by a three-phase power supply protected through a differential switch with interrupting power (for example, of 30 mA).







RULES FOR ELECTRIC POWER SUPPLY

- Before performing the electrical connection of the bar feeder, check that the three-phase power supply voltage that reaches it matches what is indicated on the identification plate located on the electrical control panel door.

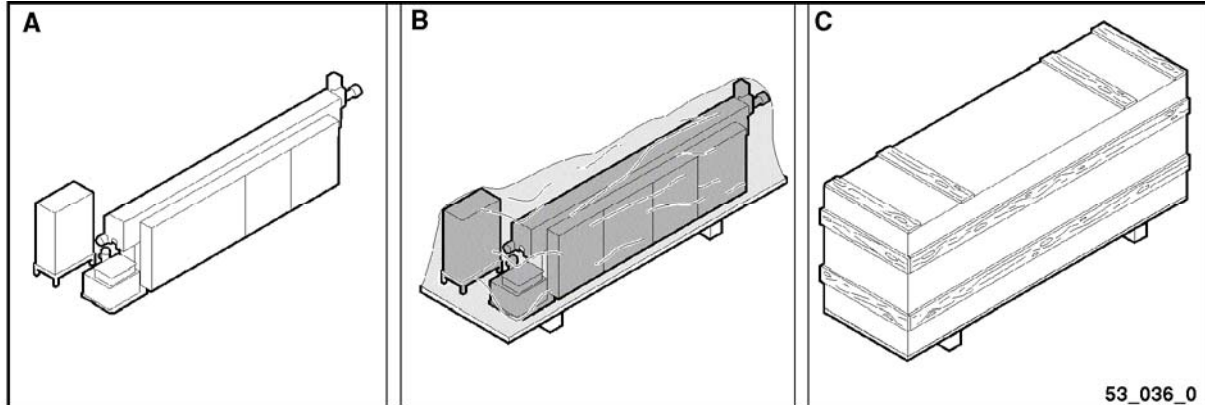
3.9 FORESEEABLE MISUSES

- Do not tamper with the machine's safety devices (for example, the safety microswitches of the openable guard to access the bar magazine)
- Do not use the lubrication pump for other purposes (for example, to pour different liquids)
- Do not use the oil tank for other purposes and do not pour into it liquids or substances different from those recommended by the manufacturer
- Do not load bars made of flammable materials
- Do not load bars with a greater straightness than the one recommended by the manufacturer
- Do not load bars with sizes or shapes different than those recommended by the manufacturer
- Do not interfere with any body part on the bar feed axis
- Do not approach the bar feeder with open flames or very hot objects (for examples, cigarettes). Danger of oil flammability.
- Do not draw electricity or pneumatic energy from the bar feeder to power other machines or tools
- Keep hands out of the remnant recovery zone. Residual risks of upper limbs crushing! (Risk due to remnant drop and clamp device).

INDEX

4.1	PACKAGING.....	2
4.2	LIFTING 	2
4.2.1	Bar feeder without packaging - Lifting	3
4.2.2	Bar feeder with pallet - Lifting.....	5
4.2.3	Bar feeder with crate - Lifting	5
4.3	INSTALLATION AREA - FEATURES 	6
4.4	BAR FEEDER INSTALLATION - FOREWORD	7
4.4.1	Backing plates and support feet - Installation.....	7
4.4.2	Height - Adjustment	8
4.4.3	Preliminary positioning	10
4.4.4	Sleeve - Installation	11
4.4.5	Levelling and alignment.....	12
4.4.6	Bar feeder fastening.....	17
4.5	LUBRICATION OIL - FILLING 	18
4.6	ELECTRICAL CONNECTION 	18
4.7	PNEUMATIC DEVICE LAYOUT	19
4.7.1	PNEUMATIC CONNECTION 	21
4.7.2	BAR FEEDER MOVEMENT WITHOUT POWER SUPPLY	21
4.8	SOFTWARE PARAMETERIZATION 	22

4.1 PACKAGING



There are three possible bar feeder packaging:

A WITHOUT PACKAGING.

B WITH PALLET: the bar feeder is placed on a pallet and wrapped with protective film.

C WITH CRATE: the bar feeder is contained in a crate and wrapped with protective film.

4.2 LIFTING



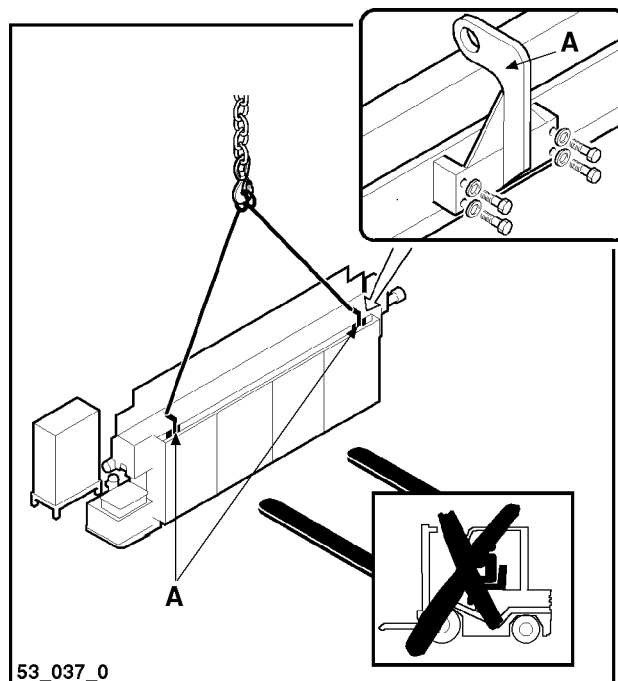
DANGER - WARNING:

lifting and handling shall be carried out using suitable means and performed by skilled personnel only.

4.2.1 Bar feeder without packaging - Lifting

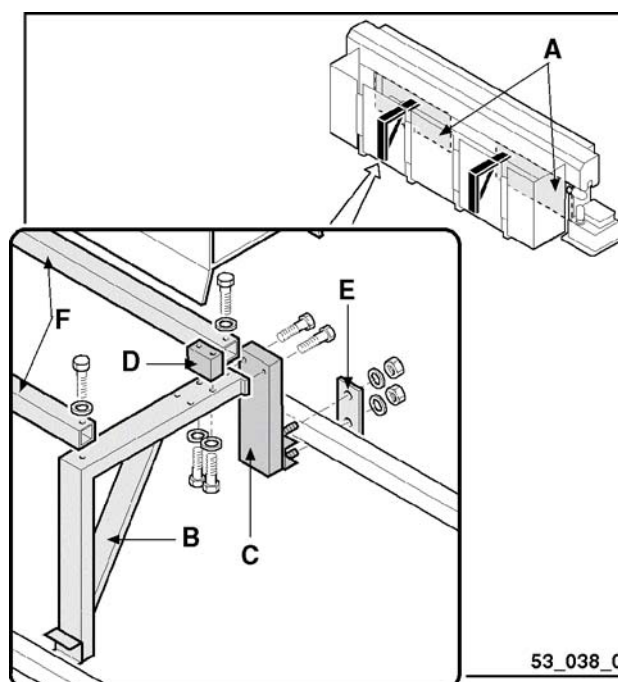
MASTER 880 P

- Fit the two lifting brackets (A) (at a distance of 2,710 mm from each other with magazine L=33).
- Use a hook type lifting device of suitable capacity.

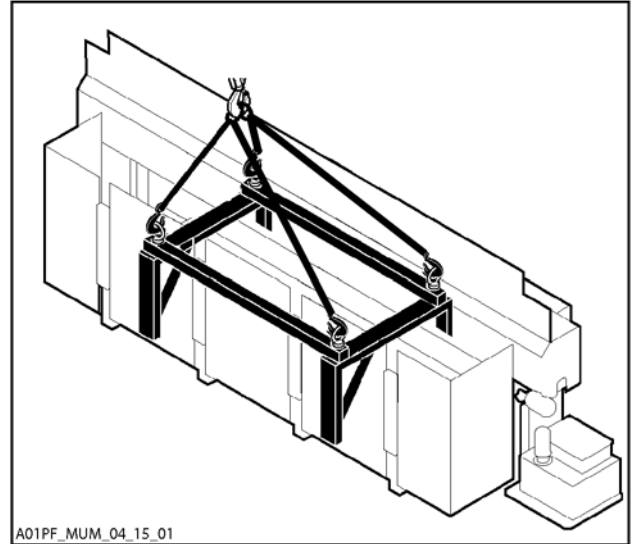


MASTER 880 F

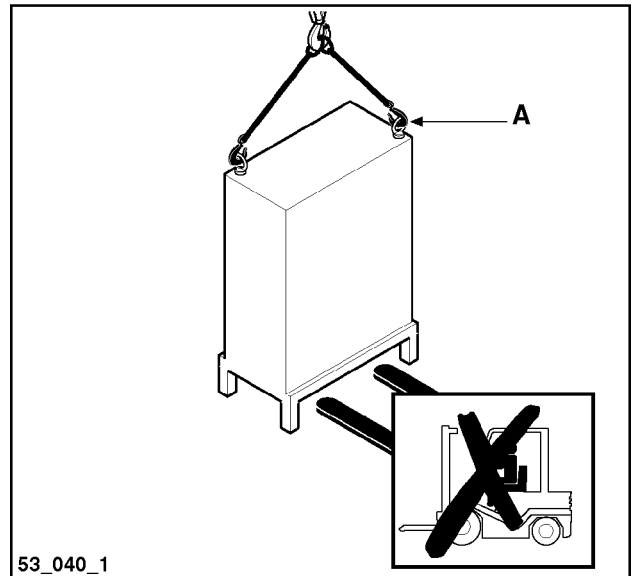
- Remove two rear guards (A).
- Fit both semi-supports (B) and (C) through spacer (D), plate (E) and the connecting pipes (F).
- Reassemble the previously removed guards.



- Use a hook type lifting device of suitable capacity.

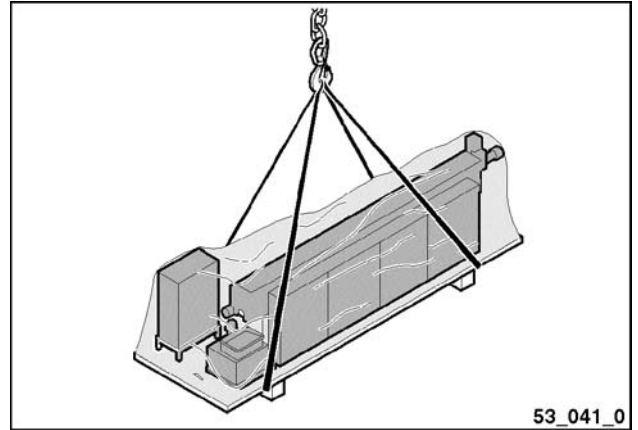
**ELECTRIC CABINET**

- Install two round eyebolts (A) with threaded stem (1 UNI - ISO3266 M10).
- Use a hook type lifting device of suitable capacity.



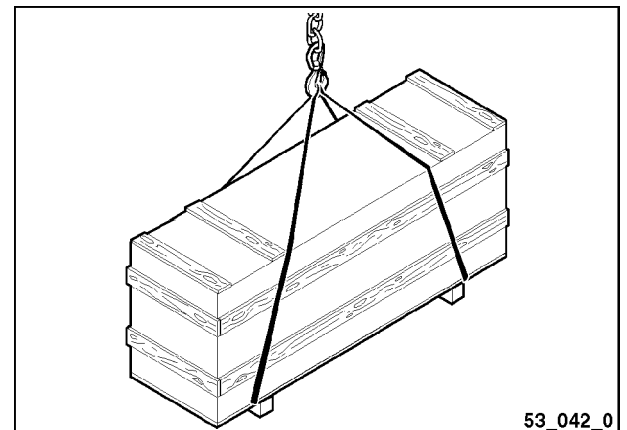
4.2.2 Bar feeder with pallet - Lifting

Use a hook type lifting device of suitable load capacity.

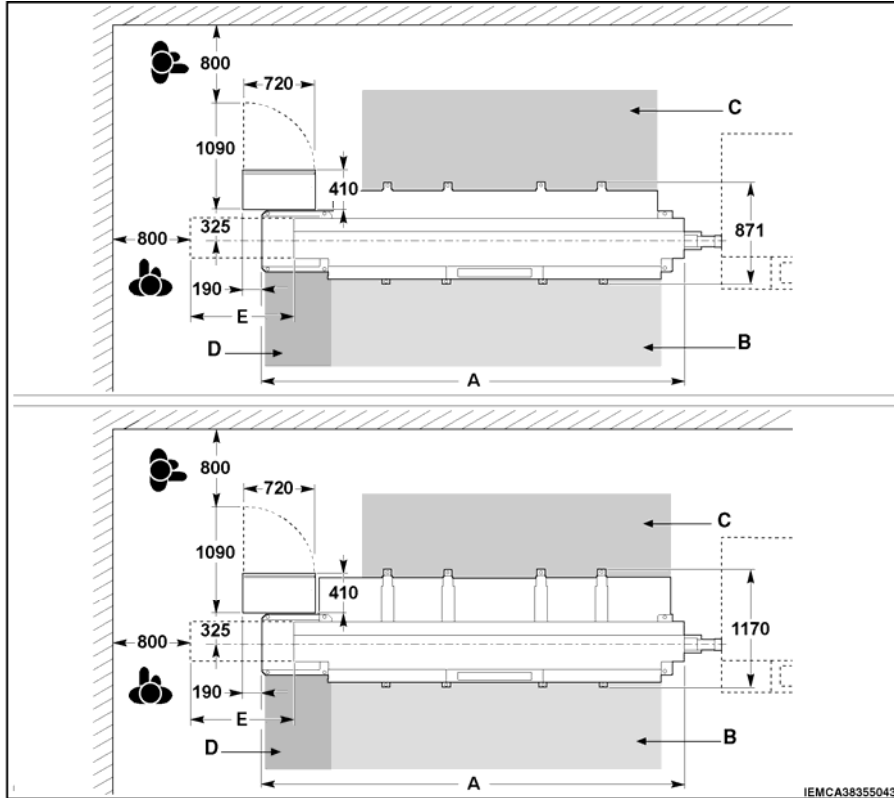


4.2.3 Bar feeder with crate - Lifting

Use a hook type lifting device of suitable load capacity.



4.3 INSTALLATION AREA - FEATURES



The floor should be stable and levelled to guarantee good fastening to the ground. Provide an area of suitable dimensions according to the type of bar feeder used. The areas (B) (working area), (C) (bar loading area) and (D) (remnant ejection area) should be properly delimited to prevent collisions between the operator and any handling equipment or means of transport travelling near the bar feeder. The selected area should be illuminated and provided with an electric and pneumatic power supply socket. During operation, the bar feeder will release small amounts of oil mist. Install the bar feeder in a suitably ventilated area. The bar feeder has not been designed for use in an explosive atmosphere.

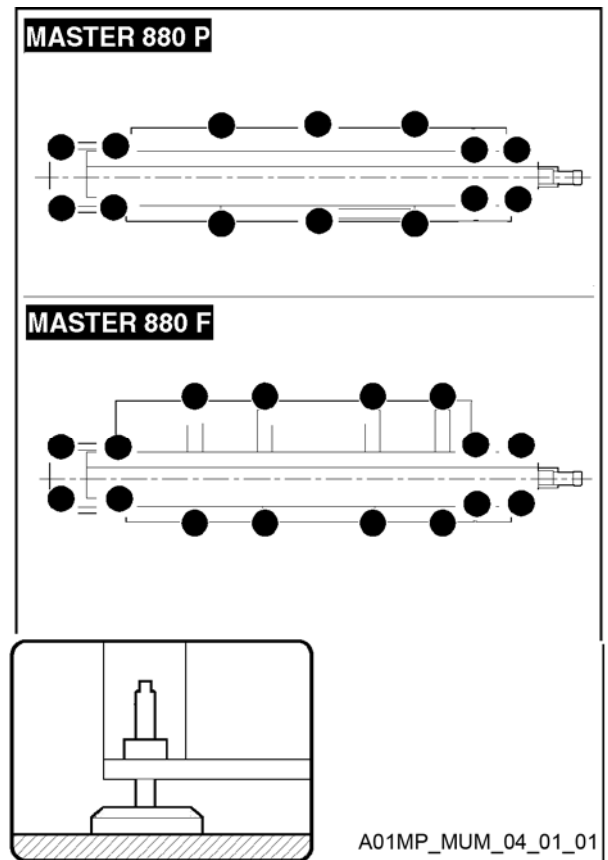
Model	Version	A (mm)	E (mm)
MASTER 880 P	33	4330	800
	38	4830	800
	43	5330	800
MASTER 880 F	33	4330	600
	38	4830	900
	43	5330	900
	63	7320	/

4.4 BAR FEEDER INSTALLATION - FOREWORD

Before carrying out the bar feeder installation, check the lathe stability; make sure that it is firmly fixed to the ground and that the spindle axis is perfectly in horizontal position.

4.4.1 Backing plates and support feet - Installation

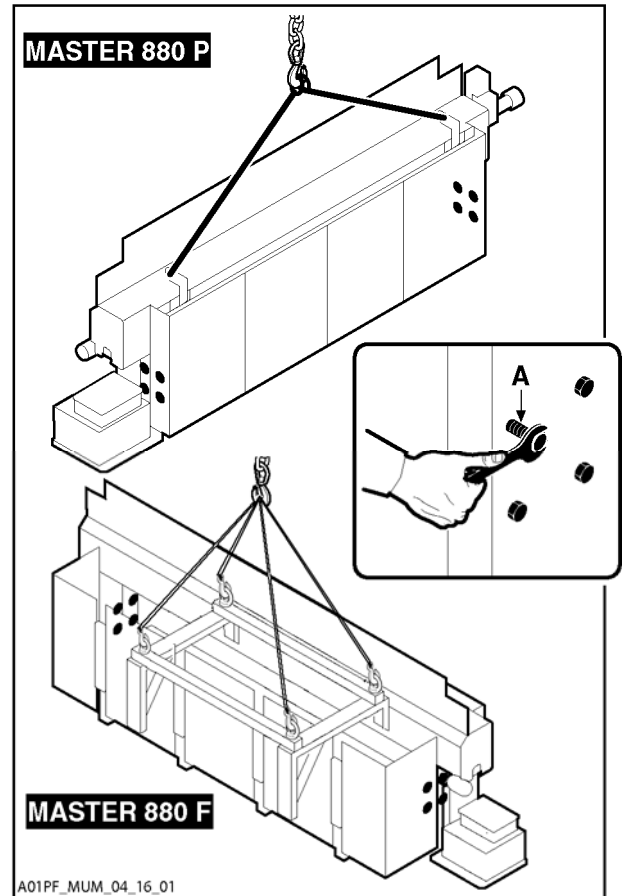
- Position the bar feeder next to the lathe.
- Lift it and install the plates in the positions shown in the figure.



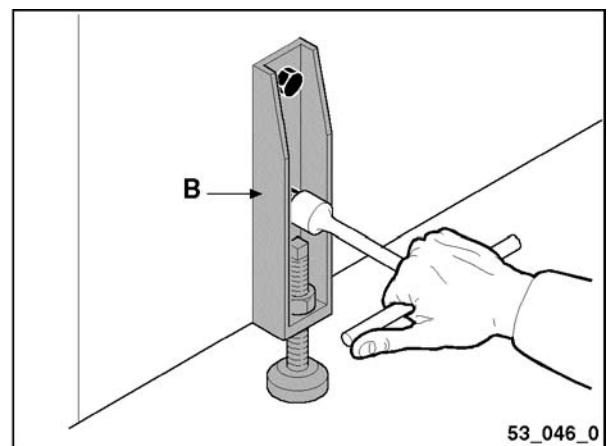
4.4.2 Height - Adjustment

The bar feeder is normally supplied with the working axis height adjusted to the lathe height. However, if an adjustment is needed, proceed as follows:

- stretch the lifting chains and remove screws (A) in the front and rear bases;

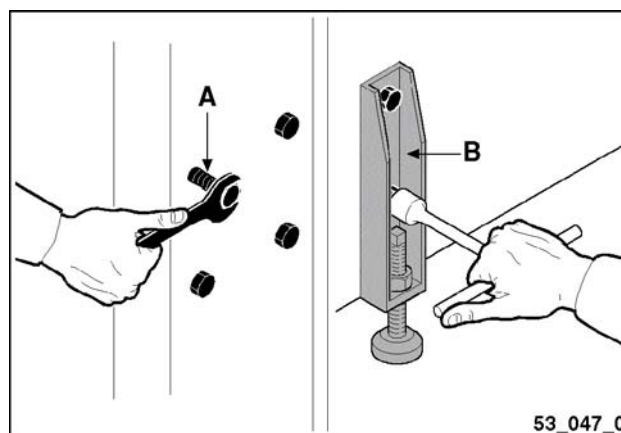


- remove all the brackets (B) of the magazine feet.



- lift or lower the bar feeder according to the necessary X value, see table.
- The height of the working axis may be adjusted according to the data indicated in the table of the "Technical data" paragraph.

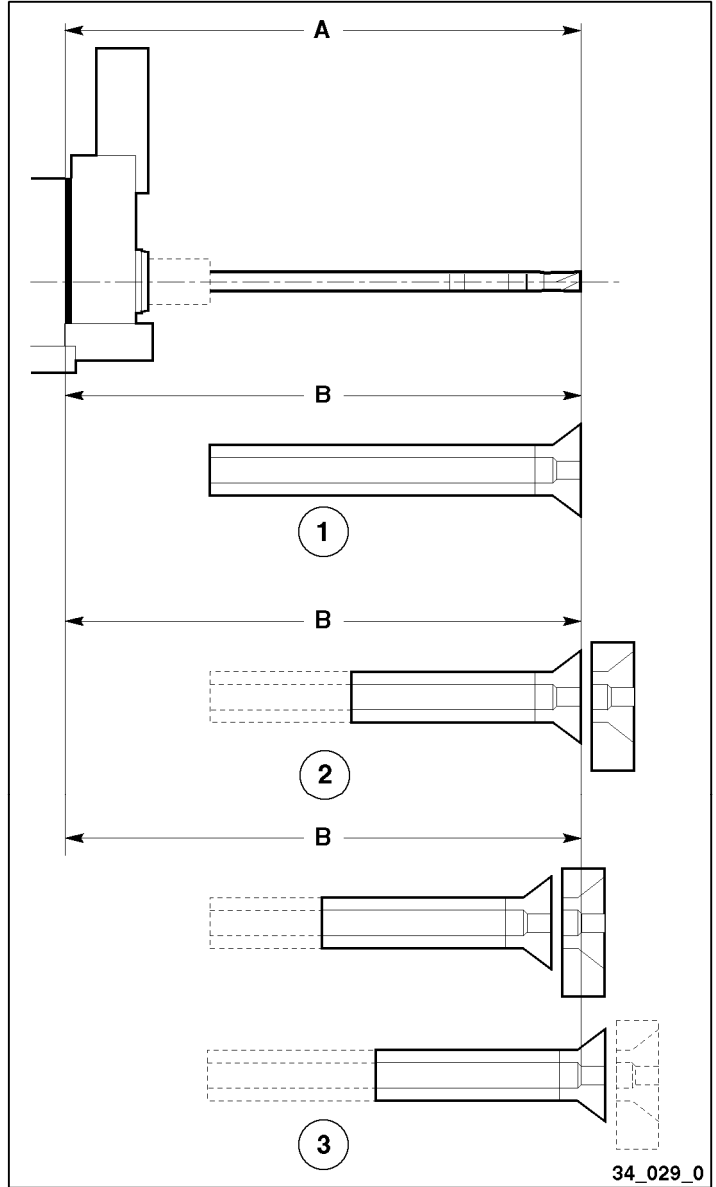
- tighten screws (A) and fit brackets (B) again.



4.4.3 Preliminary positioning

- Position the bar feeder behind the lathe, considering the fixed and moving dimensions of both machines. The coupling distance (B) should not exceed the bar pusher maximum extension (A).

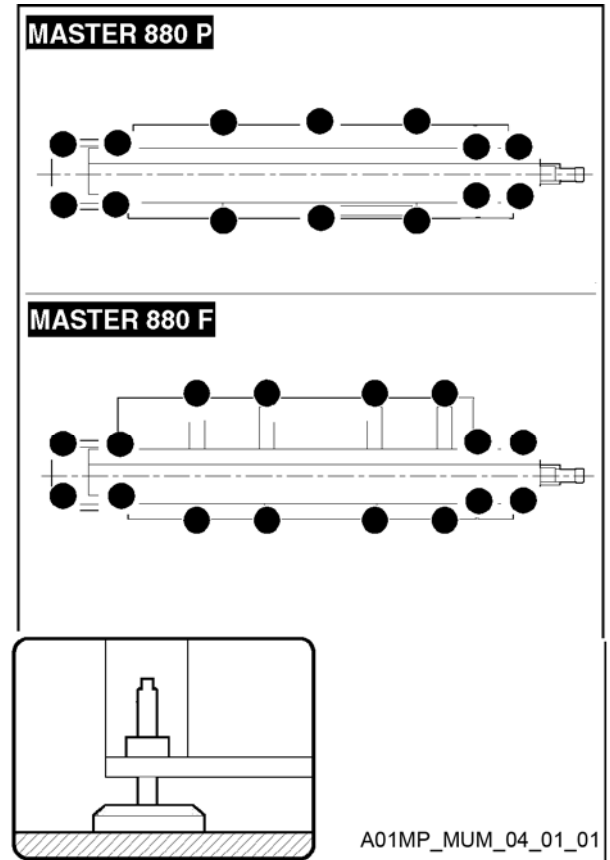
- 1 Fixed headstock or sliding rest lathe
- 2 Sliding headstock CNC lathe
- 3 Sliding headstock cam lathe



Maximum bar pusher extension

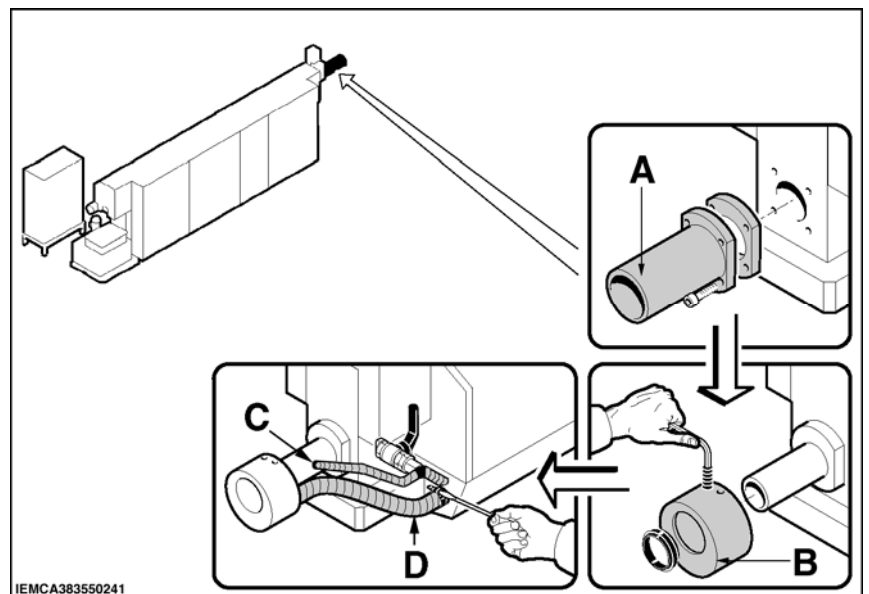
Model	Version	Version	A –Maximum extension(mm)
MASTER 880 P MASTER 880 F	33-38-43	N	1100
	33-38-43-63	L	1350
		LL	1600
		XLL	1850
		XXL	2100

- Roughly adjust the height of the working axis and the alignment with the lathe by turning the screws of the support feet.



4.4.4 Sleeve - Installation

- Install the sleeve (A) in the bush holder device.
- Install the oil recovery tank (B).
- Connect the lubrication pipe (C) to the sleeve.
- Connect the drain pipe (D) to the tank



4.4.5 Levelling and alignment

FOREWORD

The alignment between the bar feeder and lathe is the most critical phase; therefore, this operation should be carried out with the greatest accuracy by experienced personnel.

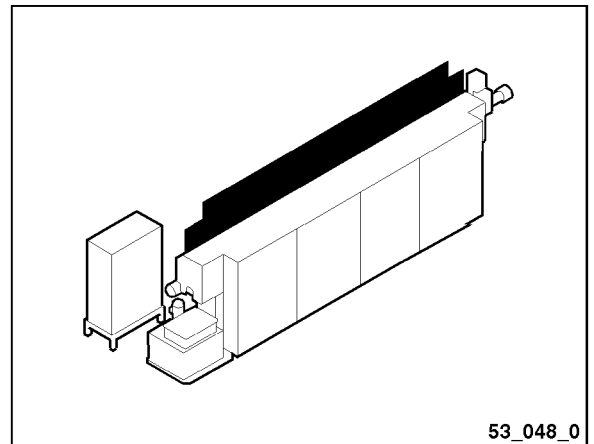




WARNING – CAUTION:

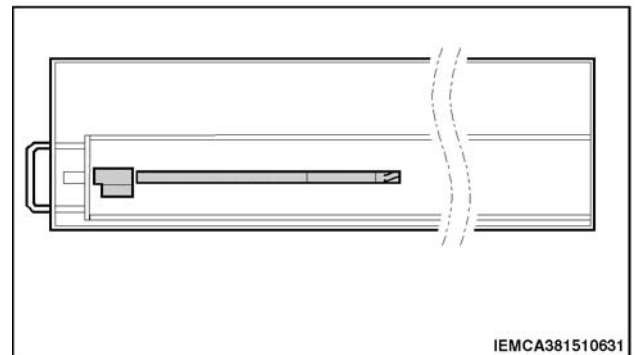
a mistake during the alignment may be the major cause of a bad operation of the bar feeder and of its consequent damage.




PRELIMINARY PROCEDURE

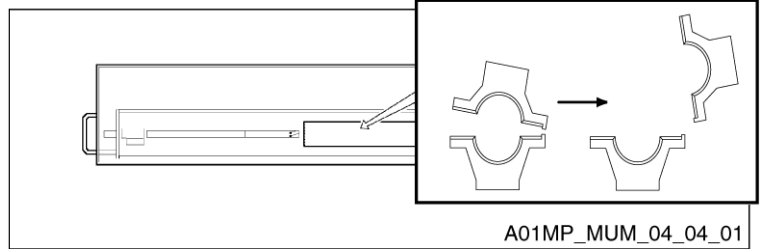
- Remove the upper guard.



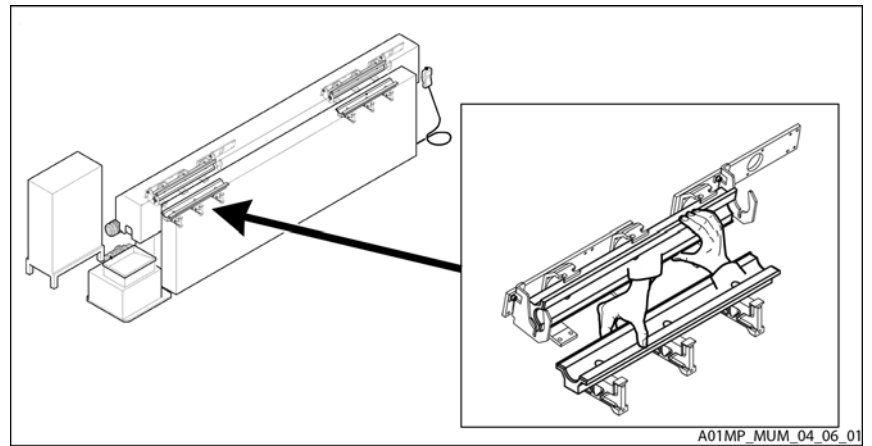
- To bring the bar pusher to the backwards limit stop, in manual mode, press  or  on the hand-held keyboard.



- Press  and  to select the semiautomatic function. Press  several times until the upper guide channels open; "GUIDE CHANNEL FULL OPENING" should appear on the display.

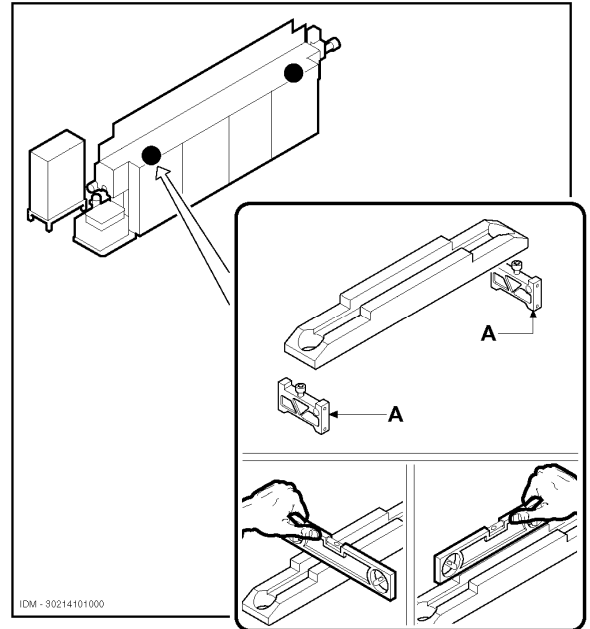


- Remove the first and last lower guide channels by pressing on the pressure couplings.

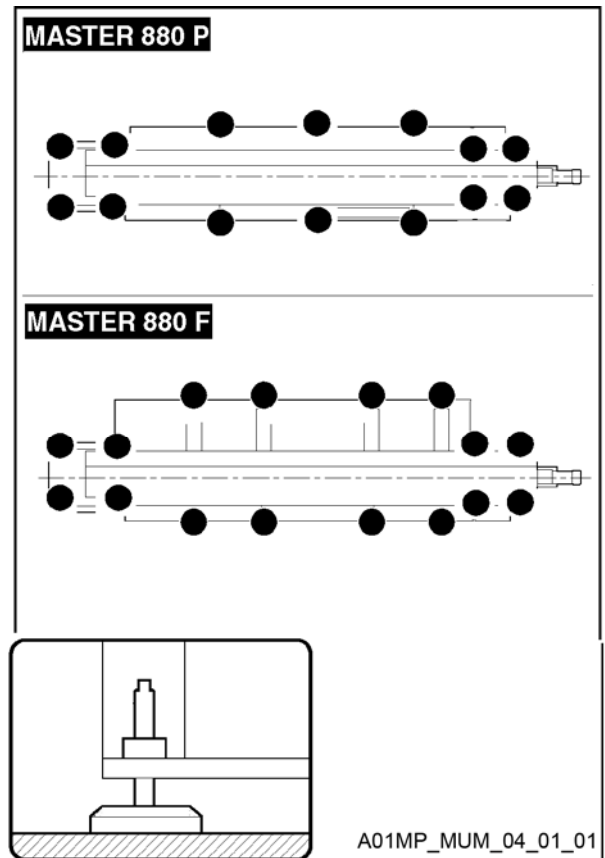


LEVELLING

- Rest the special shelf on the supports.
- Check the levelling by positioning the level crosswise and lengthwise.



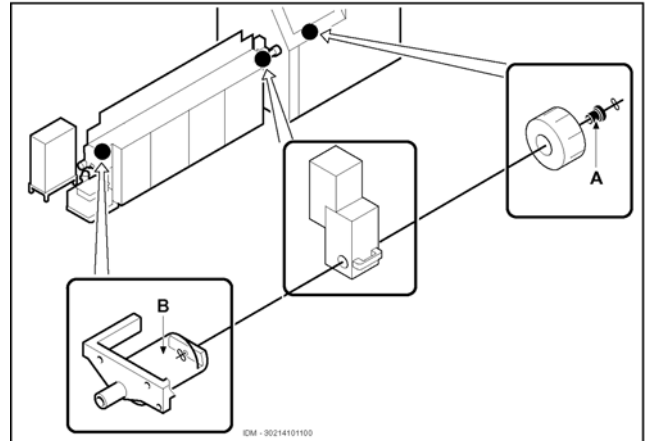
- Carry out the required corrections by turning the support feet screws.



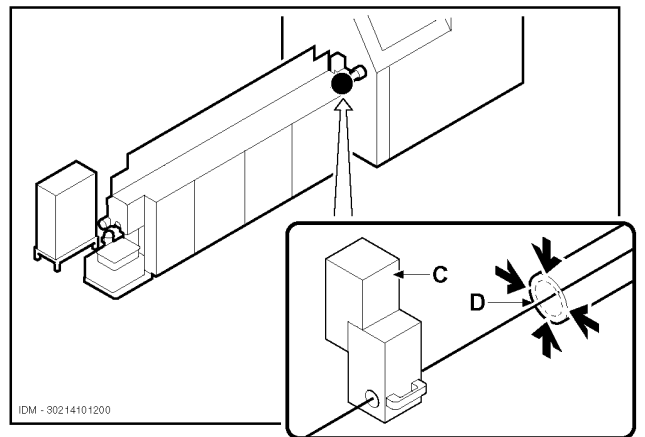
ALIGNMENT

The alignment is obtained by fitting a nylon thread (\varnothing 1 mm) between the lathe collet and the first feeding carriage, proceeding as follows:

- place a drilled bush (A) in the lathe collet;
- stretch the thread between the bushing and the hole in the first feeding carriage (B).

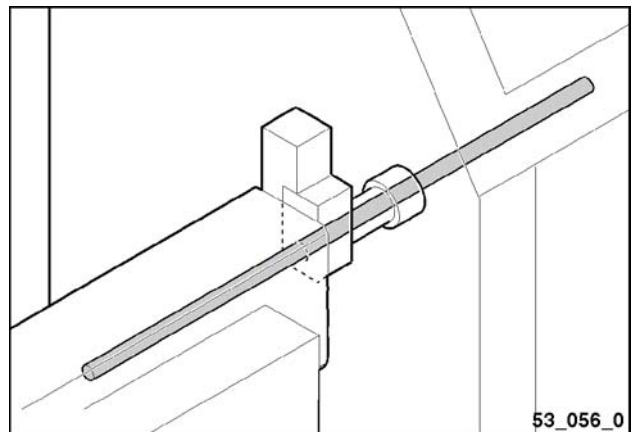


- check with a sliding caliper, the alignment near bushing (C) and spindle (D); use a tolerance of \pm 0.15 mm in the four directions.



It is also possible to carry out the alignment by placing a bar in the guide channels. Proceed as follows:

- prepare a perfectly straight ground bar, with an external diameter equal to the maximum spindle bar passage and with a length equal to the double coupling distance (see (B) in paragraph 4.4.3);
- place the bar in the guide channel and cause it to slide forwards and backwards in the spindle, until the lathe collet area is reached.

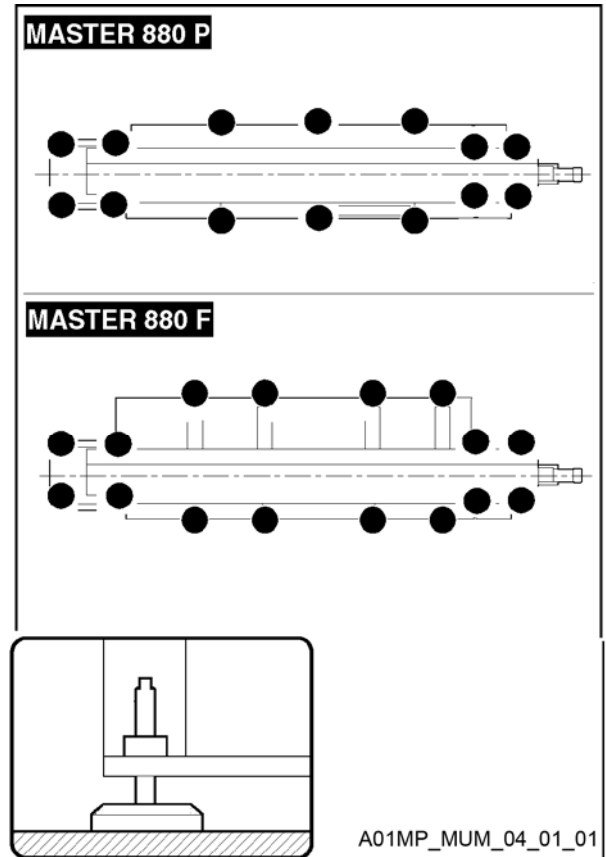


POSITIONING ADJUSTMENTS

After checking the alignment of the bar feeder with either the thread or the bar, any required corrections should be carried out.

Adjust the height by turning the support feet screws.

During this phase, any adjustment carried out during the levelling phase should be preserved; therefore, in most cases, it is necessary to find the correct adjustment of the bar feeder position.



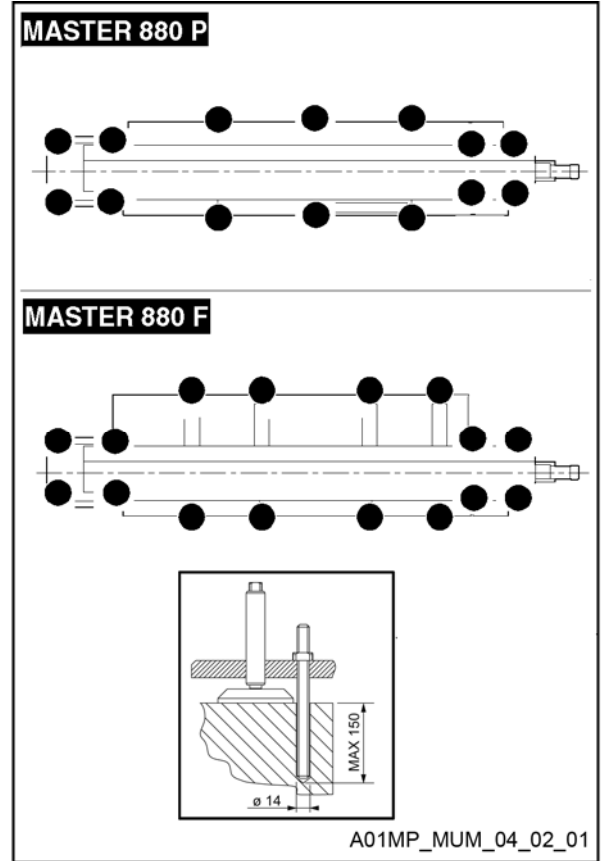
4.4.6 Bar feeder fastening



WARNING – CAUTION:

failure to perform or a wrong bar feeder fastening to the ground may be the major cause of a bad operation of the bar feeder and of its consequent damage.

- Drill the floor and fix the backing plates with expansion plugs. Use the higher number of expansion plugs to ensure a correct fastening.
- Check the levelling and alignment once more.
- Remove all the equipment used for the levelling and alignment phases and restore the initial bar feeder conditions.



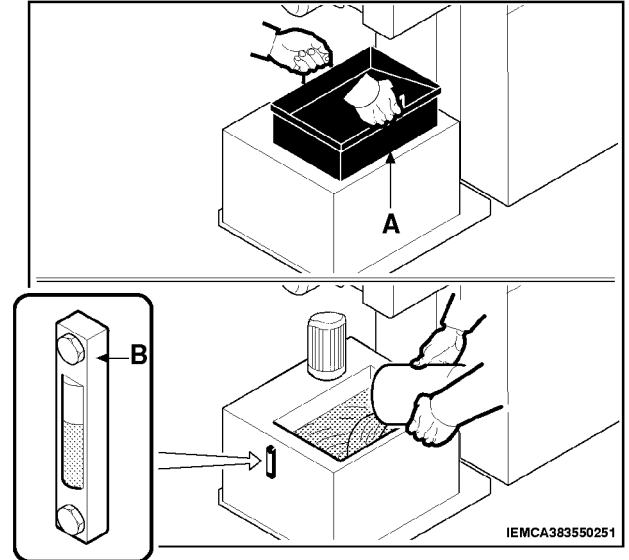
4.5 LUBRICATION OIL - FILLING

**WARNING – CAUTION:**

wear personal protections according to the regulations in force.

- Remove cover (A).
- Pour the oil directly into the tank and check the level through the relevant indicator (B).

Oil features: Class (C) - CKB 150, quantity 80 l.



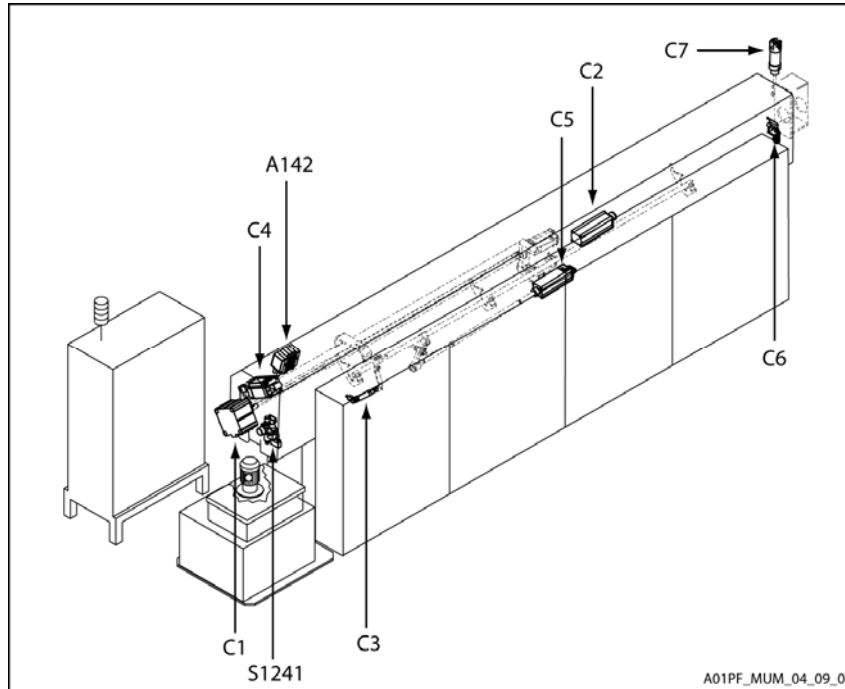
4.6 ELECTRICAL CONNECTION

**DANGER - WARNING:**

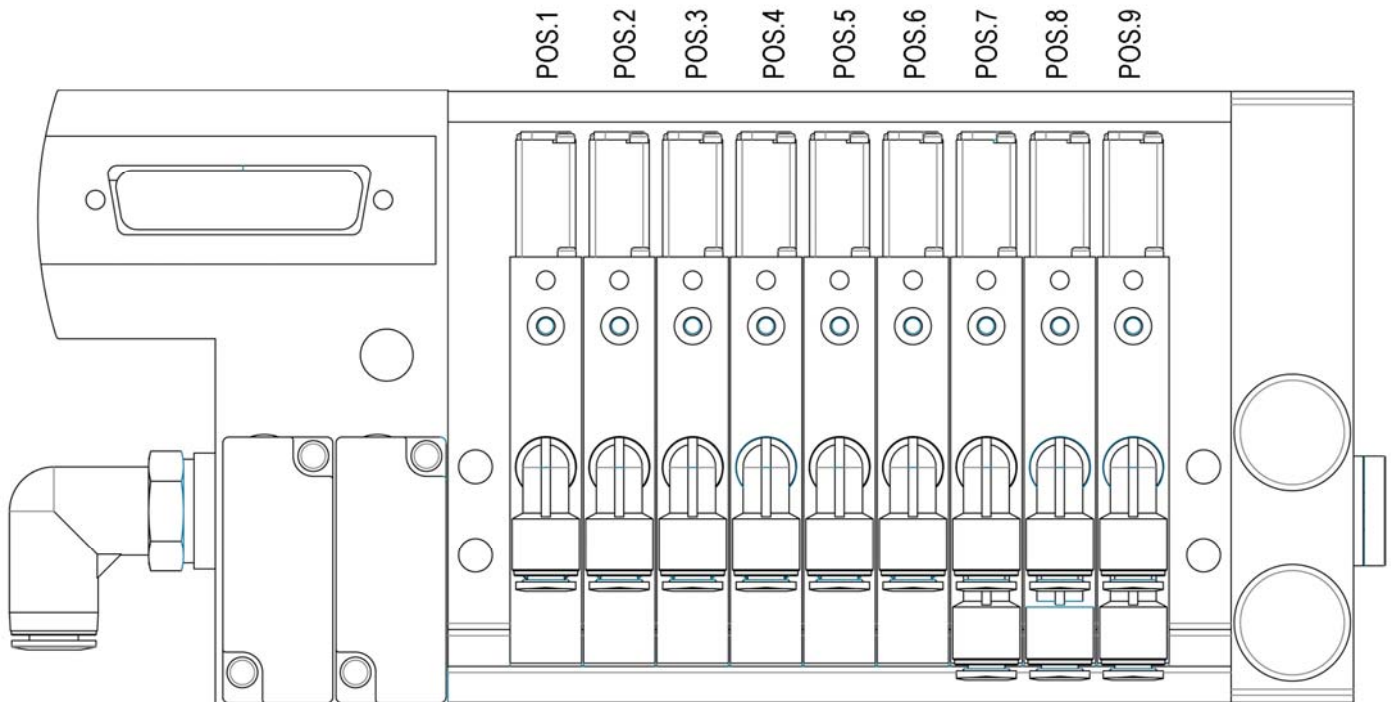
this type of operation should only be entrusted to skilled personnel with precise technical competence and specific abilities to comply with the applicable standards and regulations in force. The feeder must be electrically connected to the lathe, which in turn, must be connected to the electrical installation in compliance with the applicable regulations in force.

The bar feeder is normally equipped with a multiple plug to be inserted into the special lathe socket; refer to the "Wiring diagram" if necessary.

4.7 PNEUMATIC DEVICE LAYOUT



ABBREVIATION	DESCRIPTION	FUNCTION
C1	Cylinder	Enables the clamp opening and closing
C2	Cylinder	Enables the guide channel downstroke for the remnant drop
C3	Cylinder	Enables the guide channel locking
C4	Cylinder	Enables the guide channel upstroke and downstroke
C5	Cylinder	Enables the controls device upstroke and downstroke
C6	Cylinder	Resets the short feed gate
C7	Cylinder	Enables the bushing opening and closing
A142	Solenoid valve unit	Cylinder or piston control device (see description Solenoid valve box)
S1241	Distributor + pressure switch	Dispenses and adjusts the supply flow inside the pneumatic system



A01PF_MUM_04_07_02

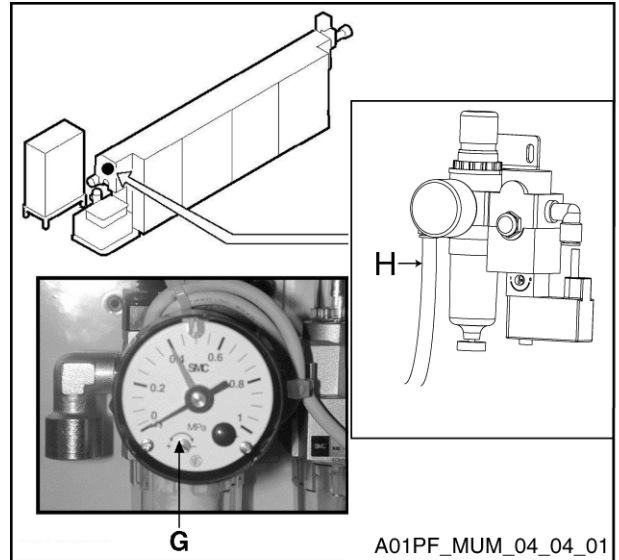
ABBREVIATION	DESCRIPTION	FUNCTION
Pos.1	Bar drop control device solenoid valve	Bar pusher locking control device solenoid valve
Pos.2	Bar drop control device solenoid valve	Bar pusher locking control device solenoid valve
Pos.3	Guide channel control solenoid valve	Bar pusher locking control device solenoid valve
Pos.4	Guide channel control solenoid valve	Not used
Pos.5	Clamp control solenoid valve	Not used
Pos.6	Guide channel unlocking control device solenoid valve	Control device upstroke
Pos.7	Bar loading control solenoid valve	Bar drop control devices downstroke
Pos.8	Flag control solenoid valve	Guide channel closing
Pos.9	Bar pusher locking control device solenoid valve	Guide channel opening

4.7.1 PNEUMATIC CONNECTION

- Connect pipe H of the pneumatic system as shown in the figure.



WARNING – CAUTION:
to adjust the pressure follow the instruction manual.



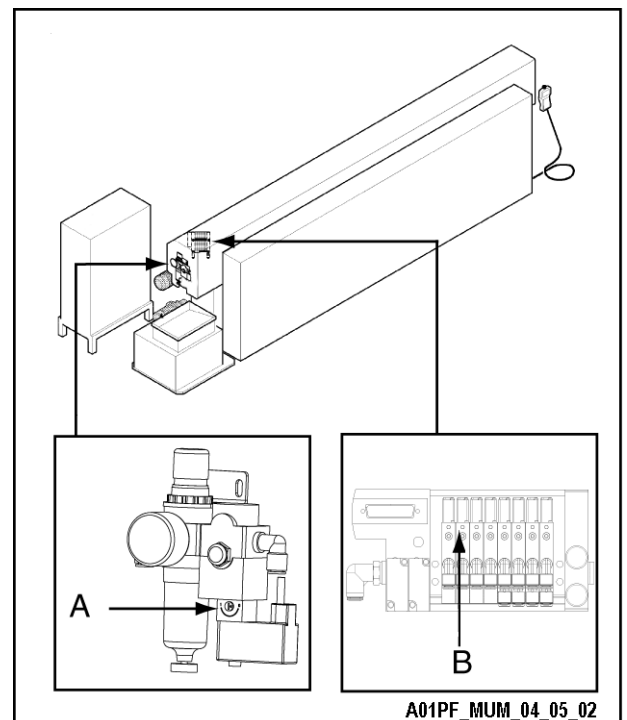
4.7.2 BAR FEEDER MOVEMENT WITHOUT POWER SUPPLY

Without power supply or in case of an emergency it is possible to move the pneumatic units using the solenoid valves manually:

- By means of a small screwdriver turn switch A to position 1.
- With the same tool turn switches B, placed on each solenoid valve, to move the unit.



INFORMATION:
For the movement description of each solenoid valve, refer to the "Pneumatic device layout" paragraph.








4.8 SOFTWARE PARAMETERIZATION

The bar feeder software should be correctly parameterized according to the working needs and the lathe type.

For further information on how to carry out this operation, check the "Keyboard instruction manual".

INDEX

5.1	ADJUSTMENT AND SETUP - FOREWORD 	2
5.2	GENERAL ADJUSTMENTS - FOREWORD 	2
5.2.1	Feeding chain - Adjustment	2
5.2.2	Remnant conveyor belt - Adjustment	4
5.2.3	Elevator carriage chains - Adjustment	4
5.2.4	MASTER 880 F displacement belts - Adjustment	5
5.2.5	MASTER 880 F Displacement belt drive chain - Adjustment	6
5.2.6	MASTER 880 F elevator carriage drive chain - Adjustment	7
5.2.7	MASTER 880 F lifting belt control cams - Adjustment	8
5.3	BAR FEEDER SETUP 	9
5.3.1	Guide channels, half-bushings, bar pusher and collet - Replacement	9
5.3.2	BAR PUSHER REPLACEMENT PROCEDURE	17
5.3.3	Remnant passage door spring - Adjustment	19
5.3.4	REMNANT DROP CHUTE — ENABLING 	20
5.4	RACK MAGAZINE SETUP - MASTER 880 P 	21
5.4.1	Bar supporting brackets - Setup	21
5.4.2	Elevator drive - Adjustment	22
5.4.3	Elevator carriages - Setup	23
5.5	BAR BUNDLE MAGAZINE SETUP - MASTER 880 F 	25
5.5.1	Bar stop levers - Adjustment	25
5.5.2	Pressure foot - Adjustment	26
5.5.3	Separation push-rods - Adjustment	28
5.5.4	Bar selection — Setup	29
5.5.5	Elevator drive - Adjustment	33

5.1 ADJUSTMENT AND SETUP - FOREWORD



DANGER - WARNING:

do not perform any adjustment when the bar feeder is running unless expressly requested in the manual.

This bar feeder requires, besides the ordinary adjustments necessary during its life, also adjustments depending on the bar dimensions and the magazine type.

5.2 GENERAL ADJUSTMENTS - FOREWORD

Including all the necessary adjustments for a good feeder operation. They may become necessary after maintenance, trouble fixing or component replacement.

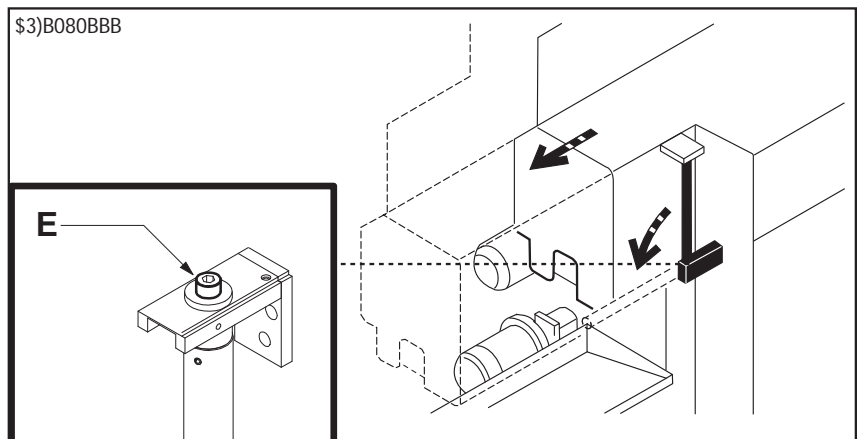
5.2.1 Feeding chain - Adjustment

- Remove the screw (E), lower the rear lever and move the bar feeder body backwards.



WARNING - CAUTION

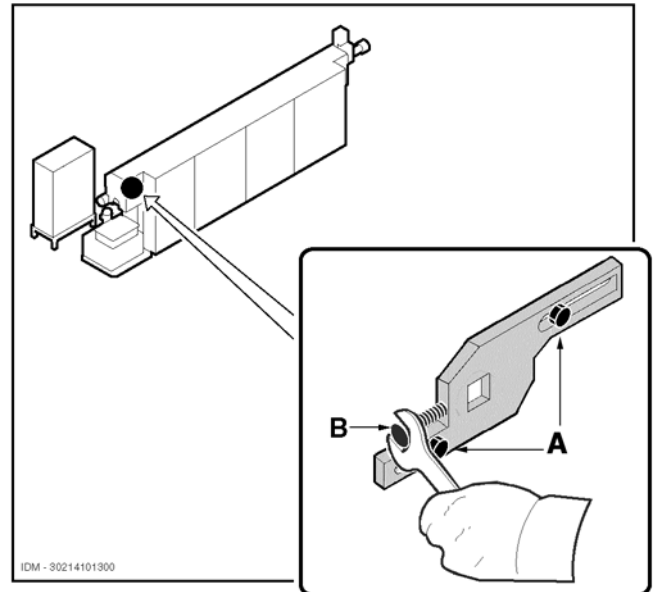
before performing this operation, open the upper guard and cut off the lathe power supply.



- Loosen both screws (A) and adjust the chain tension by turning screw (B).
- Restore the bar feeder initial operating conditions.

**WARNING - CAUTION**

Perform the chain adjustment by means of a torque wrench, tighten screw (B) by setting the torque to 4N/meter, then tighten both fixing screws (A).



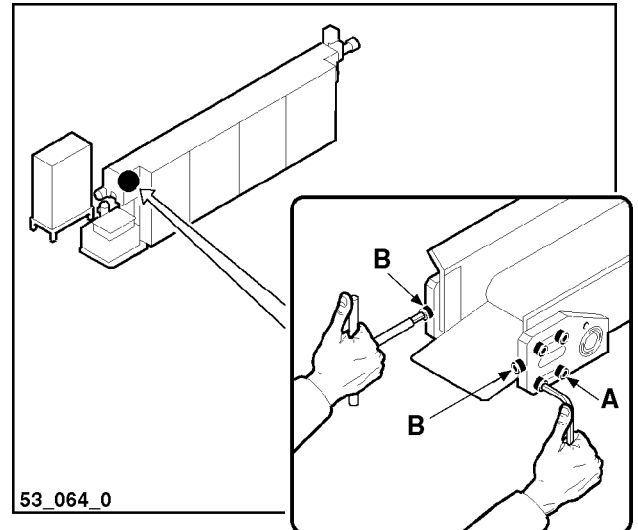
5.2.2 Remnant conveyor belt - Adjustment



INFORMATION:

Check and if necessary adjust the belt tension after the first 20-30 working hours of the bar feeder.

- Move the bar feeder body backwards.
- Loosen the eight screws (A).
- Adjust the conveyor belt tension through screws (B).



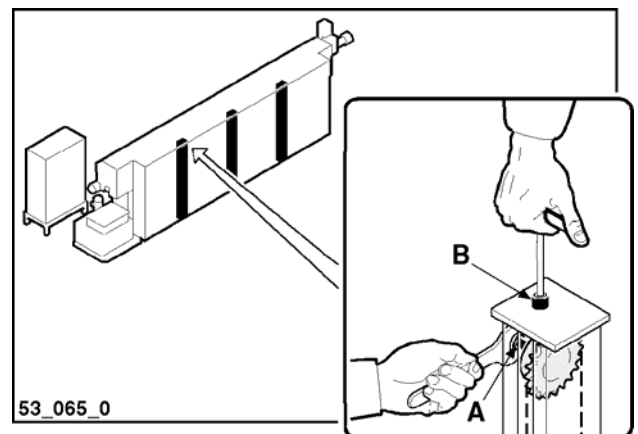
INFORMATION:

screw or unscrew the right and left screws by making the same number of turns.

- Tighten the screws (A).
- If during operation the conveyor belt does not turn in a centred way, it will be necessary to adjust the centring by using one of the two screws (B).

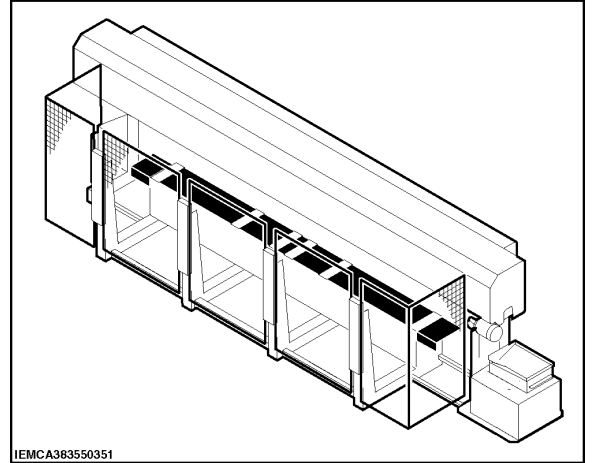
5.2.3 Elevator carriage chains - Adjustment

- Loosen screw (A).
- Act on screw (B) to adjust the chain tension.
- Tighten screw (A).
- Repeat the procedure for all elevator carriages, if necessary.



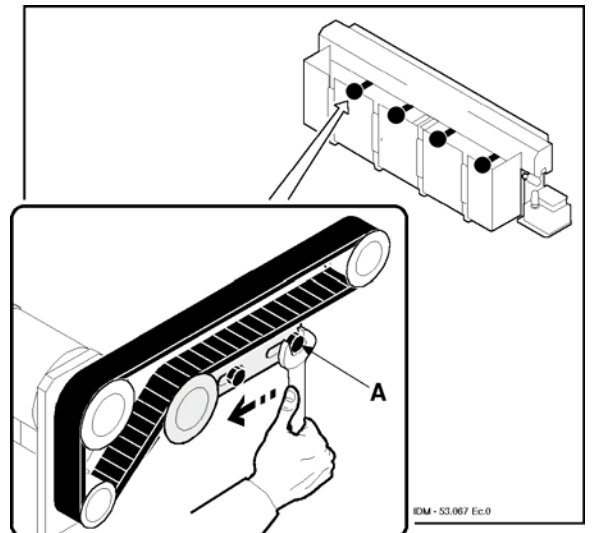
5.2.4 MASTER 880 F displacement belts - Adjustment

- Remove the magazine racks.



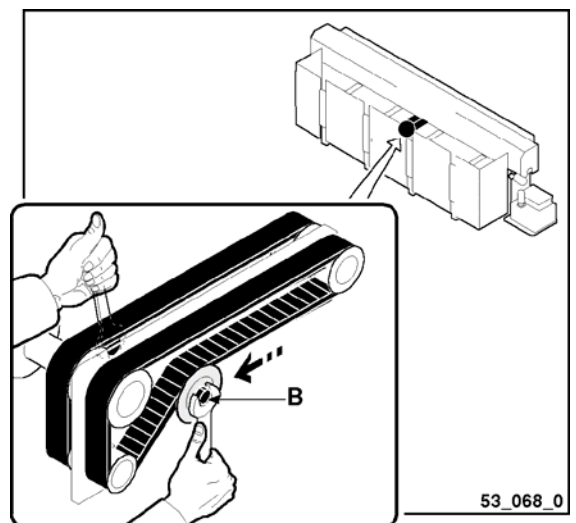
For the side belts:

- loosen screws (A);
- move the pulleys in the direction of the arrow and tighten screws (A).



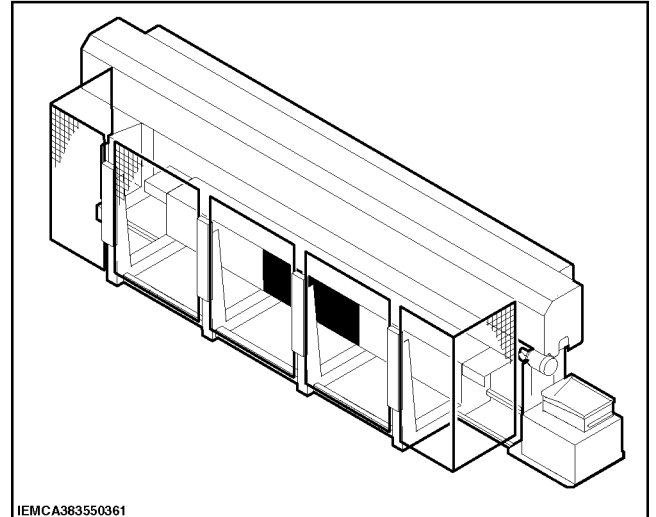
For the central belts:

- loosen nut (B);
- move the pulleys in the direction of the arrow and tighten screws (B).
- Reassemble the previously removed racks.

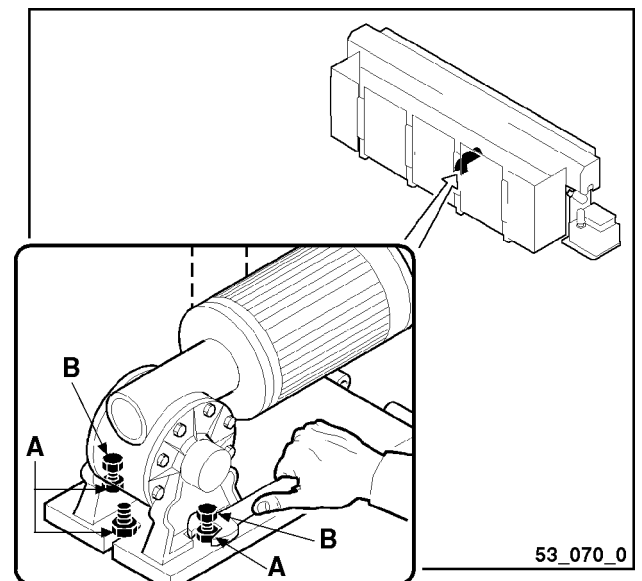


5.2.5 MASTER 880 F Displacement belt drive chain - Adjustment

- Remove the front guard.

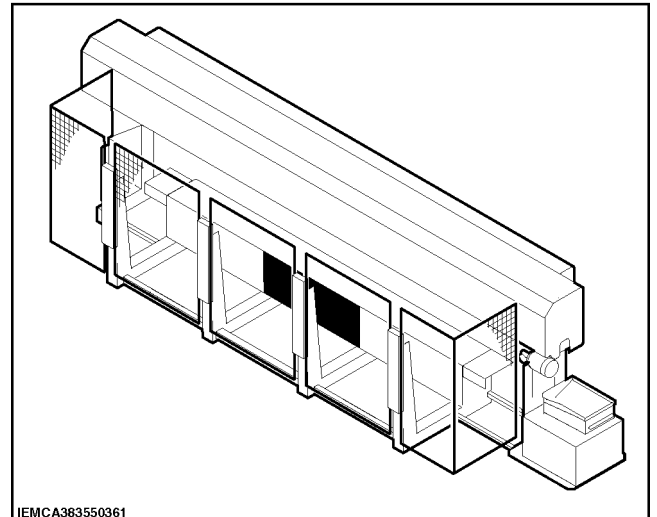


- Loosen nuts (A).
- Unscrew screws (B) of the same quantity and tighten nuts (A).
- Reassemble the previously removed guard.

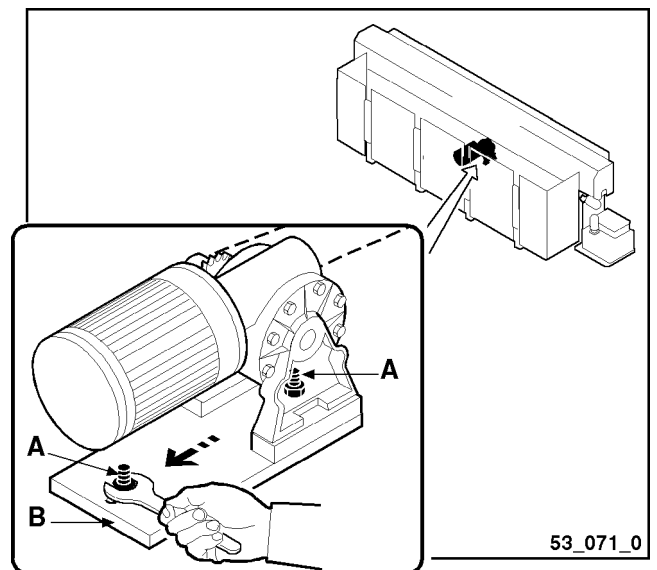


5.2.6 MASTER 880 F elevator carriage drive chain - Adjustment

- Remove the front guard.



- Loosen nuts (A).
- Move plate (B) in the direction of the arrow and tighten nuts (A).
- Reassemble the previously removed guard.

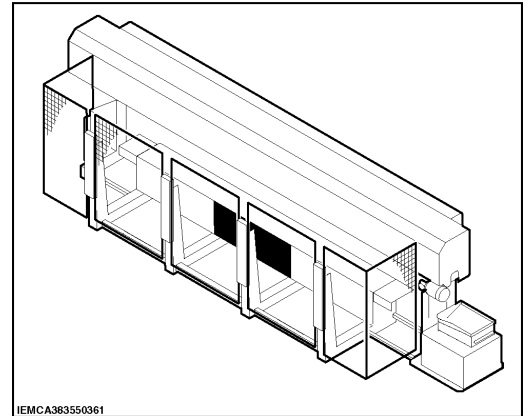


5.2.7 MASTER 880 F lifting belt control cams - Adjustment

At the bar end, the lifting belts have to be completely stretched to allow all bars to be unloaded. During operation the belts may lengthen; it is therefore necessary to adjust the cams controlling the stop microswitches.

Adjust as follows:

- remove the front guard.

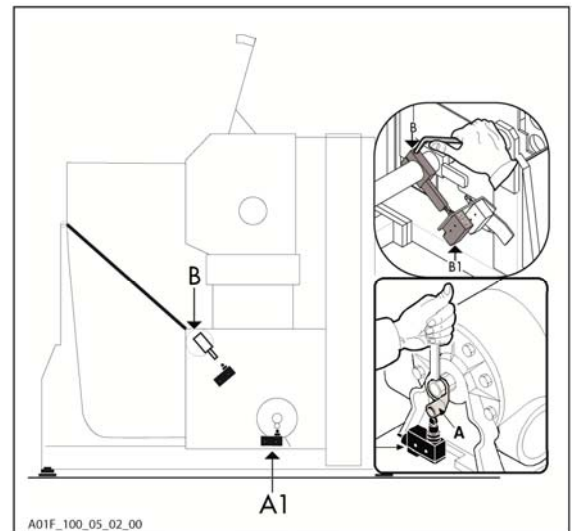


- adjust the position of cams (A) and (B) so that microswitches A1 and B1 are simultaneously activated when the belts are completely tensioned.



WARNING – CAUTION:

if the upper belts are too tight, the relevant supports may bend. If high belts are not tight enough, not all bars are unloaded.

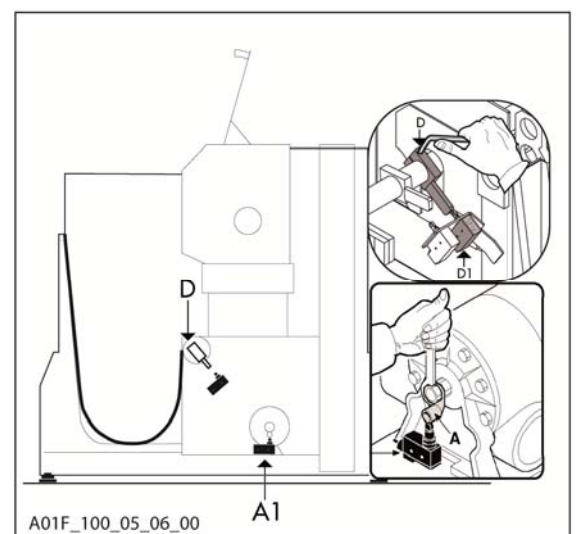


- Adjust the position of the cams (A) and (D) so that the microswitches A1 and D1 are activated simultaneously when the belts are unwound.



WARNING – CAUTION:

if the lower belts are too unwound, each loading cycle is longer than necessary. If the lower belts are not sufficiently unwound, the bars, instead of resting on the supports, will continue to be supported by the belts, thus submitting them to unnecessary stress.



- Reassemble the previously removed guard.





5.3 BAR FEEDER SETUP

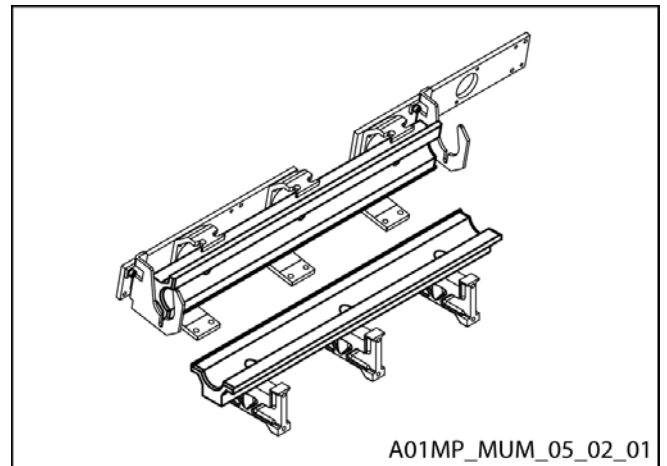
If the diameter of the bars to be machined changes, it may be necessary to perform adjustments on the machine.


Refer to table "Guide channel, bar pusher, bar and pipe diameter" section 2.

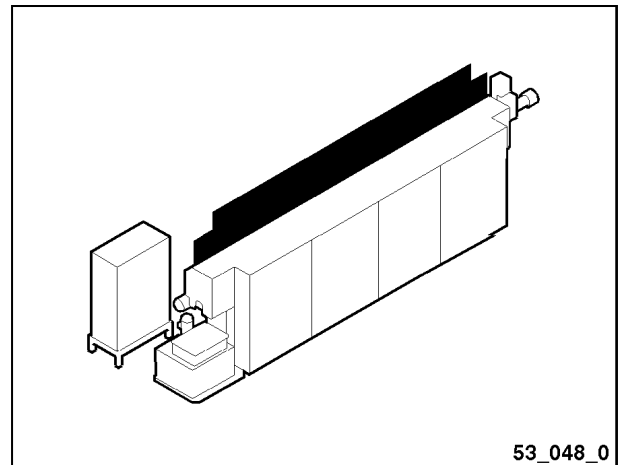
5.3.1 Guide channels, half-bushings, bar pusher and collet - Replacement



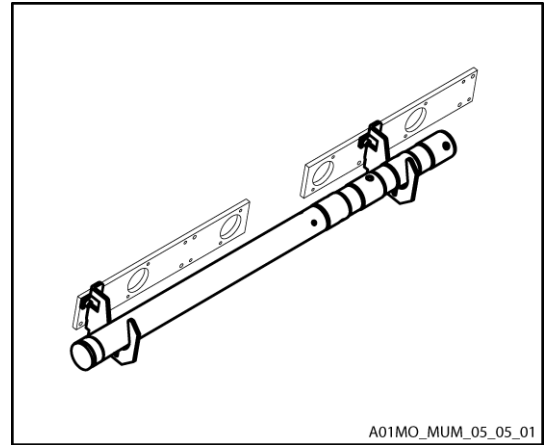
- Press  to start the bar feeder.
- Press  then  to select the semiautomatic function.
- Press  several times until the upper guide channels open; "GUIDE CHANNEL FULL OPENING" should appear on the display.



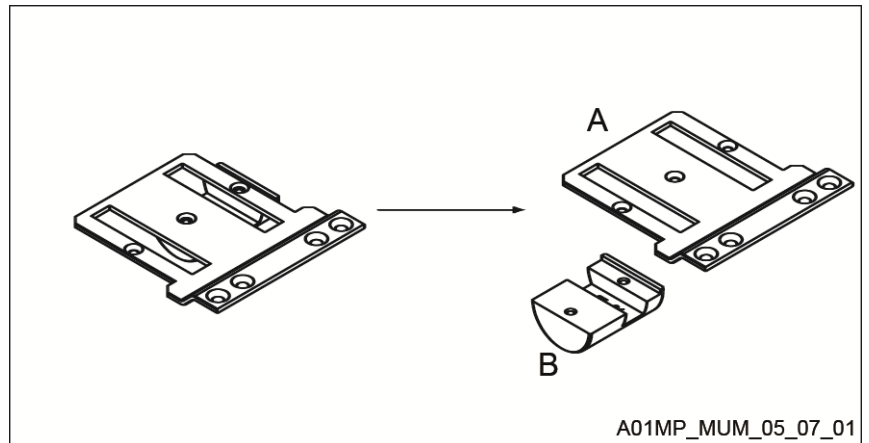
- Press  and open the upper guard.



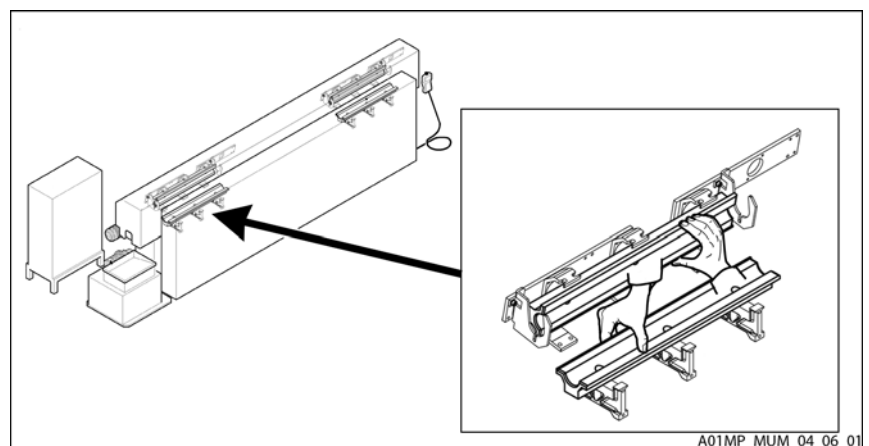
- Remove the bar pusher from both supports.
For the bar pusher replacement refer to the next section.



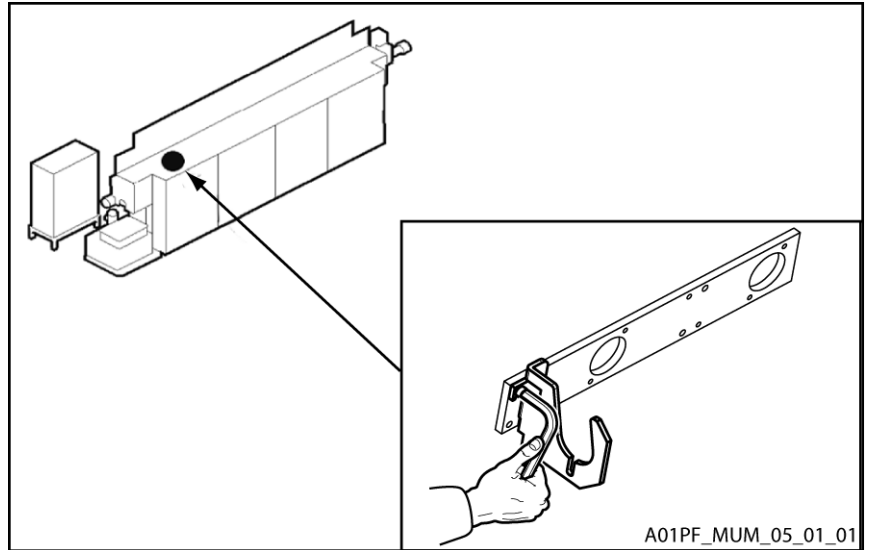
- Disassemble the first feeding pin (B) from the flag (A).



- Remove the lower guide channels using the special wrench provided.



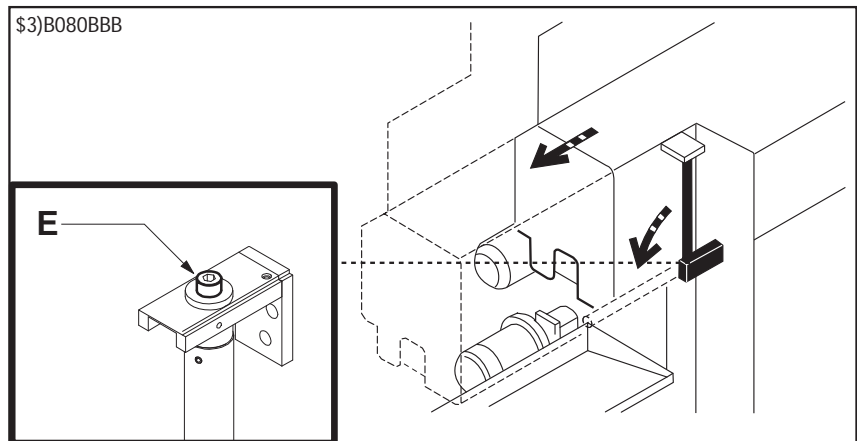
- Replace the bar pusher supports with those of "new" diameter.



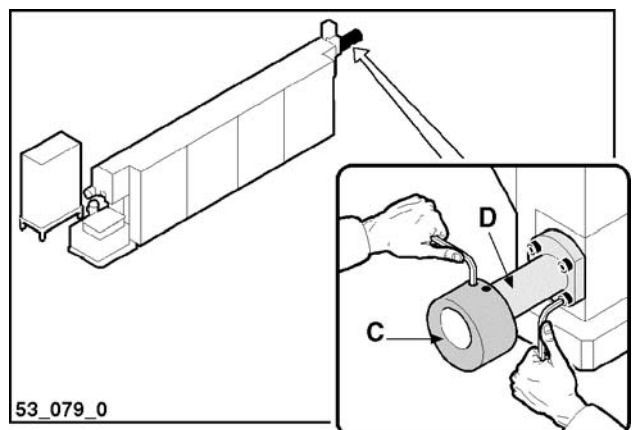
- Remove the screw (E), lower the rear lever and move the bar feeder body backwards.



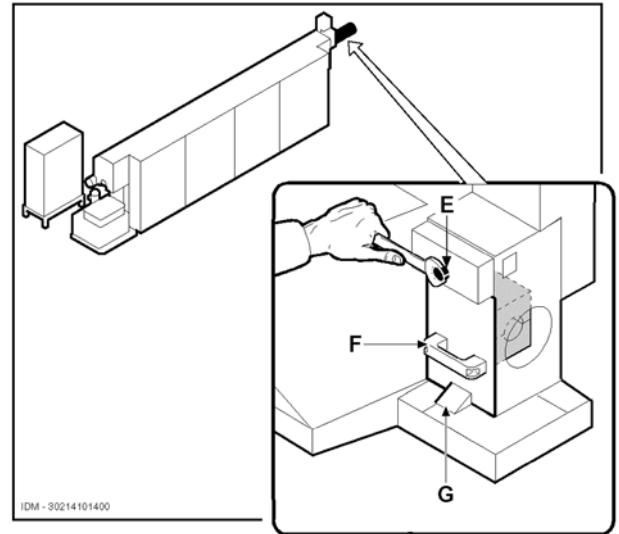
WARNING - CAUTION
before performing this operation, cut off the lathe power supply.



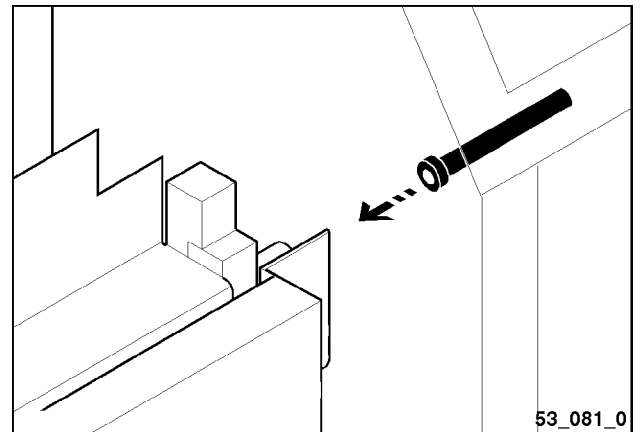
- Remove the oil recovery device (C) and sleeve (D).



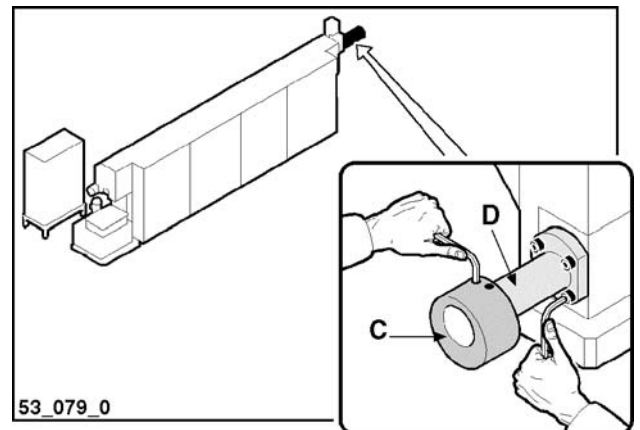
- Lower spring (G) and remove cover (F), completely open the two half-bushings by manually turning shaft (E) and remove the lower half-bushing.
- Close the upper half-bushing by turning the shaft again then replace it.
- Turn the shaft and fit the lower half-bushing.
- Close the half-bushing completely and install the cover.



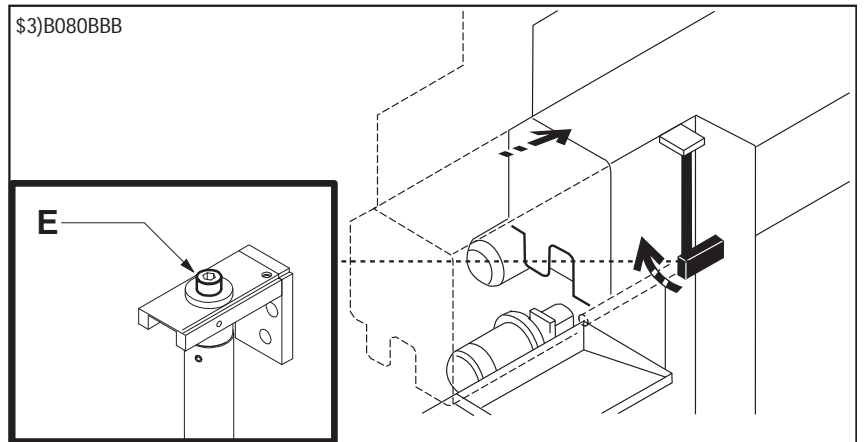
- Remove the lathe spindle liner if required and install a suitable liner for the "new" diameter, if necessary.



- Assemble sleeve (D) of the "new" diameter and the oil recovery (C).



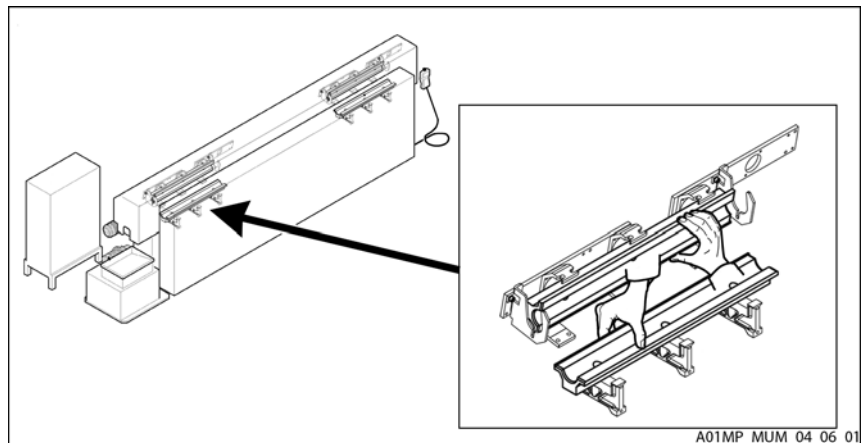
- Move the bar feeder body forwards and lift the rear lever, turn screw (E) clockwise to block the lever.



WARNING – CAUTION:

gradually bring the bar feeder body up to the stop placed on the tank, thereby eliminating the risk of damaging the displacement device.

- Assemble the lower guide channels of the "new" diameter.

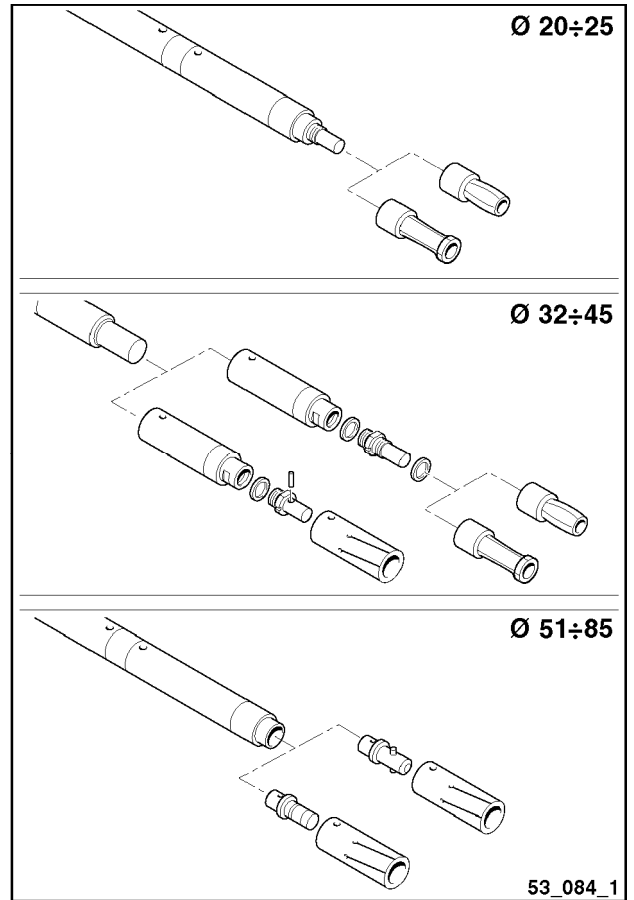


- Choose an appropriate collet for the bar diameter and profile; see "GUIDE CHANNELS-BAR PUSHER-REVOLVING TIPS" and "COLLETS" section.



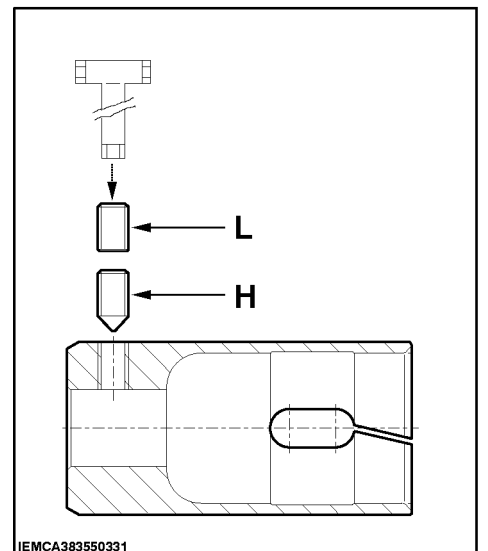
INFORMATION:

contact IEMCA service department for further information.



WARNING – CAUTION:

At every collet change (model 381p, 381p..011, 381p..021 e 386p) it is necessary to install the grub screw H and the counter screw L.

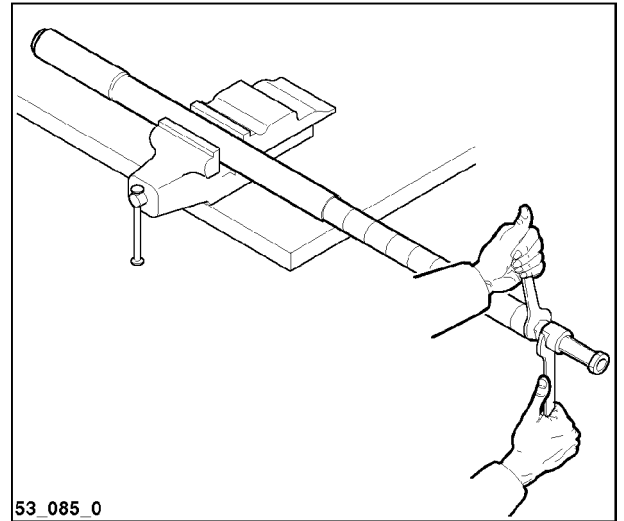




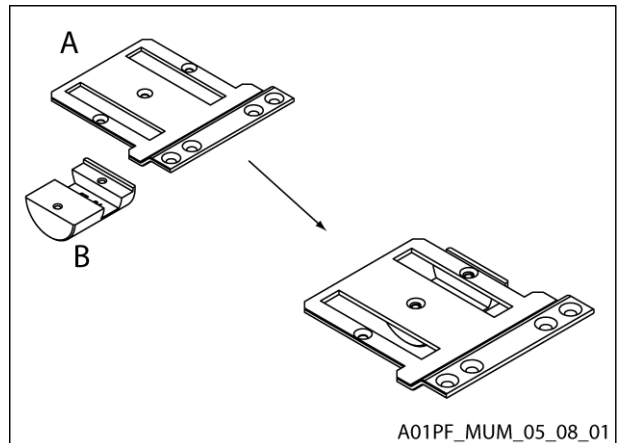
WARNING — CAUTION:

the collet external diameter should be at least 0.5 mm smaller than the bar pusher external diameter.

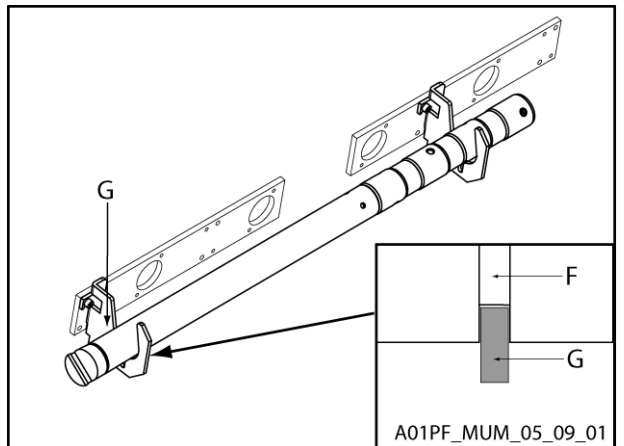
- Install the collet in the bar pusher and make sure that the rings are riveted in their special niches to prevent accidental unscrewing of the collet and/or relative connection.



- Assemble the first feeding pin (B) of the "new" diameter on the flag (A).



- Insert the bar pusher into both supports. Properly position the bar pusher in the axial direction, so that (F) groove matches support (G).

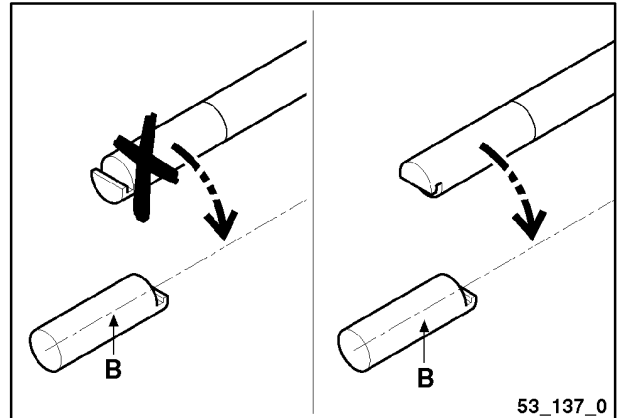



- Properly position the bar pusher in the radial direction so that in the next phase of the upper guide channel closing, the coupling between the bar pusher and the first feeding carriage (B) occurs correctly.

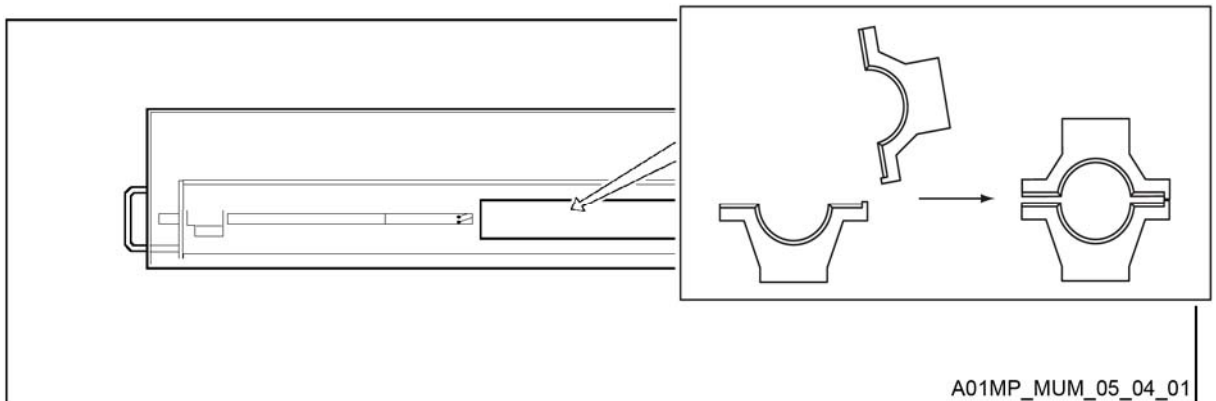


WARNING – CAUTION:

the above mentioned positioning has to be always assured. Therefore during the setup or maintenance operations, if the bar pusher is struck involuntarily, it has to be correctly repositioned.



- Press the start buttons together with  to close the guide channels. The machine is now ready to load the bar. Perform a cycle in the "STEP by STEP" function.






5.3.2 BAR PUSHER REPLACEMENT PROCEDURE



WARNING - CAUTION


Do not absolutely perform the following procedure with a bar in the bar pusher collet!

The replacement of the bar pusher, for a working cycle change or maintenance, may be performed as follows:

- bring the bar pusher in manual mode , with close guide channels;
- press , holding it, to start the automatic procedure which allows the bar feeder to move to the appropriate condition for the bar pusher replacement.
- In particular, by pressing , the bar pusher is positioned past the clamp device, the guide channels open, the bar pusher moves to the completely backwards position and the control devices are lifted allowing the bar pusher removal.



INFORMATION

If during the abovementioned operations  is released, the procedure will stop. By pressing the button again, the procedure will start from where it has stopped.



NEW BAR PUSHER INTRODUCTION



- To load a new bar pusher, position it on the control devices and press [pupa_boss _accomp] until the relative LED turns on.



WARNING - CAUTION

Check if the bar pusher has been correctly introduced into the first feeding carriage housing.

- Close the bar feeder guard, restore the start button [pupa_boss _avvio-1], enter in manual mode  and by pressing , move the bar pusher forwards until the clamp position is exceeded of at least 200 mm.

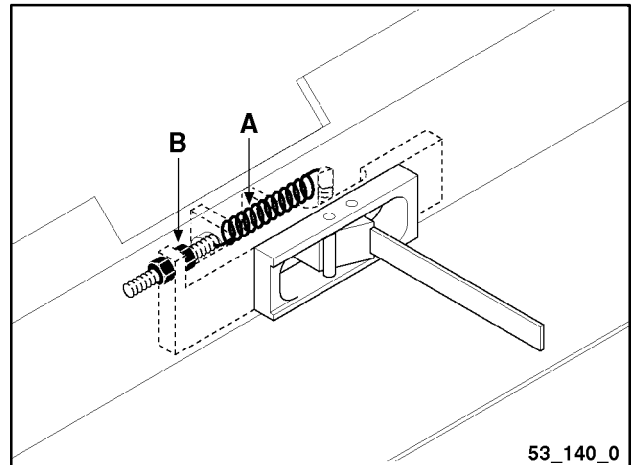
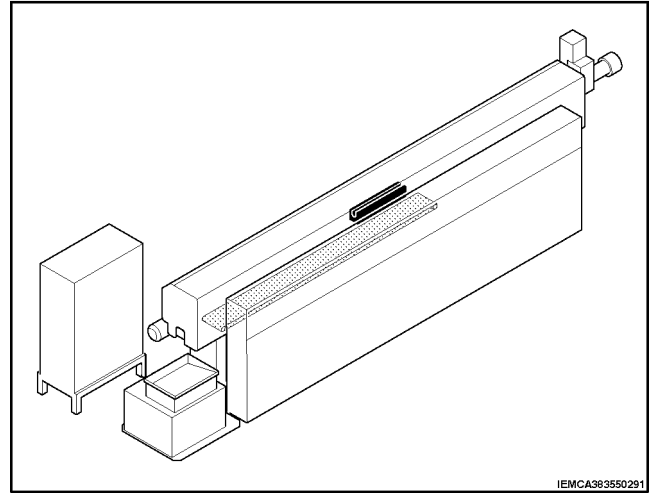
- Close the guide channels  and .
- Restore the working cycle of the bar feeder.

5.3.3 Remnant passage door spring - Adjustment

The remnant passage door is kept closed by a spring. The remnant passage has to win the spring resistance, so that the door may intercept the detection sensor.

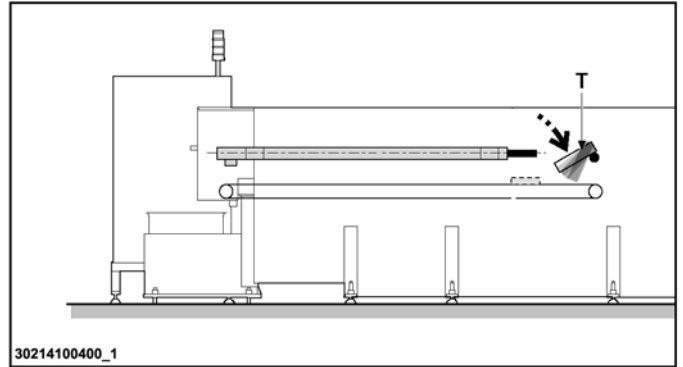
The bar feeder is normally supplied with the spring adjusted for large diameter bars; with small diameter bars it could be necessary to reduce the spring preload proceeding as follows.

- Remove the lower guide channel in correspondence to the door.
- Adjust the preload of spring (A) by turning nuts (B).
- Restore the bar feeder initial operating conditions.



5.3.4 REMNANT DROP CHUTE — ENABLING

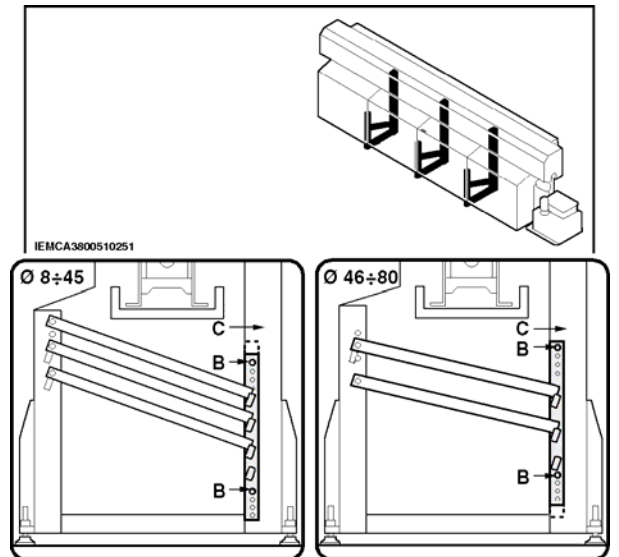
If a remnant does not drop onto the remnant conveyor belt after the guide drop (T), parameter 45 can be enabled (see description in the instruction manual) so that the guide starts vibrating and the remnant drops.



5.4 RACK MAGAZINE SETUP - MASTER 880 P

5.4.1 Bar supporting brackets - Setup

- Adjust the inclination of the bar supporting brackets by varying the bar (A) position by turning screws (B). The inclination has to allow the bars to lean against upright (C).



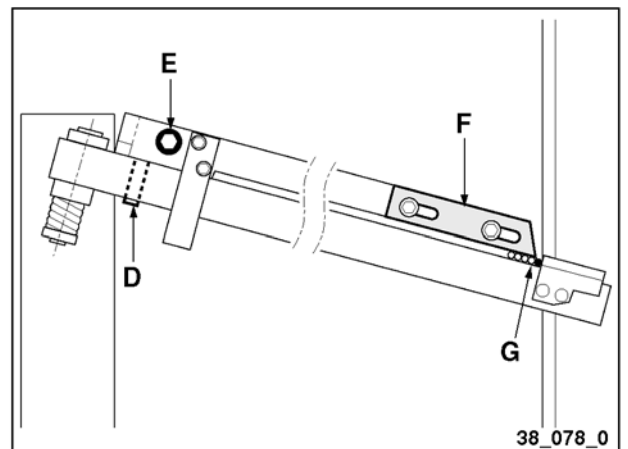
BAR CONTAINMENT BRACKET

This device aligns the bars having a smaller diameter than 12 mm, so as to avoid that they may overlap.

It can also be used to keep the shaped bars with special profiles in position.

Adjust as follows:

- install the containment bracket inserting pin (D) in the special hole;
- loosen screw (E) and lift the bracket;
- position two spacers, slightly thicker (approx. 0.5 mm) than the diameters of the bars to be machined, under the bracket;
- keep the bracket pressed against the spacers and tighten screw (E);
- adjust the position of push-rod (F) so as to leave the necessary space for the passage of the first bar (G);
- repeat the previous operations in all the bar supporting brackets.



5.4.2 Elevator drive - Adjustment

The safety joint has to be adjusted so that the bar is lifted and, at the same time, the motor drive is deactivated when the bar cannot be lifted for whatever reason.

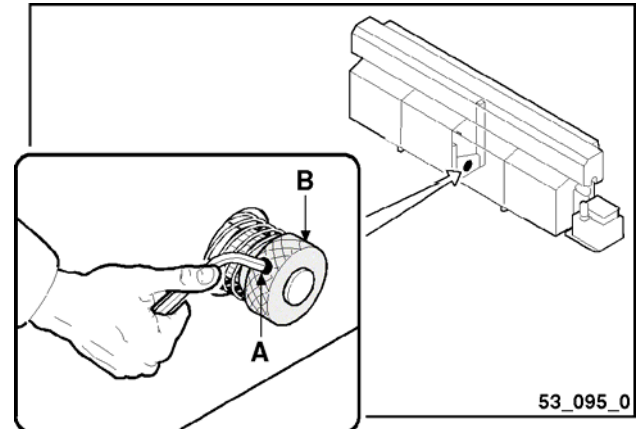
Adjust as follows:

- Loosen screw (A);
- tighten or loosen ring nut (B);
- tighten screw (A).

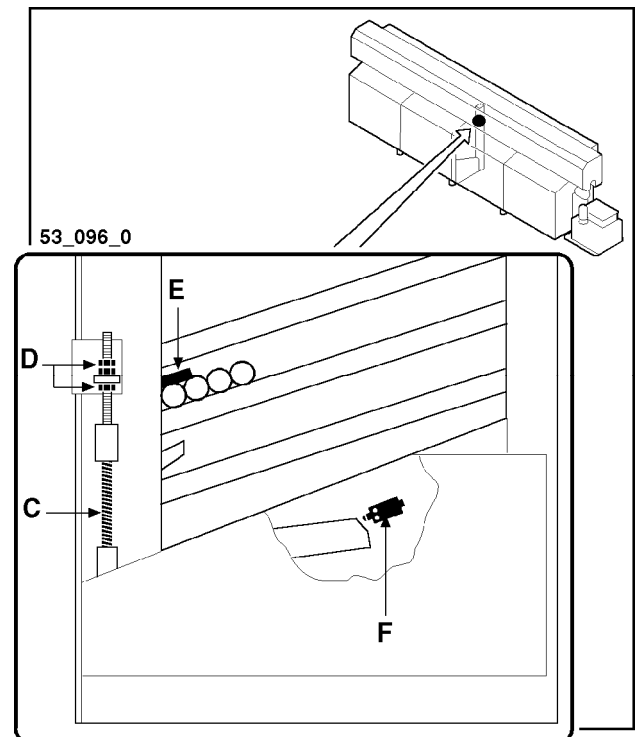


WARNING – CAUTION:

do not screw the ring nut too much; the joint could be locked.



- Adjust the tension of spring (C) by turning nuts (D). The tension has to be adjusted so as to avoid that the microswitch (F) is activated during the elevator carriage lowering; when feeler (E) leans against the bars, the spring has to yield so as to activate the microswitch (F) which controls the drive stop.

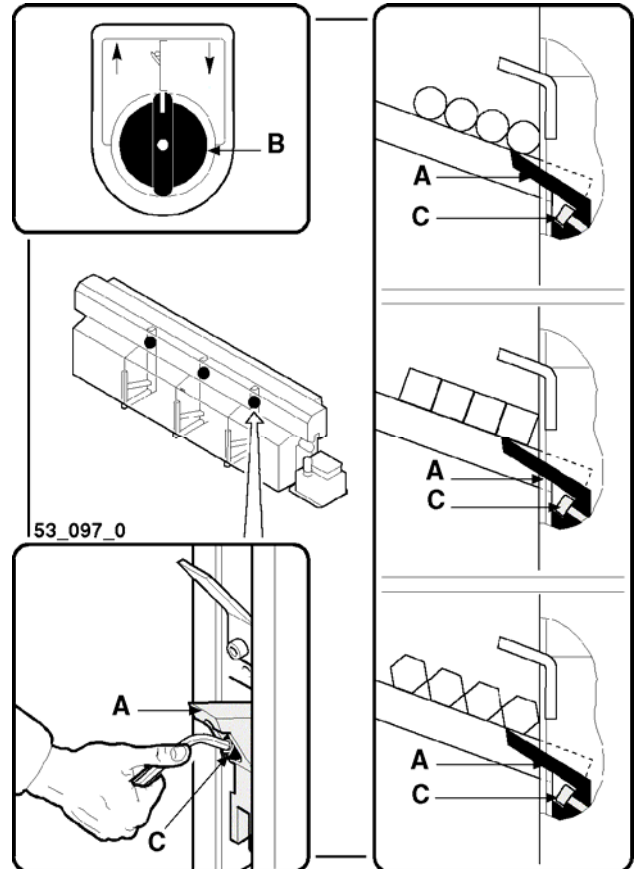


5.4.3 Elevator carriages - Setup

Adjust the position of the bar gripping lever (A) according to the bar diameter and section.

Adjust as follows:

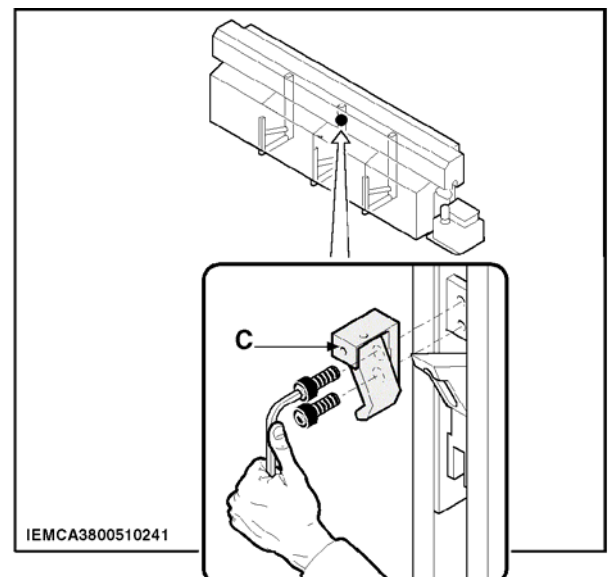
- bring the elevator carriages at about half-stroke by means of selector switch (B) to make the operation easier;
- tighten or loosen screw (C).



BARS FROM 8 to 12 MM

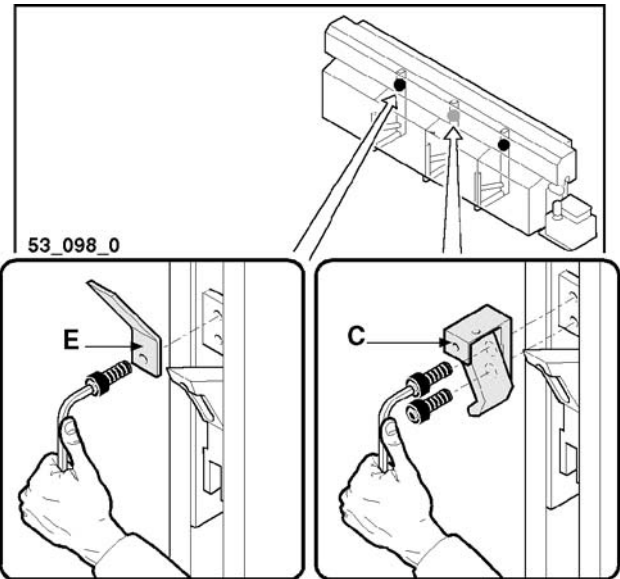
An additional feeler (C) shall be installed on the central elevator carriage.

(No. 2 feelers are supplied with the "Bar containment bracket" unit).

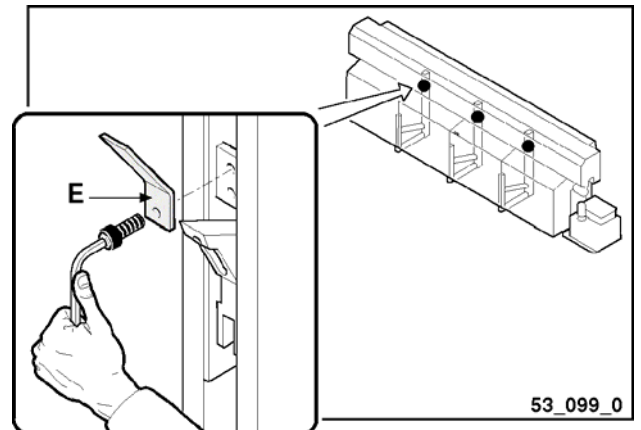


BARS FROM 13 to 25 MM

Additional feeler (C) has to be installed in the central elevator carriage, whereas feeler (E) has to be installed in the side elevator carriage.

***BARS FROM 26 TO 80 MM***

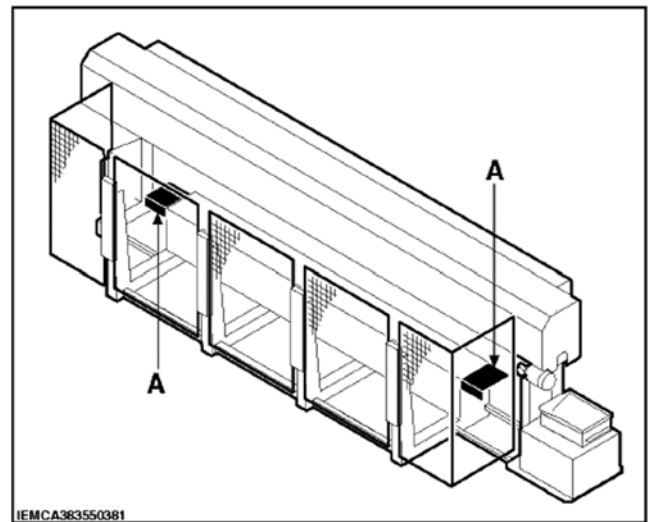
Feeler (E) has to be installed in each elevator carriage.



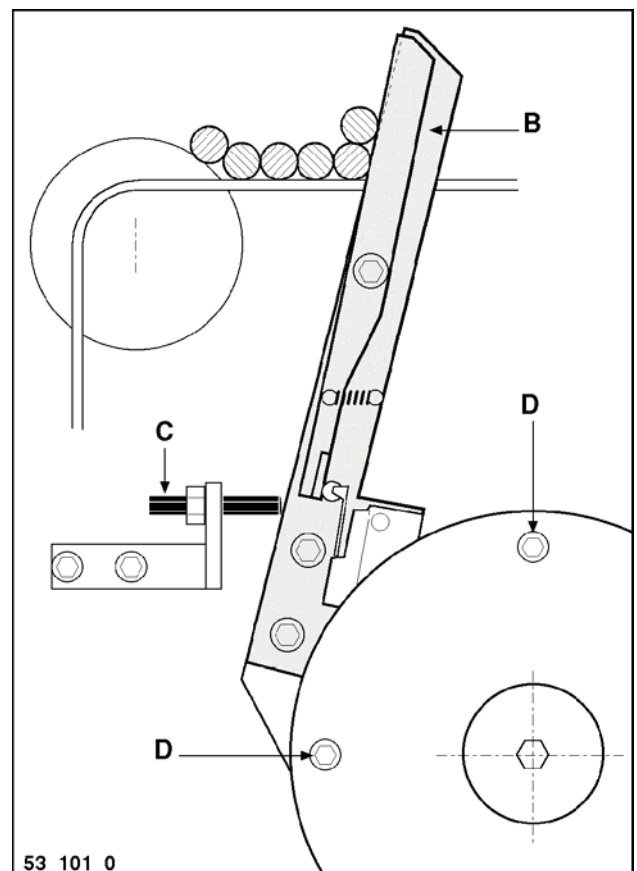
5.5 BAR BUNDLE MAGAZINE SETUP - MASTER 880 F 

5.5.1 Bar stop levers - Adjustment

- Remove guards (A).



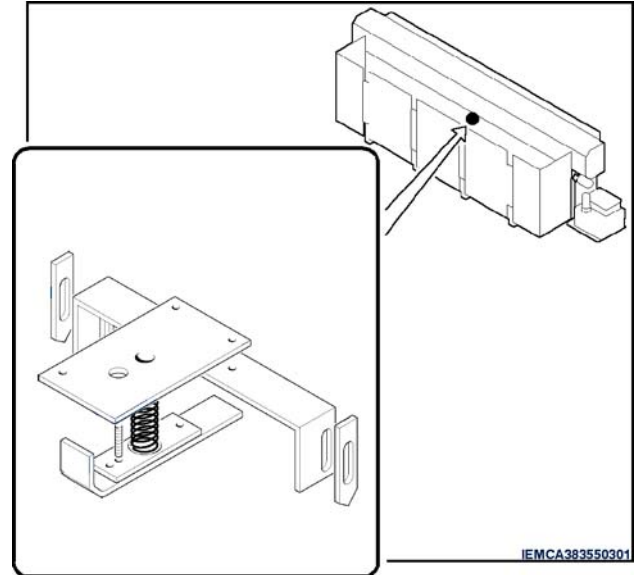
- Adjust the stop point of levers (B) by turning screws (C), in order to stop a certain number of bars when they are unloaded from the lifted belts. The bar amount has to be checked during the first working cycles. If during the unloading phase the levers (B) yield and slip backwards due to the bar thrust, it will be necessary to adjust the stop clutch using screws (D).
- Reassemble the previously removed guards.



5.5.2 Pressure foot - Adjustment

BARS FROM 8 TO 20 MM

- Fit a pressure foot as the one indicated in the figure.



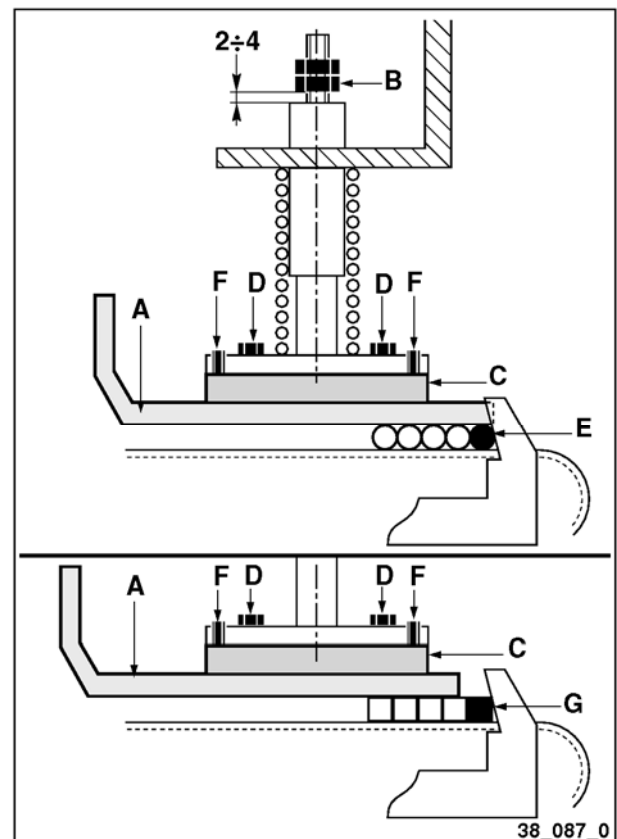
- Adjust the pressure foot height (A) so that nut (B) stays at a distance of 2÷4 mm from the limit stop when there are some bars under the foot; the adjustment is performed by turning nuts (B). If large diameter bars are to be machined, shim (C) must be removed.

Round and hexagonal bars

- By turning screws (D), adjust the foot traverse position so that all bars are pressed, first bar (E) included. If necessary, turn screws (F) to bring the foot surface parallel to the magazine rack.

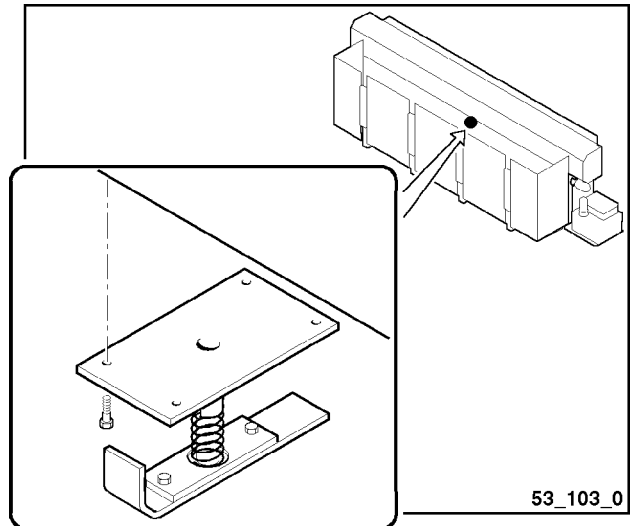
Square bars

- By turning screws (D), adjust the foot traverse position so that all bars are pressed, first bar (G) excluded. If necessary, turn screws (F) to bring the foot surface parallel to the magazine rack.

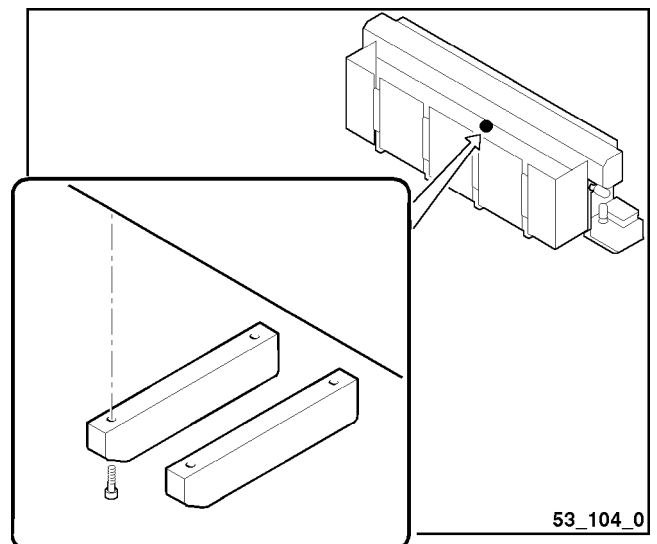


BARS FROM 20 TO 40 MM

- Fit a pressure foot as the one indicated in the figure.

***BARS FROM 40 TO 80 MM***

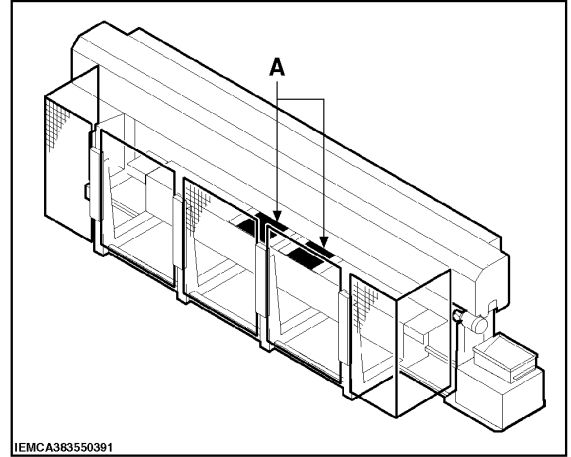
- Fit both containment plates.



5.5.3 Separation push-rods - Adjustment

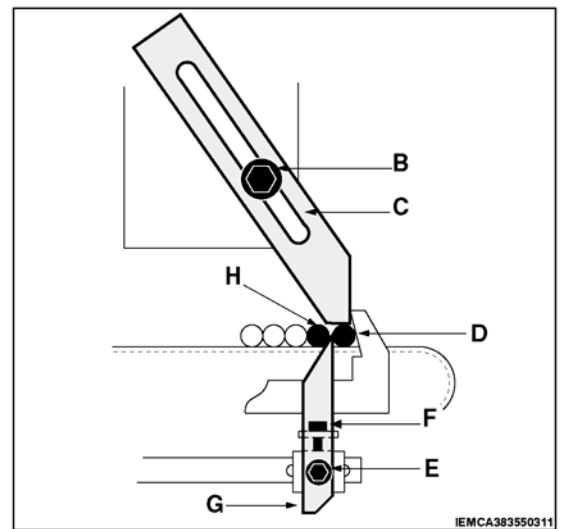
ONLY FOR 8 TO 20 MM BARS

- Remove guards (A).



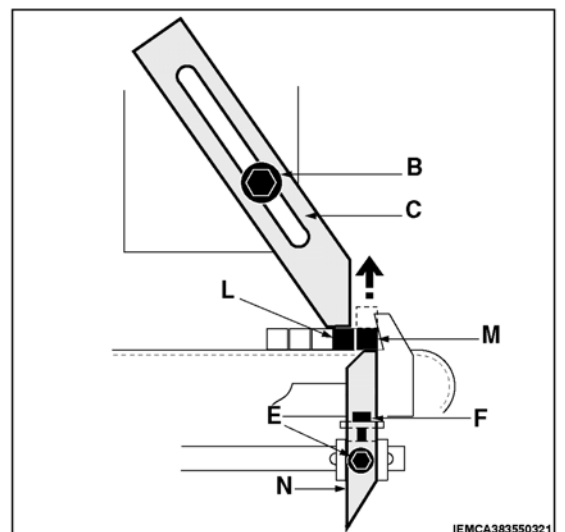
ROUND AND HEXAGONAL BARS

- By turning screw (B), adjust the position of the upper push-rod (C) so that it skims the first bar (D).
- By turning screws (E) and (F), adjust the position of the lower push-rod (G) so that it places itself between the first bar (D) and the second bar (H).



SQUARE BARS

- By turning screw (B) adjust the position of the upper push-rod (C) so that it skims the second bar (L), keeping the first bar (M) free.
- By turning screws (E) and (F), adjust the position of lower push-rod (N) (special for square bars) so that it lifts first bar (M) skimming the second bar (L).
- Reassemble the previously removed guards.

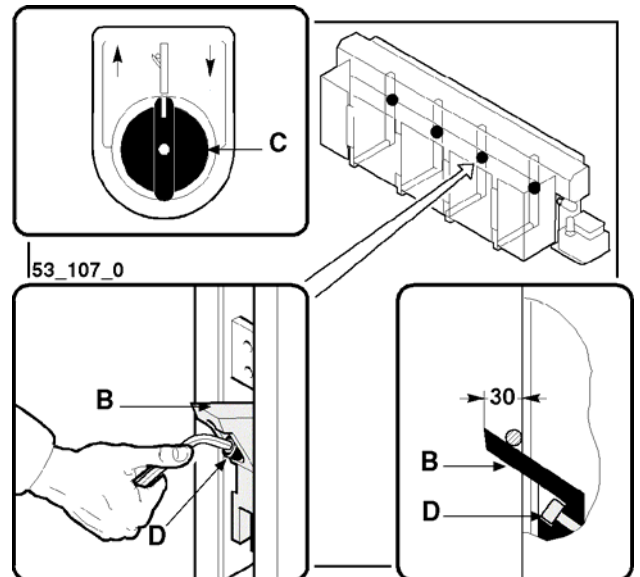
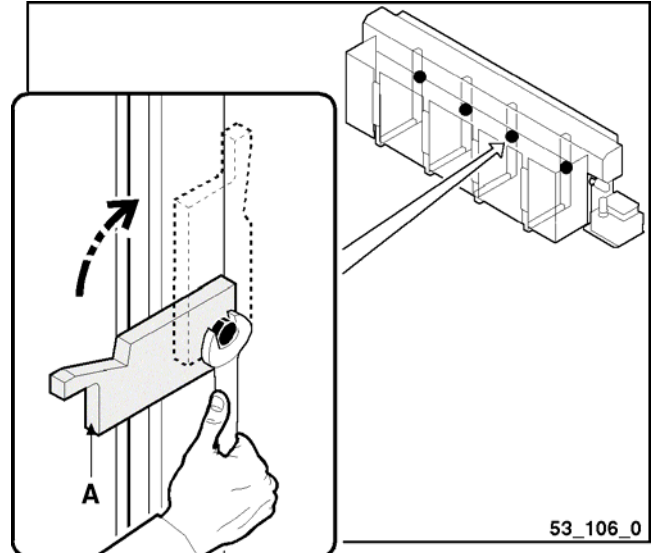


5.5.4 Bar selection — Setup

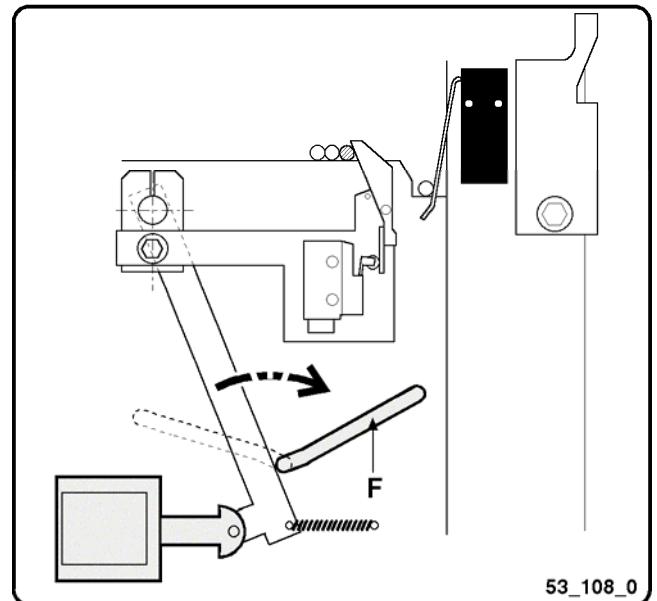
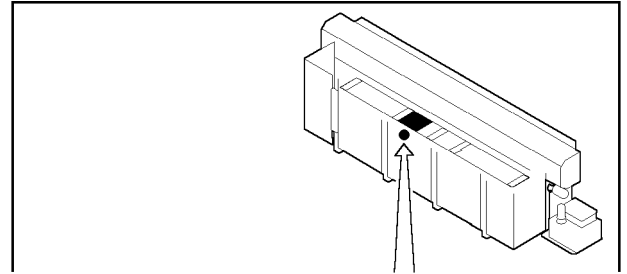
BARS FROM 8 TO 20 MM

The bars with a smaller diameter than 20 mm do not easily align onto the magazine rack; it is therefore necessary to use the selection programme in the following way:

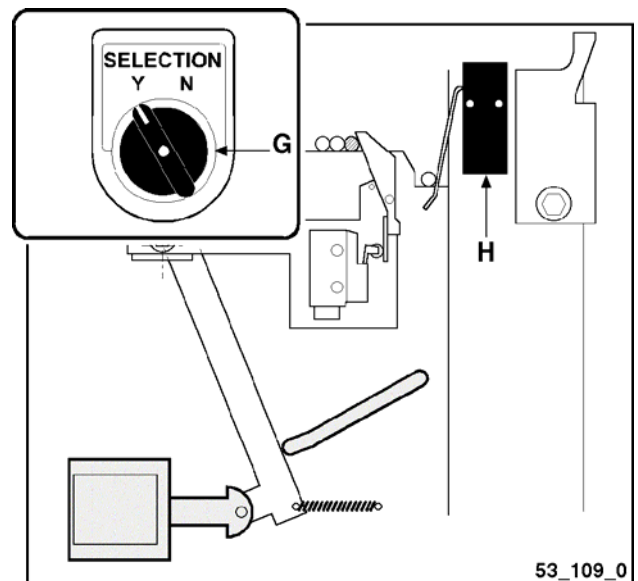
- lift plates (A) in each upright;
 - adjust the position of the bar gripping levers (B) so that they exceed of 30 mm.
- Adjust as follows:
- bring the elevator carriage at about half-stroke by means of selector switch (C) to make the operation easier;
 - tighten or loosen screw (D);



- remove guard (E) and turn lever (F) in the direction of the arrow. Reassemble guard (E);



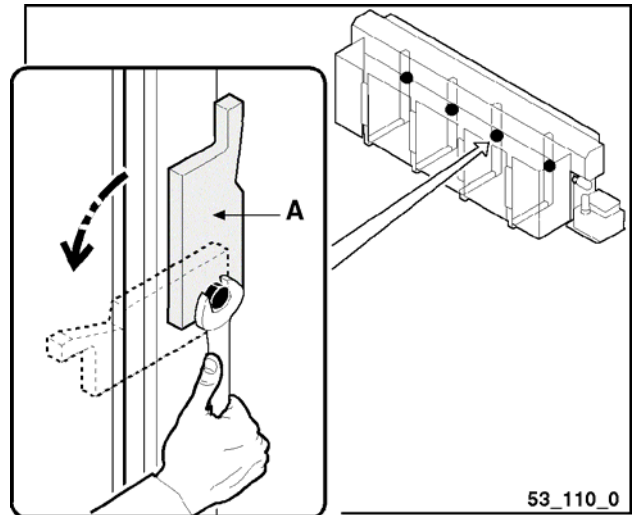
- Enable the selection cycle with selector switch (G);
- during the working cycle, check if microswitch (H) is activated by the bar.



BARS FROM 21 TO 80 MM

Bars with diameter over 20 mm are quite aligned on the magazine rack and can be taken directly by the elevator carriages; it is therefore possible to disable the selection programme in the following way:

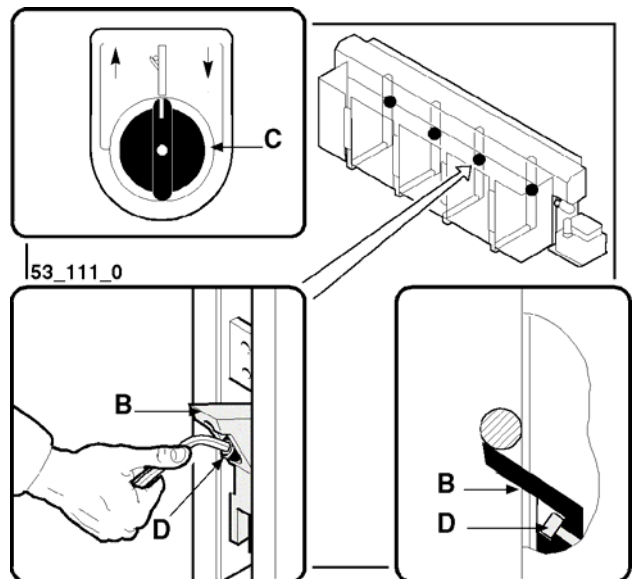
- lower plates (A) in each upright;



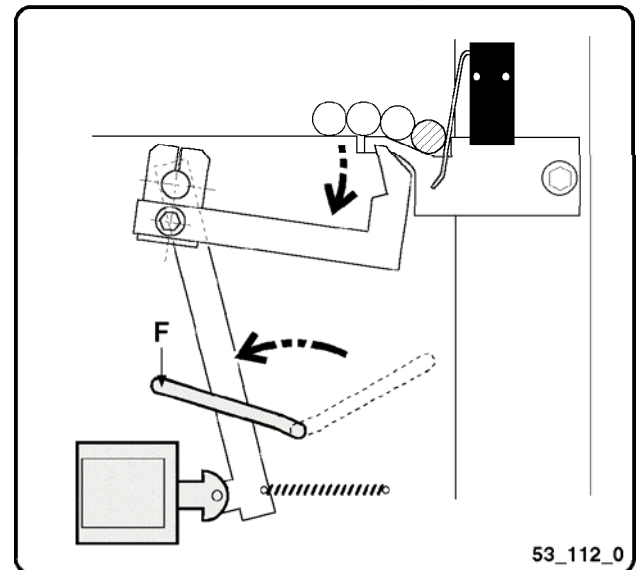
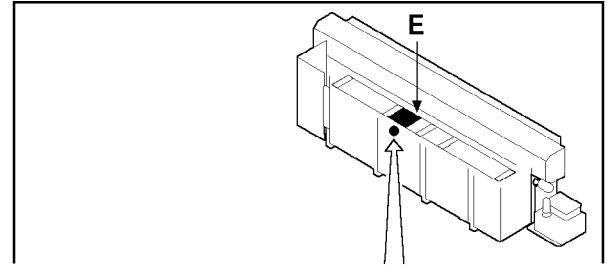
- adjust the position of the bar gripping lever (B) according to the bar diameter.

Adjust as follows:

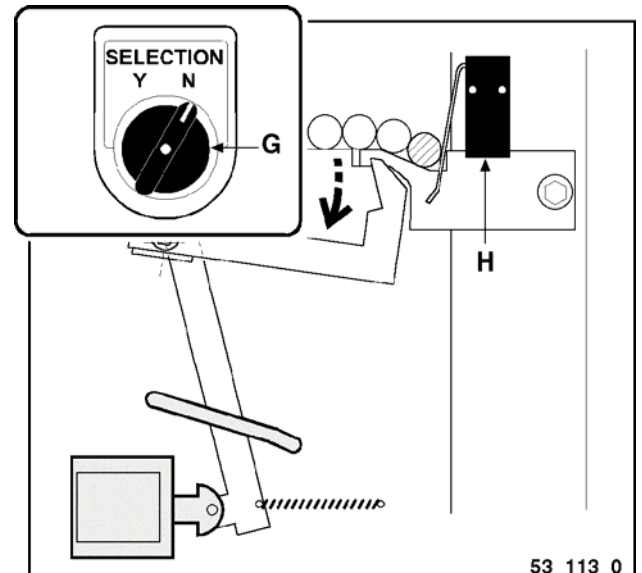
- bring the elevator carriages at about half-stroke by means of selector switch (C) to make the operation easier;
- tighten or loosen screw (D);



- remove guard (E) and turn lever (F) in the direction of the arrow. Reassemble guard (E);



- disable the selection cycle through selector switch (G);
- during the working cycle, check if microswitch (H) is activated by the bar.

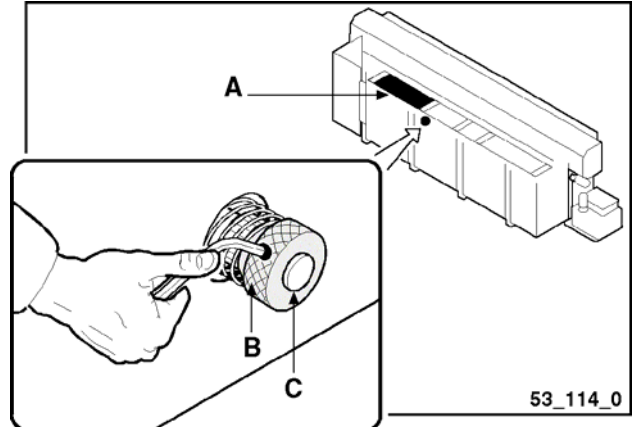


5.5.5 Elevator drive - Adjustment

The safety joint has to be adjusted so that the bar is lifted and, at the same time, the motor drive is deactivated when the bar cannot be lifted for whatever reason.

Adjust as follows:

- remove guard (A);
- loosen screw (B);
- tighten or loosen ring nut (C);
- tighten screw (B);
- reassemble the previously removed guard.



WARNING – CAUTION:

do not screw the ring nut too much; the joint could be locked.

INDEX

6.1	CONTROL DESCRIPTION	2
6.2	KEYBOARD CONTROL DESCRIPTION.....	4
6.3	MAGAZINE PUSH-BUTTON PANEL - CONTROL DESCRIPTION	8
6.4	LIGHT INDICATOR - SIGNAL DESCRIPTION	10
6.5	BAR FEEDER TOOLING.....	11
6.6	BARS TO BE MACHINED - FEATURES AND PREPARATION	11
6.6.1	BAR STRAIGHTNESS - Measurement	13
6.7	BAR MAGAZINE - LOADING	15
6.8	AUTOMATIC CYCLE START	18
6.9	BAR LOADING - PROCEDURE.....	19
6.10	LUBRICATING OIL - FLOW ADJUSTMENT	22
6.11	BAR FEEDER STOP.....	22
6.12	CYCLE PERFORMING MODE IN THE "STEP-BY-STEP" FUNCTION	23

6.1 CONTROL DESCRIPTION

**INFORMATION:**

From the hand-held keyboard it is possible to automatically start the bar feeder, even when the Lathe 'MAN/AUT' signal is in Manual mode.

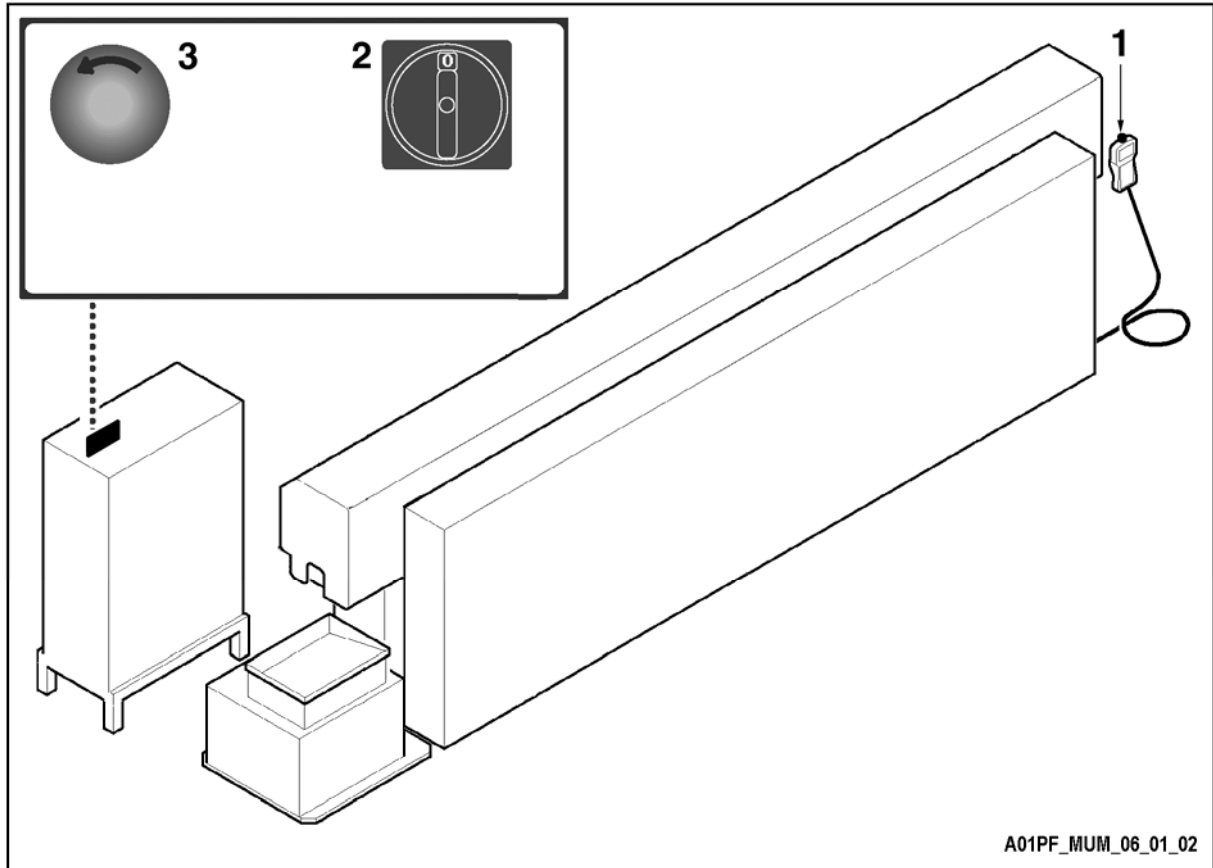
**INFORMATION:**

When the bar feeder is in Automatic mode, the bar feeding is possible only when the Lathe 'MAN/AUT' signal is in Automatic mode.

**INFORMATION:**



By pressing the Manual mode button on the hand-held keyboard it is possible to prevent the bar feeder Automatic start by the lathe.

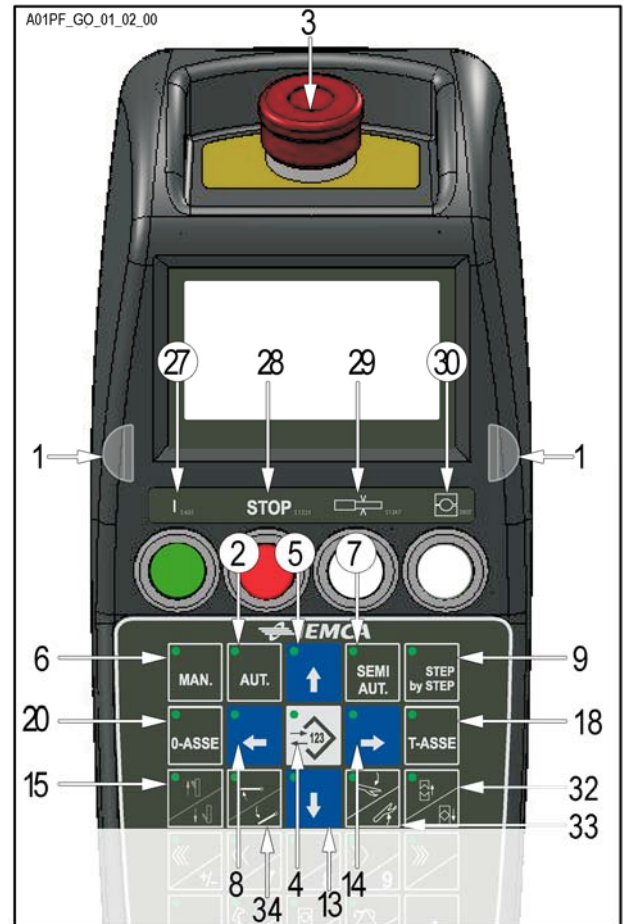
The figure indicates the positions of both the electrical and hand-held keyboard "1" controls.



- 2 MAIN SWITCH: turns the power supply on and off.
 - Position 0 (OFF) the machine is not powered.
 - Position I (ON) the machine is powered.
- 3 EMERGENCY STOP PUSH-BUTTON: stops the bar feeder in case of emergency. For restart release the push-button manually.

6.2 KEYBOARD CONTROL DESCRIPTION

- 1 Start buttons: opposite buttons enabling the keys for some functions. Press both buttons and simultaneously the button corresponding to the desired function.
- 2 Selects the automatic function.
- 3 It stops the bar feeder: for restart, manually release the push-button.
- 4 Selects the keyboard modes:
 - with LED off ; selects the "message display" mode.
 - with LED on ; selects the "parameter display" mode.
- 5 Multifunction
 - Allows scrolling the page upwards.
 - Moves the selection cursor upwards.
 - Increases by one the value set in the date and time programming mode.
- 6 Selects the manual mode.
- 7 Selects the semiautomatic function. Press to select, press again to unselect.
- 8 Multifunction
 - Selects the previous parameter.
 - Moves the selection cursor leftwards.
- 9 Activates the "step by step" operating cycle: every time the button is pressed one step is performed.
- 10 Multifunction
 - Sets the font.
 - Turns on/off the oil pump.
Press to turn on the pump and press again to turn it off.
- 11 Multifunction
 - Sets the numerical value.
 - Loads the program from the PLC (entering default values in the parameters).
- 12 Multifunction
 - Sets the font.
 - Moves the bar pusher at a high speed.
- 13 Multifunction
 - Allows scrolling the page downwards.
 - Moves the selection cursor downwards.
 - Decreases by one the value set in the date and time programming mode.
- 14 Multifunction
 - Selects the next parameter
 - Moves the selection cursor rightwards.
- 15 Bar elevator upstroke/downstroke (LED on when the elevators are in their high position).



34 Lifts/lowers the remnant dropping chute (LED on with chute in "up" position).

16 Multifunction

- Sets the numerical value.
- Opens the guide channels.
- Push both start buttons and then the key; release both buttons and the key only when the movement is finished.

17 Moves the bar pusher at high speed.

18 Sets the carriage movement motor.

During the daily use of the bar feeder this function must never be used.

19 Multifunction

- Sets the numerical value.
- Moves the bar pusher at a low speed.

20 Resets the "BAR FEEDER ZERO SETTING" of the carriage.

Hold down both start buttons and then the key; release both buttons and the key when the carriage starts moving towards the "BAR FEEDER ZERO SETTING" position.

21 Multifunction

- Sets the numerical value.
 - Closes the guide channels.
- Push both start buttons and then the key; release both buttons and the key only when the movement is finished.

22 Multifunction

- Sets the numerical value.
- Recalls the main menu (MAIN MENU).

23 Multifunction

- Sets the numerical value.
- Recalls the selection cursor.

24 Multifunction

- Stops the selection function.
- Restores the value prior to the non-confirmed modification.

25 Confirms the entered data.

26 Sets the comma.

27 Bar feeder start button (green light): press the button to start the bar feeder and hold it down until the button lights up.

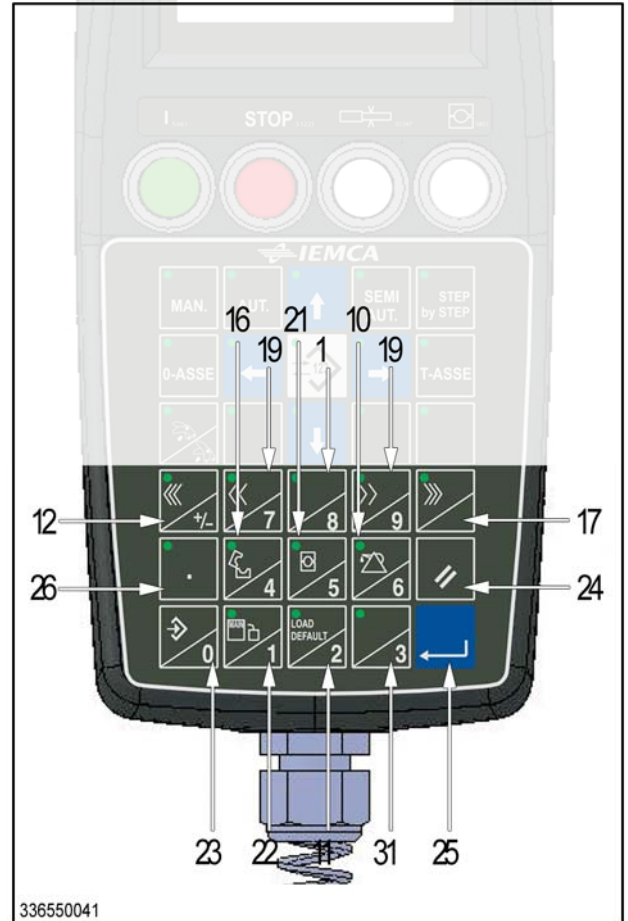
28 Bar feeder stop button (red light): press this button to stop the bar feeder and reset the "Errors".

29 Remnant detection disabling button (white light)

Press the button to feed a "new" bar without the detection of bar remnant in the bar pusher collet.

30 Half-bush opening and closing button (white light)

- In "Manual" mode, when the bar feeder is in the required position, the half-bushes will close when this button is pressed. If pushed again, the half-bushes will open.

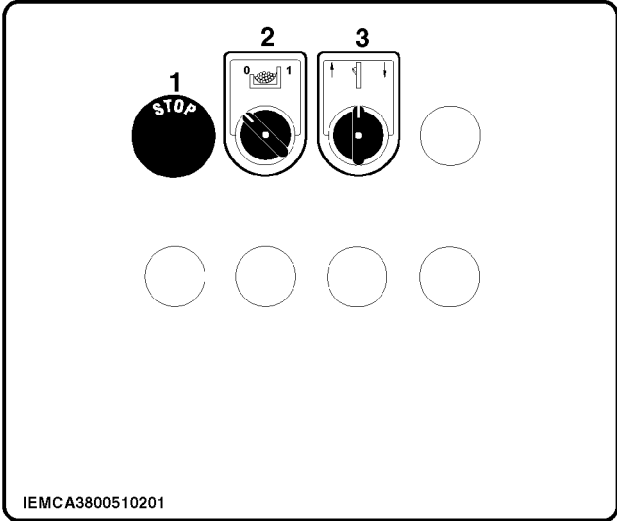
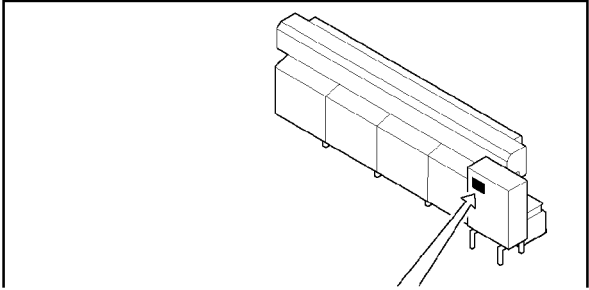


- In "Automatic" mode, if pressed, the half-bushes will open and close, according to the selected sequence. If pressed again, the half-bushes will remain open during the entire operating cycle.

6.3 MAGAZINE PUSH-BUTTON PANEL - CONTROL DESCRIPTION

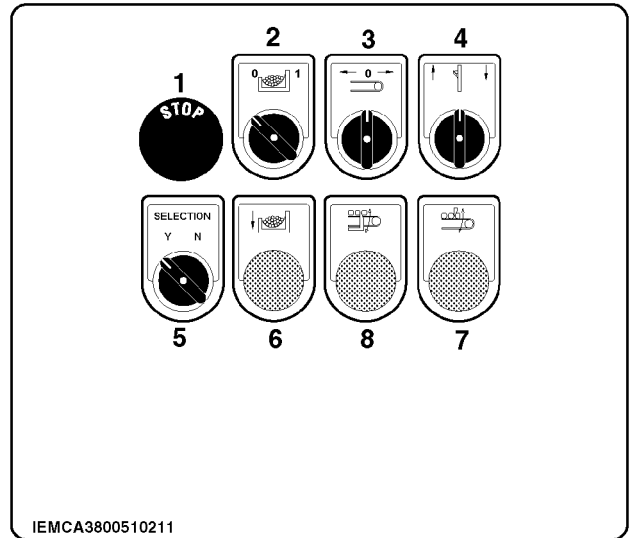
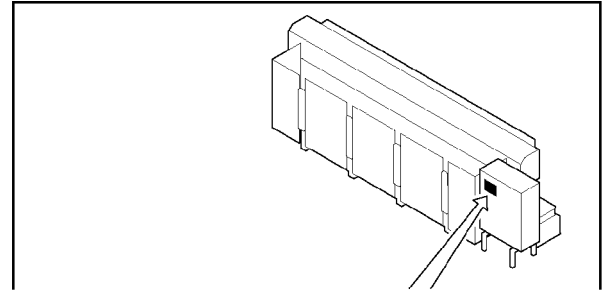
MASTER 880 P

- 1 Emergency button for stopping the bar feeder; it will be possible to start it again only after the button has been manually released.
- 2 Selector switch for setting the magazine in the manual or automatic mode.
 position 0: the magazine is preset for the manual function;
 position 1: the magazine is preset for the automatic function.
- 3 Selector switch for controlling the elevator carriages upstroke and downstroke.
 position ↑: elevator carriages upstroke;
 position ↓: elevator carriages downstroke;



MASTER 880 F

- 1 Emergency button for stopping the bar feeder; it will be possible to start it again only after the button has been manually released.
- 2 Selector switch for setting the magazine in the manual or automatic mode.
position 0: the magazine is set for the manual lowering of the lifting belts;
position 1: the magazine is preset for the automatic function.
- 3 Selector switch for controlling the feeding and the return of the bar on the selection belts.
position →: bar feeding;
position ←: bar return.
- 4 Selector switch for controlling the elevator carriages upstroke and downstroke.
position ↑: elevator carriages upstroke;
position ↓: elevator carriages downstroke;
- 5 Selector switch for enabling or disabling the selection cycle in the bar magazine.
position Y: cycle enabled;
position N: cycle disabled.
- 6 Button for controlling the manual lowering of the magazine belts.
press: the belts lower;
release: the belts stop.
- 7 Button for controlling the high/low movement of the feeler levers.
- 8 Button for controlling the high/low movement of the separation push rods.



6.4 LIGHT INDICATOR - SIGNAL DESCRIPTION

BLINKING ORANGE LIGHT; indicates that the magazine guard is open.

BLINKING ORANGE LIGHT; indicates that, with the bar feeder in automatic mode, the magazine is in manual mode.

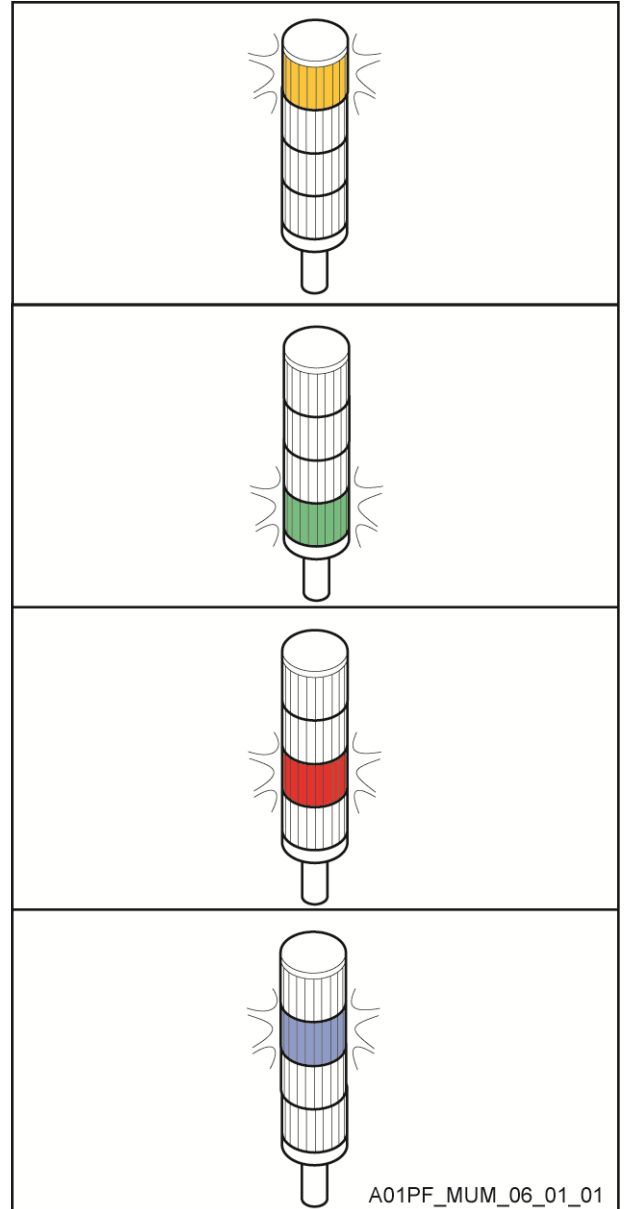
BLINKING ORANGE LIGHT; (for Master 880-880r F only) indicates that the magazine is empty and the bundle belts are tensioned.

FIXED GREEN LIGHT; indicates that the bar feeder is in the automatic mode.

FIXED RED LIGHT; indicates that the bar feeder is not operating, or that it is in the manual mode. (OPTIONAL)

BLINKING BLUE LIGHT; indicates that the bar feeder is carrying out the bar change.

FIXED BLUE LIGHT; indicates that the PLC battery is exhausted. (OPTIONAL)



6.5 BAR FEEDER TOOLING

This is a list of all the bar feeder tooling phases, assuming that the bar feeder is started for the first time.

- Perform the bar feeder setup according to the bar to be machined.
- Prepare the bar to be machined.
- Load the bar magazine.
- Start the automatic cycle.
- Adjust the lubricating oil flow.

6.6 BARS TO BE MACHINED - FEATURES AND PREPARATION



WARNING – CAUTION:

do not insert bars having different sizes than the ones set by the manufacturer. Refer to the "VERSION DESCRIPTION" paragraph in section 2 for the maximum bar length.



INFORMATION:

With the bundle magazine the bars of the minimum allowed length (see § "TECHNICAL DATA") are to be loaded at the centre of the magazine



INFORMATION:

the bar must not have a straightness defect above 0.5 per 1,000.

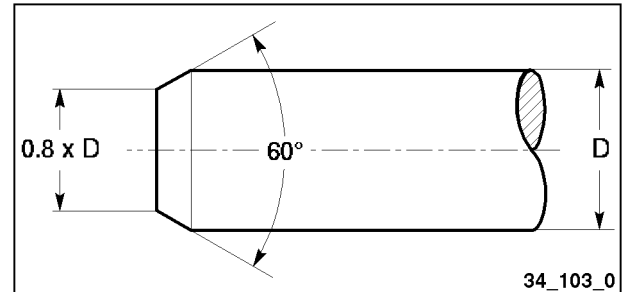
Please find hereafter some advices to optimise the bar feeder performances.

Usually it is not necessary to perform preliminary operations on the bar ends, but to obtain optimum results during loading, it is advisable to chamfer them.

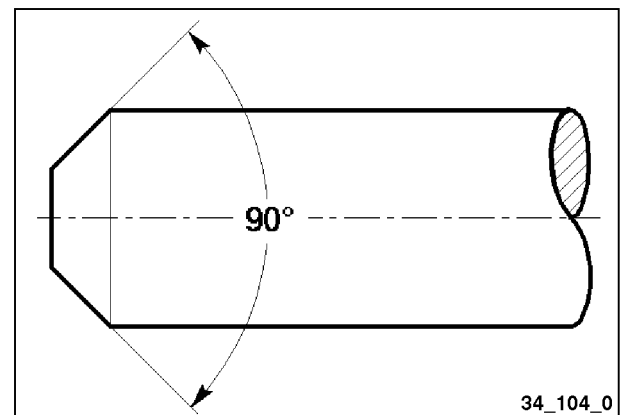
SOLID BARS

Make sure that there is not too much rag on the front end, which might hinder the lathe from entering the collet.

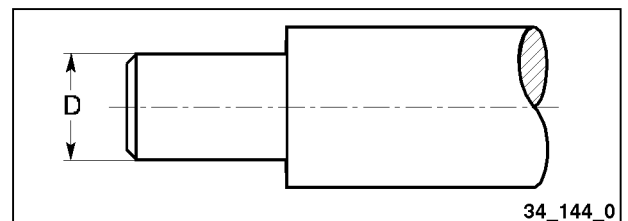
The bar rear end must be chamfered as indicated in the figure.



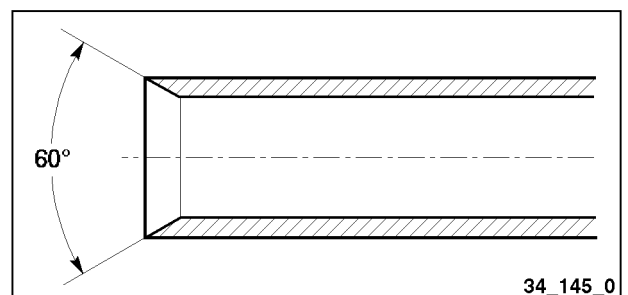
If bars with front remnant ejection have to be machined, we advise to chamfer the bar rear end as shown in the figure.



When machining bars having a diameter equal to or only slightly smaller than the bar pusher diameter, it is necessary to turn the bar rear ends; diameter "D" should be suitable for the collet installed in the bar pusher.

**PIPES**

If pipes are to be machined, the rear end of the pipe must be chamfered as shown in the figure.



6.6.1 BAR STRAIGHTNESS - Measurement

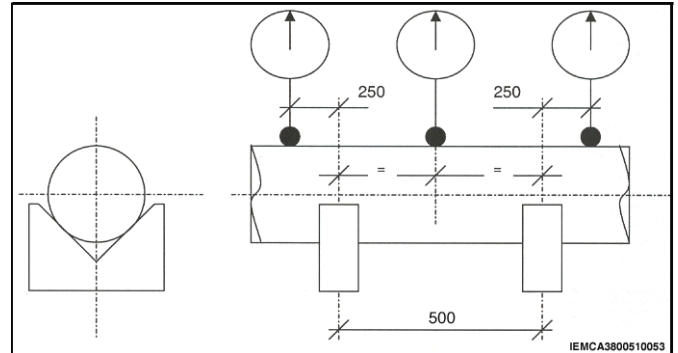
The bar vibrations are partially due to the state of the bar itself: if the bar is not perfectly straight, it can cause vibrations.

Round bars

As stated also in the UNI-10233/2 regulation, the bar straightness can be measured by positioning the bar on two V-supports and controlling its straightness. In that case, the measurement can be carried out as shown in the figure.

It is necessary to rotate the bar on itself and measure the three indicated sections.

In this case, the S-max value (difference between maximum and minimum value on the comparator) should be interpreted as follows:



S max	Quality
< 0,25 mm	Good
0,25 < S max < 0,5 mm	Average
> 0,5 mm	Problematic

In order to obtain a reliable value it is necessary to repeat the measurements on the whole bar length, by positioning it on a series of supports at a distance of 500 mm from each other and comparing the values registered between the different prisms.



INFORMATION:

The bar straightness is obviously proportional to the rigidity of the material and to the number of revolutions (RPM) to which the lathe must operate. The lack of bar straightness highly influences the maximum number of revolutions that may be reached: the bigger the diameter the greater the influence. The data concerning the bar linearity or straightness refer to the bar constant bending and not to the localized inflection and/or deformation that the bar shall not absolutely show.



INFORMATION:

For a correct operation of the bar feeder do not use rolled material.

Hexagonal, square and section bars

With shaped bars, insert some bushings on the bar to be controlled.

Position 2 bushings on both V-supports.

In that case, the measurement can be carried out as shown in the figure.

Rotate the bar on itself and carry out the measurement on a bushing external to both V-supports.

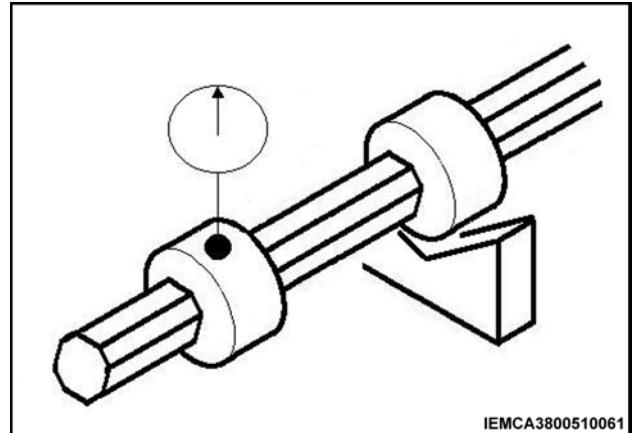


INFORMATION:

The use of the bar feeder for polygonal bar machining (hexagonal, square bars, etc.) is allowed, accepting that this will lead to:

- higher wear of the guide channel (in comparison to round bars).*
- bar rotation speed decrease (in comparison to round bars).*

The higher wear of the guide channel is due to the shape of the bars as well as to the material straightness and rigidity.



6.7 BAR MAGAZINE - LOADING



WARNING – CAUTION:

do not manually lift weights exceeding those foreseen by the applicable regulations in force; ask for help, if necessary.



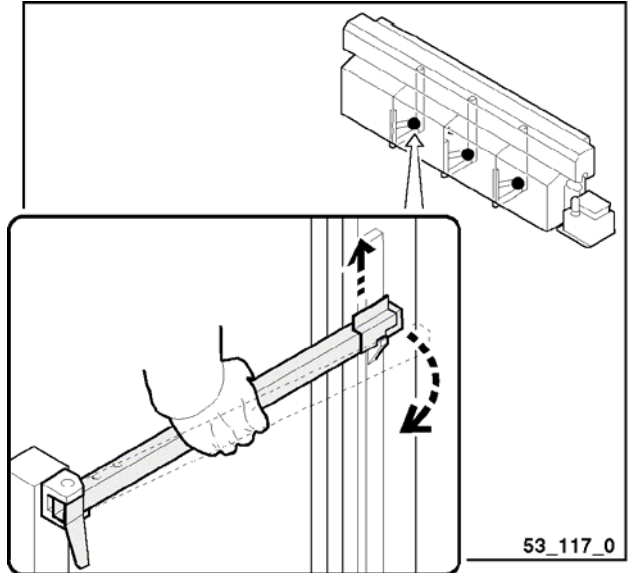
WARNING – CAUTION:

wear personal protections according to the regulations in force.

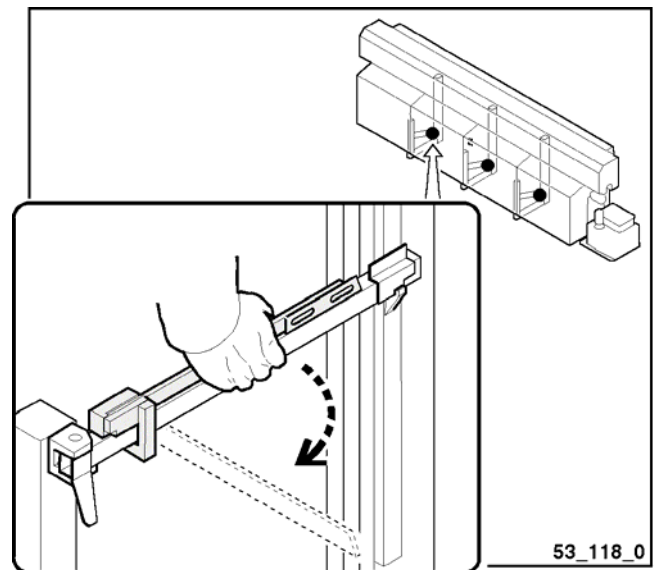
RACK MAGAZINE - MASTER 880 P

- Open the magazine guards; the orange light, of the light indicator, starts blinking.
- Open all bar supporting brackets.

- If the bar containment brackets are installed, remove them from their housing and make them turn of 90°.
- Place the bars on the first rack, then on all other.
- Close the magazine guards; the orange light continues to blink.

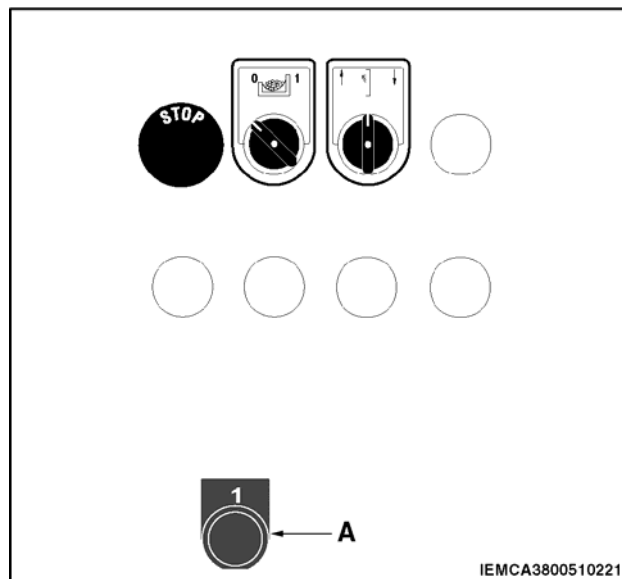


53_117_0



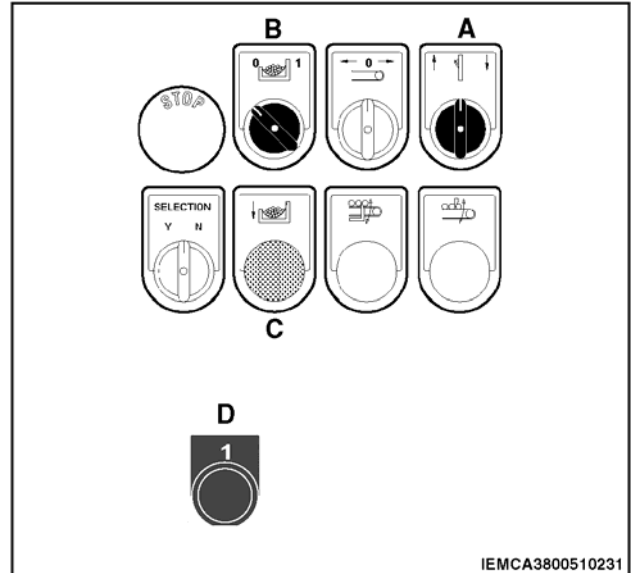
53_118_0

- Reset by pressing button (A); the orange light stops blinking.

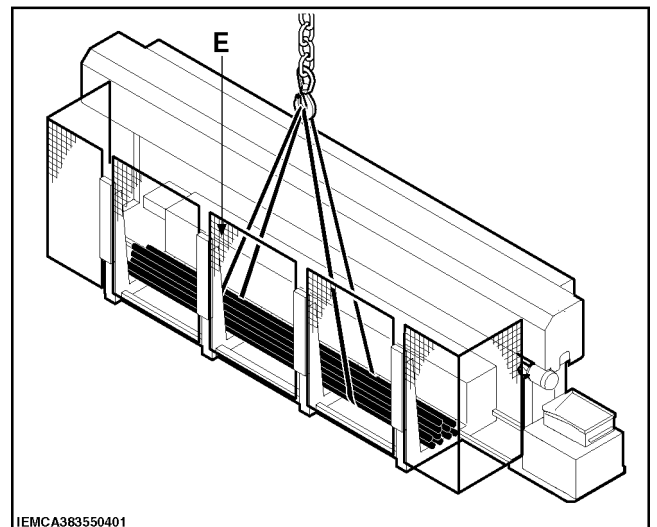


BAR BUNDLE MAGAZINE - MASTER 880 F

- Position the elevator carriages to the bottom limit stop by using the selector switch (A).
- Turn selector switch (B) to position 0 and lower the lifting belts through selector switch (C).



- Remove guard (E); the orange light, of the light indicator, starts blinking.
- Place the bars on the belts.



WARNING – CAUTION:




do not load bars with a total weight over 2,500 kg.

- Reposition the guard; the orange light continues to blink.
- Reset by pressing button (D); the orange light stops blinking.
- Select the magazine automatic cycle bringing the selector switch (B) to position 1.

6.8 AUTOMATIC CYCLE START

- Power the lathe on.
- Turn the main switch to position I (ON).



- Press  to start the bar feeder.
- Press , to select the manual mode.
- Carry out a "bar feeder zero setting" in the following way:
 - press the start buttons and ;



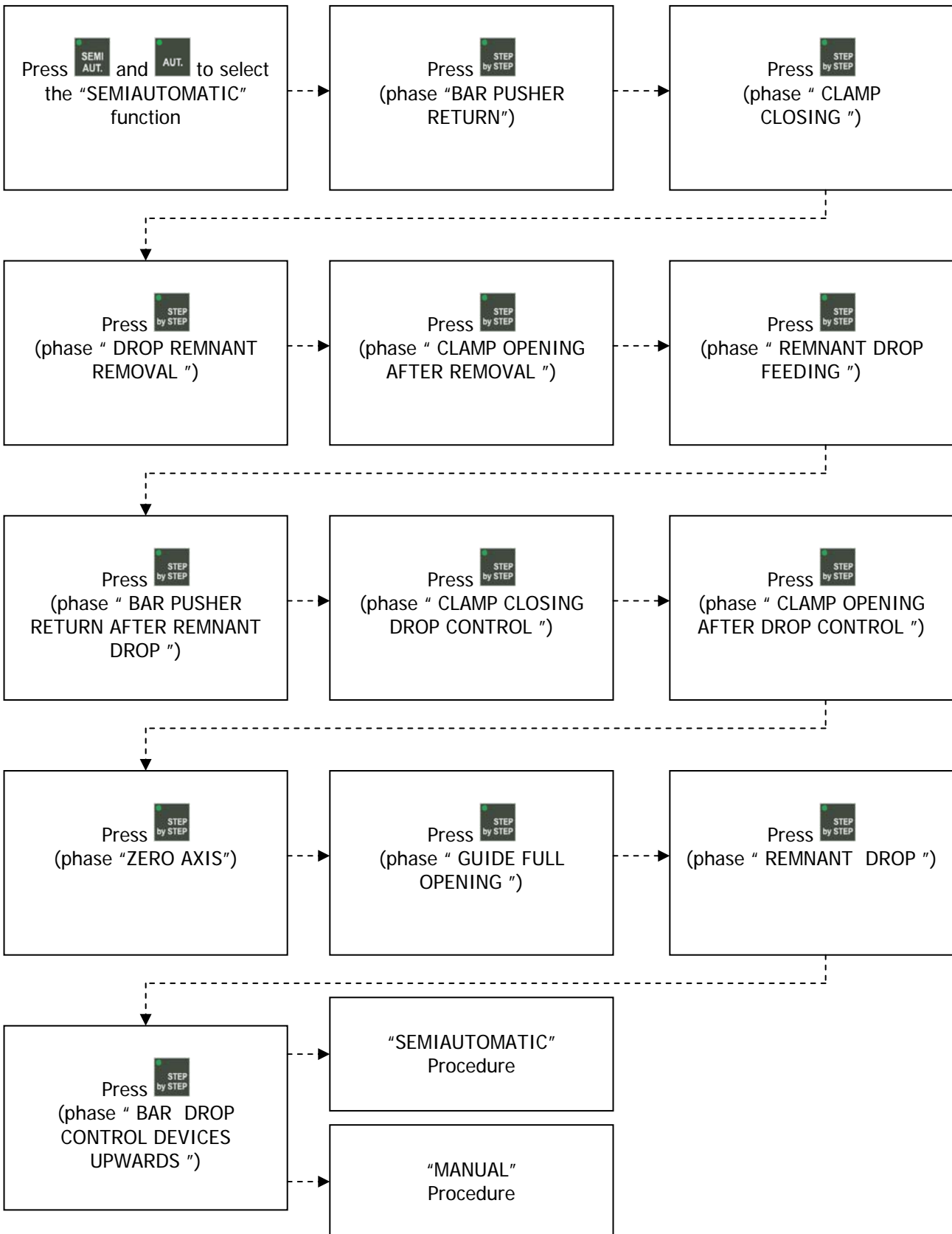
INFORMATION:

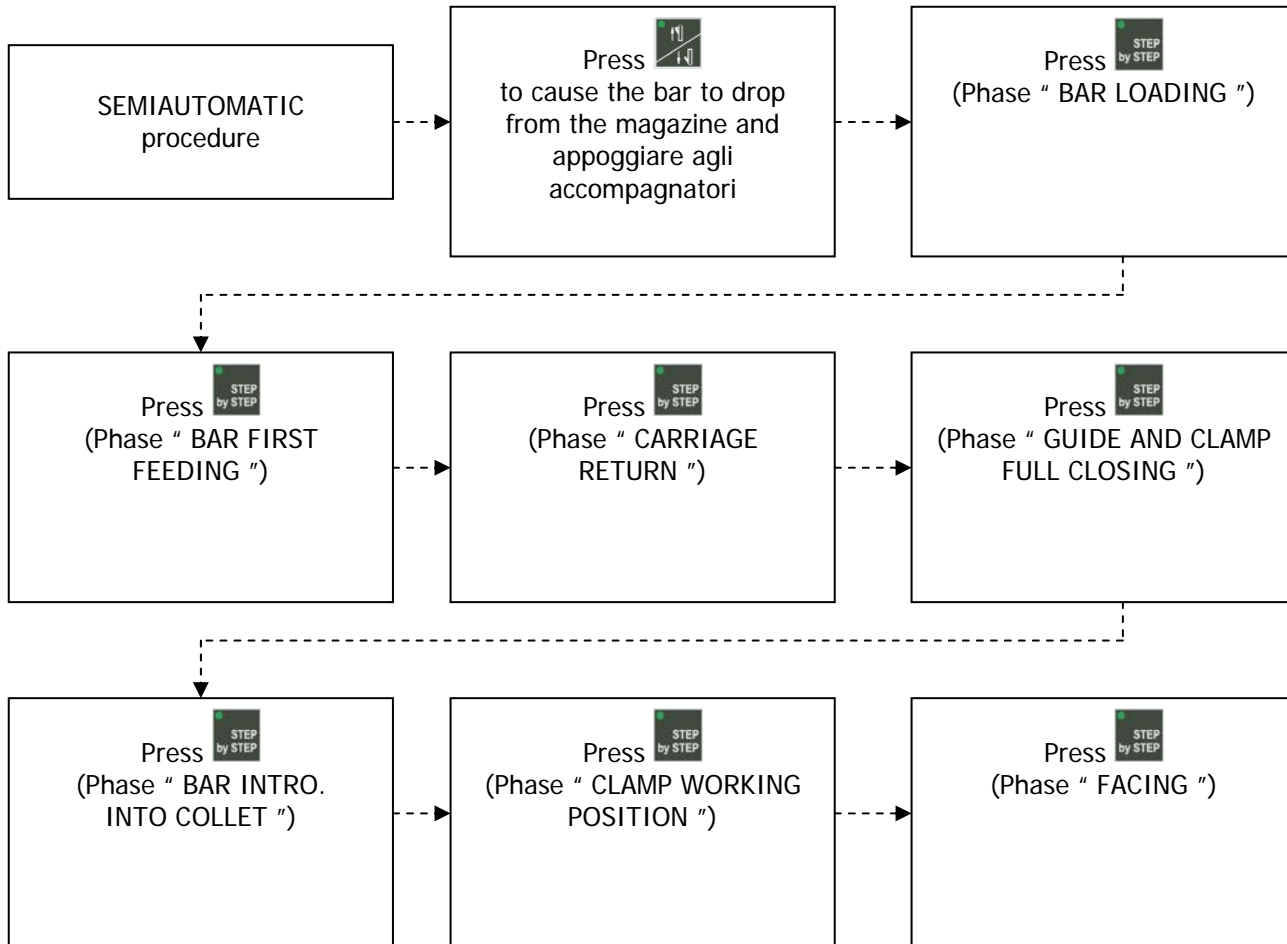
The zero axis can be performed with open or closed guide channels.

Before performing the zero axis, make sure the bar pusher is not in the "back limit stop" position.

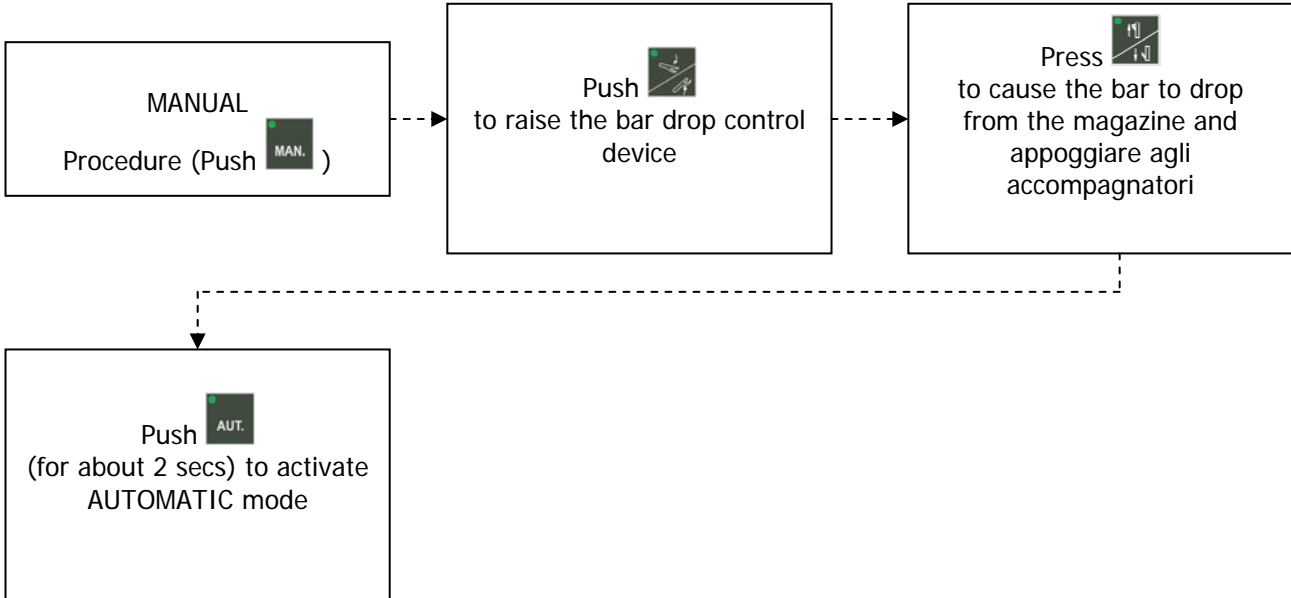
- Load one bar in the guide channels and start the automatic cycle.

6.9 BAR LOADING - PROCEDURE




INFORMATION:

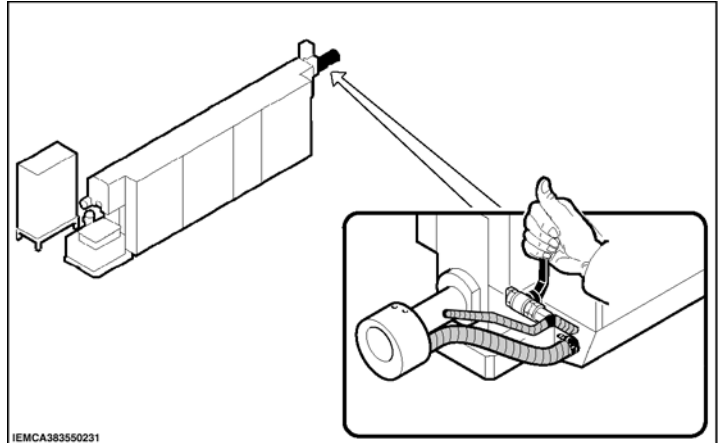
the bar drop control devices will not go up if, during the "GUIDE CHANNEL FULL OPENING" phase there is a bar in the guide channels that has prevented the short feed gate resetting.



6.10 LUBRICATING OIL - FLOW ADJUSTMENT

The oil flow in the guide channels and bush holder device is automatically controlled during the bar feeder automatic cycle. The pump is started when the bar feeder has completed the bar change and stops when the bar pusher approaches the bush holder device.

It is necessary to adjust the oil flow in the bush holder device according to the bar diameter and profile.



6.11 BAR FEEDER STOP

BAR FEEDER EMERGENCY STOP



WARNING – CAUTION:

if the emergency stop is activated whilst the lathe is working, before restarting the working cycle, check that no dangerous conditions have been created due to the sudden stop.

Example: if the tool was removing chips, before restarting the lathe, distance the tool from the piece.

- To stop the bar feeder in emergency, press one of the emergency buttons of the bar feeder or lathe.

BAR FEEDER STOP AT THE WORKING CYCLE END




WARNING – CAUTION:

when stopping the machine normally, do not use the emergency buttons.

- Complete the operations in your working schedule.



- Stop the bar feeder by pressing .
- Stop the lathe.
- Turn the main switch to the OFF position.

6.12 CYCLE PERFORMING MODE IN THE "STEP-BY-STEP" FUNCTION







FOREWORD

This mode may be used for many reasons, as for instance:


- to check a complete bar change cycle;
- to check the bar feeder mechanics;
- et cetera.

Procedure



- press  to start the bar feeder;
- make sure that the remnant drop device is closed, on the contrary, press  and [pupa_boss_sciv_spezz] to close it;
- press  and  to select the "semiautomatic" function;
- press , the bar feeder performs the first step;
- press , the bar feeder performs the second step, and so on.

INDEX

7.1	保养 — 通则 	2
7.2	计划保养 	3
7.2.1	润滑油 - 油位检查	4
7.2.2	润滑油 - 换油	5
7.2.3	滤油器 - 清洗	6
7.2.4	空气过滤器装置 - 检查	7
7.3	润滑点示意图 	8

7.1 保养 — 通则



危险 - 警告:

棒材送料机关机时，进行清洗与保养操作。

定期清洗与保养是保证棒材送料机正确运行和拥有较长使用寿命的基础。

建议定期清洗棒材送料机体、其附件与作业区，因为这样会提高操作人员的安全。

不得使用汽油以及对喷漆与透明零部件、电缆护套等造成损伤的溶剂。




信息:

氧化可损伤金属零部件和电气设备。

为了在长期闲置时保护棒材送料机，应切断电源，排除压缩空气，并用适当材质的帆布盖住机体。

任何基础保护均不得彻底闭合或密封；应设置通风孔，以确保湿气分不会因缺少流通而冷凝。

7.2 计划保养 

计划保养

Model	Bar feeder part	Operation to carry out	Frequency					
			Hours				Every year	Periodically
			200	500	1250	2500		
MASTER 880 P MASTER 880 F	Revolving tip and collet	Wear check	•					
	Half-bushing	Wear check	•					
	Lubrication system	Oil level check	•					
		Oil change				•		
		Oil filter cleaning						•
	Guides	Repair and cleanness check			•			
	Feed chain	Lubrication	•					
		Tension check			•			
	Air filter	Check						•
	Elevator chains	Lubrication		•				
		Tension check		•				
	Remnant conveyor belt	Tension and cleanness check						•
	Keyboard battery	Replacement					•	
PLC Battery	Replacement				•	•		
MASTER 880 P	Lift truck motorisation chain	Lubrication		•				
MASTER 880 F	Lifting belts	Wear check		•				
	Conveying belts	Tension check			•			
		Wear check				•		
	Conveying belt motorisation chain	Lubrication		•				
		Tension check				•		
	Lift truck motorisation chain Lubrication	Lubrication		•				
	Tension check				•			

7.2.1 润滑油 - 油位检查

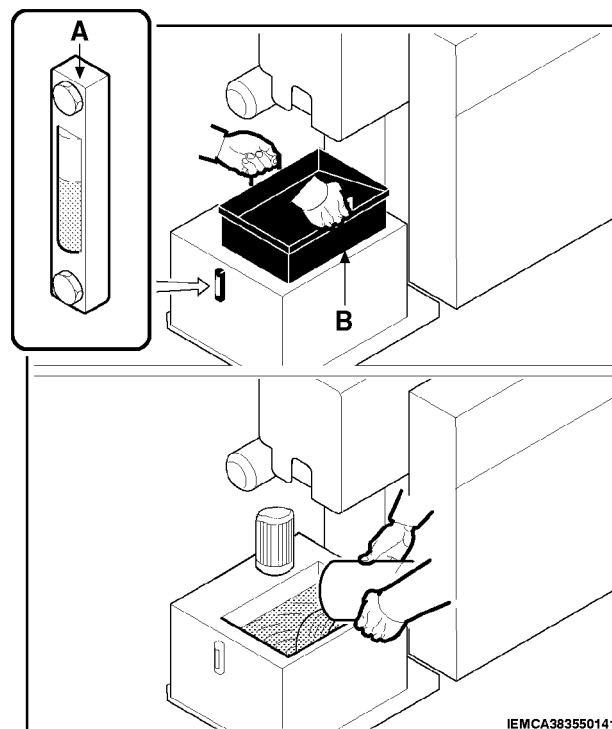


警告 - 小心:

根据现行规范穿戴个人防护装置。

- 等待棒材送料机关机至少 6 小时。
- 借助于指示器 (A) 检查油位。
- 如有必要, 卸下防护盖 (B), 将润滑油直接倒满油箱。

润滑油特征: 等级 (C) - CKB 150。



IEMCA383550141

7.2.2 润滑油 - 换油



警告 - 小心:

根据现行规范穿戴个人防护装置。

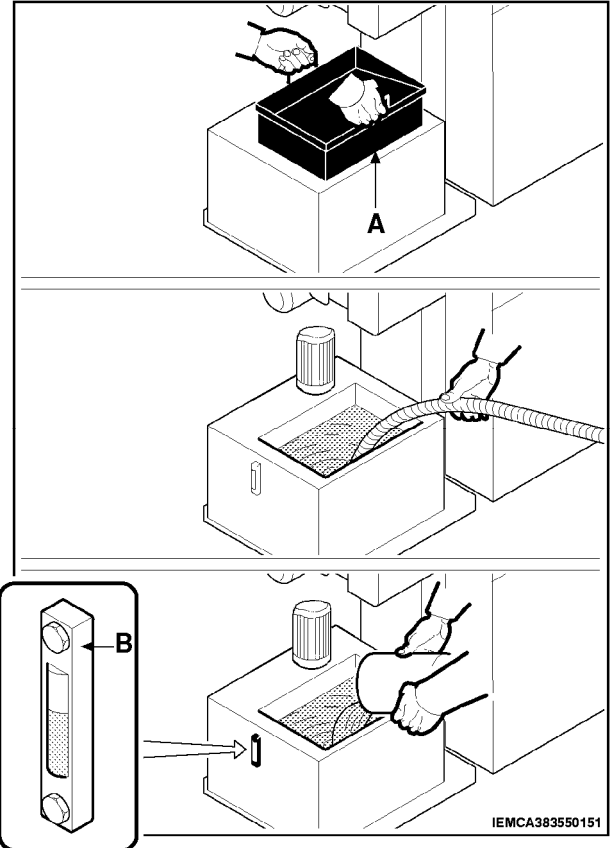


信息:

将放出的润滑油装在适当的容器中，将容器送至专业污染废品存放处理公司。避免环境污染。

- 卸下防护盖 (A)。
- 用辅助泵排干油箱。清洗油箱底部和泵吸系统。
- 对于装油，将润滑油直接倒入油箱，并通过指示器 (B) 检查油位。

润滑油特征: 等级 (C) - CKB 150, 油量: 80升。



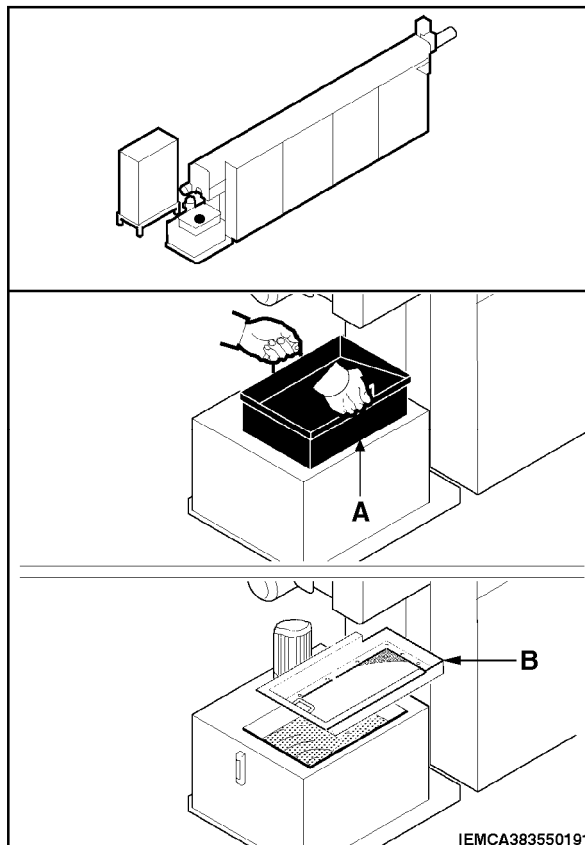
7.2.3 滤油器 - 清洗



警告 - 小心：

根据现行规范穿戴个人防护装置。

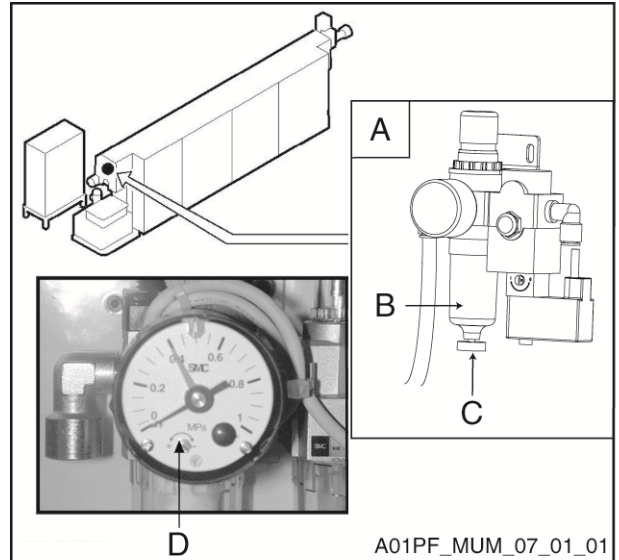
- 等待棒材送料机关机至少 6 小时。
- 卸下防护盖 (A)。
- 卸下滤油器 (B) 并清洗滤网。
- 替换滤油器和防护盖。



7.2.4 空气过滤器装置 - 检查

过滤器 (A)

- 确保油杯 (B) 未被冷凝物充满。若有必要，利用阀门 (C) 排干冷凝物。
- 过滤器配有控制压力开关，可以将压力设为 4.5 巴。
- 按照下列方式调整压力开关：
 - 卸下压力计防护玻璃；
 - 逆时针 (+) 转动调整螺丝 (D)，增加压力，或顺时针 (-) 转动减少压力；
 - 完成上述操作后，替换压力计防护玻璃。




A01PF_MUM_07_01_01

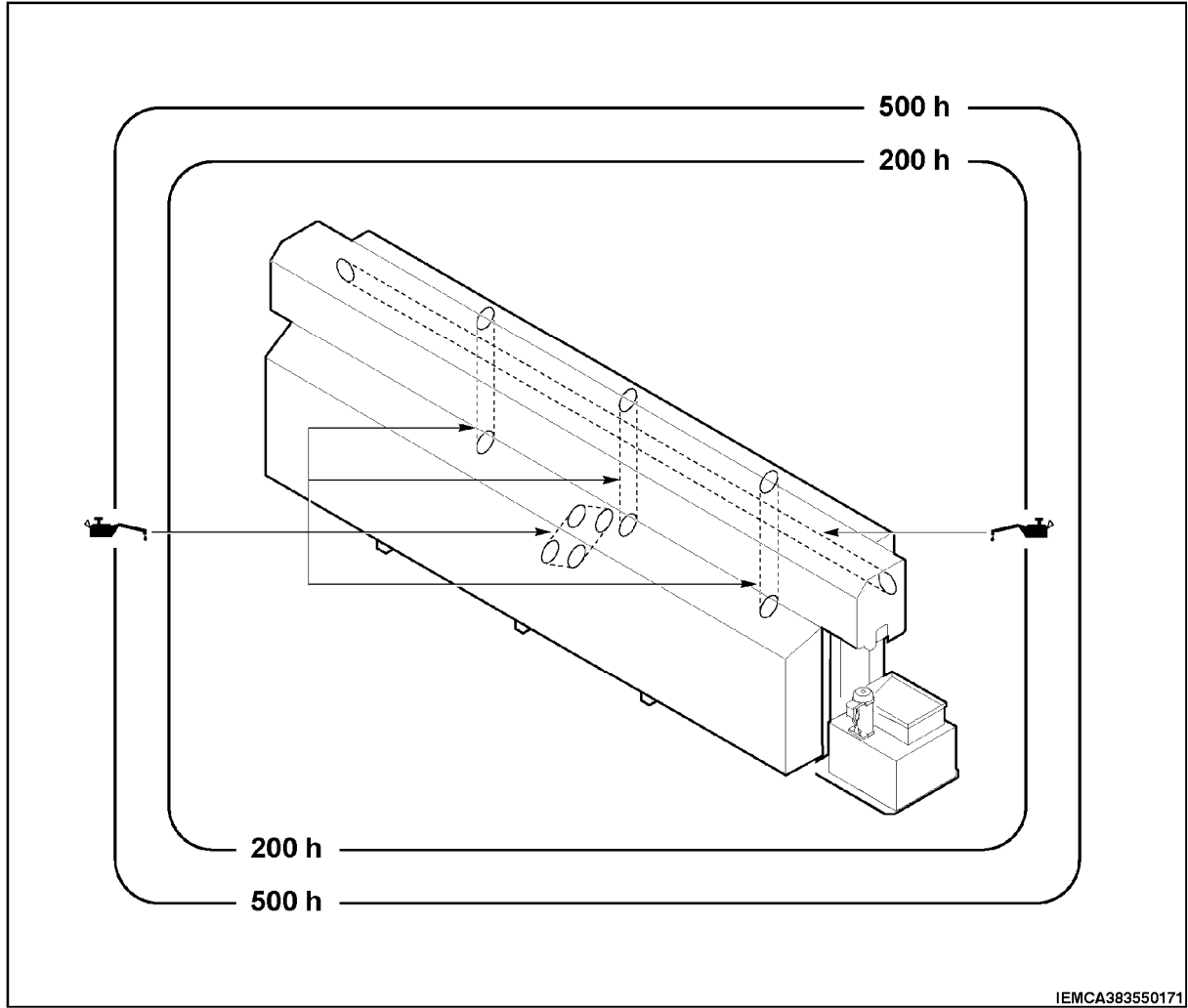


警告 - 小心：

若压力开关指针显示压力 = 0，则不得顺时针 (-) 转动调整螺丝 (D)，因为这样可能导致压力开关断裂。

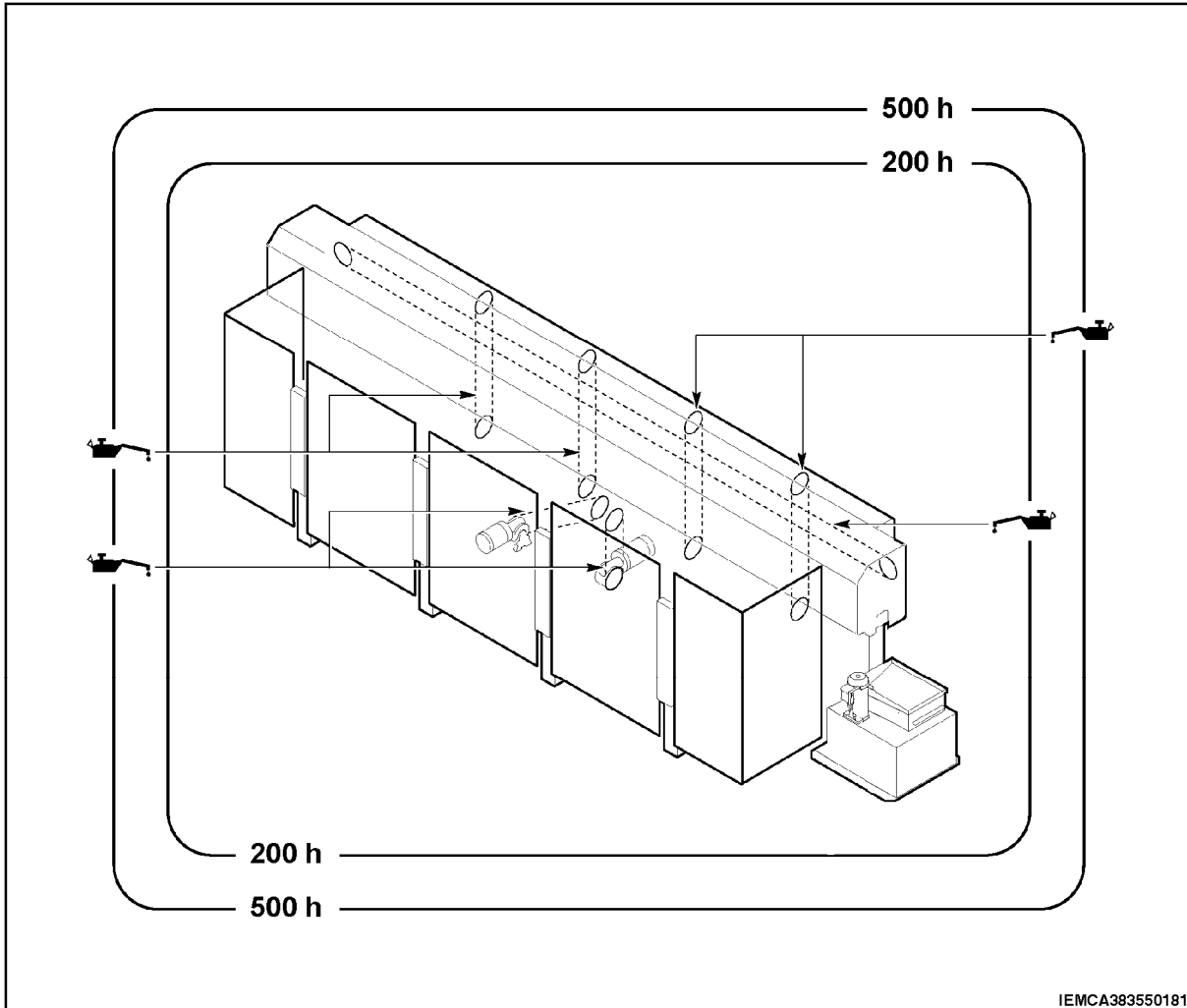
7.3 润滑点示意图 

MASTER 880 P




油

MASTER 880 F





油

INDEX

8.1 GENERAL FAILURES 3

8.2 ELEVATOR CARRIAGES - FAILURES3

8.3 FEEDING INTO COLLET — Failures 4

8.4 BAR FEEDING - Failures 4

8.5 REMNANT MOVEMENT - FAILURES4

8.1 GENERAL FAILURES 

TROUBLES	CAUSES	SOLUTIONS
The bar feeder will not start	No power.	Check the electrical connection.
	Open guard.	Close the guard.
	Emergency systems on.	Disconnect the emergency devices.
	Motor thermal switch tripped.	Reset the thermal circuit breaker with the special buttons.
The bar feeder has been reset but the automatic cycle will not start.	No lathe signal.	Check the electrical connection with the lathe.
The pneumatic devices will not respond to controls.	No air.	Check the air system.
The first feeding and feeding are stopped unexpectedly.	Motor thermal switch tripped.	Reset the motor circuit breaker with the special buttons.

8.2 ELEVATOR CARRIAGES - FAILURES

TROUBLES	CAUSES	SOLUTIONS
Elevator carriages in their highest position, are lowering because of the bar weight	The safety joint of the elevator carriages drive is not correctly adjusted	Adjust the joint
Only for MASTER 880 P		
The elevator carriages have bent the bar taken from the racks	The safety joint of the elevator carriage drive is not correctly adjusted	Adjust the joint

8.3 FEEDING INTO COLLET — Failures

TROUBLES	CAUSES	SOLUTIONS
Bar fails to enter collet	Collet diameter not suitable for bar diameter	Change collet
	Excessive rag on bar rear end	Trim rag before feeding.






8.4 BAR FEEDING - Failures

TROUBLES	CAUSES	SOLUTIONS
Difficult bar introduction into lathe spindle	Bar feeder not aligned with lathe	Check and correct the alignment
Difficult bar introduction into lathe collet	Excessive rag on bar fore end	Trim rag before feeding.

8.5 REMNANT MOVEMENT - FAILURES

TROUBLES	CAUSES	SOLUTIONS
Remnant cannot be ejected	Remnant conveyor belt is not adjusted at optimal tension and therefore drive the shaft slides, not being able to transmit the motion.	Verify and correct belt tensioning.
	Remnant passage door spring is too pre-loaded.	Reduce spring pre-load.

INDEX

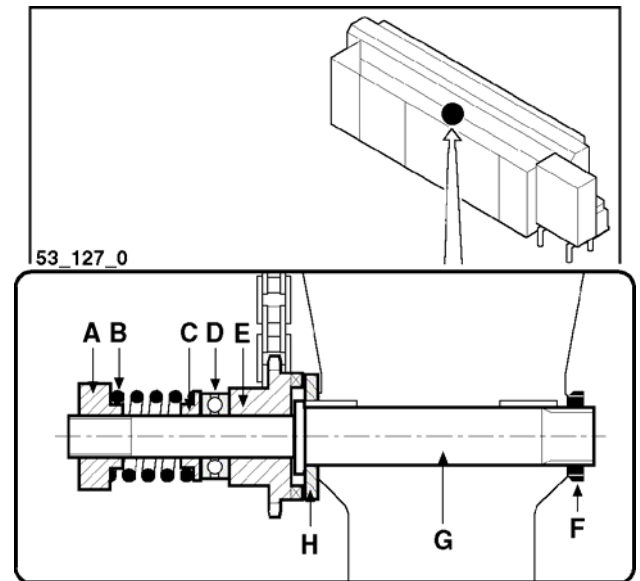
9.1	FEEDING CHAIN – REPLACEMENT 	2
9.2	ELEVATOR CARRIAGE DRIVE SAFETY JOINT - REPLACEMENT 	2
9.3	REPLACEMENT OF THE GUIDE CHANNELS WITH INSERTS WITH POLYURETHANE GUIDE CHANNELS	3
9.3.1	Disassembly of insert guide channels	3
9.3.2	Polyurethane guide channel assembly	5
9.3.3	Insert guide channels – Replacement for bar diameter variation	9
9.3.4	Insert guide channels – Replacement due to failure	17
9.4	REMNANT CONVEYOR BELT - REPLACEMENT 	20
9.5	PLC BATTERY – REPLACEMENT 	21
9.6	RECOMMENDED SPARE PARTS 	22
9.7	DISPOSAL OF THE BAR FEEDER OR PARTS OF IT	22

9.1 FEEDING CHAIN – REPLACEMENT

The replacement of the feeding chain is a very complex operation; contact IEMCA service department.

9.2 ELEVATOR CARRIAGE DRIVE SAFETY JOINT - REPLACEMENT

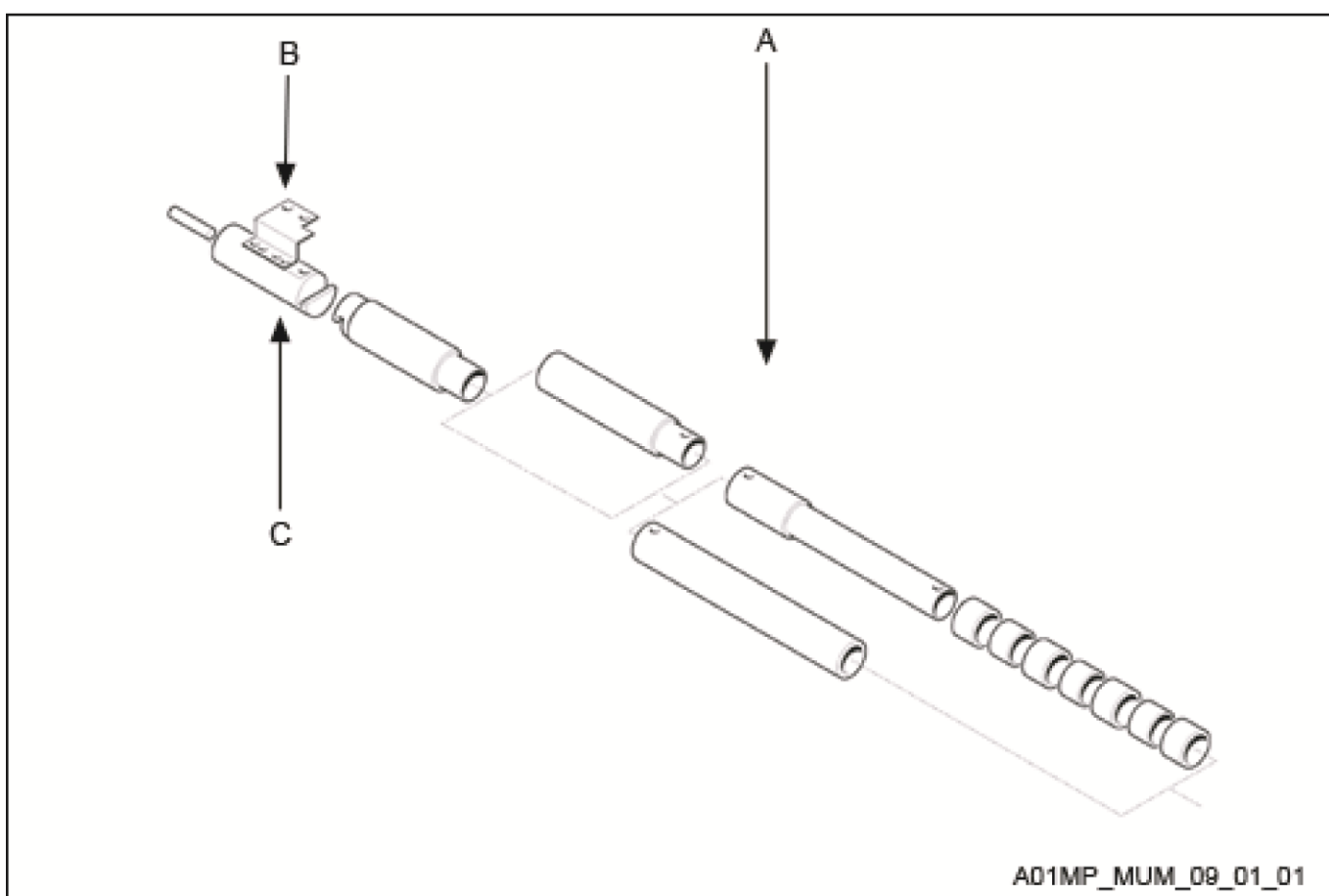
- Slacken the drive chain:
for MASTER 880 P: remove both springs responsible for the chain tension;
for MASTER 880 F: see instructions at section 5.
- Remove ring nut (A) and extract in order: spring (B), washer (C), bearing (D), pinion (E).
- Remove ring nut (F) and extract in order: shaft (G), flange (H).
- Reassemble all components in the inverted order, replacing the worn flange (H) and pinion (E) with the new ones.
- Tension the chain.



9.3 REPLACEMENT OF THE GUIDE CHANNELS WITH INSERTS WITH POLYURETHANE GUIDE CHANNELS

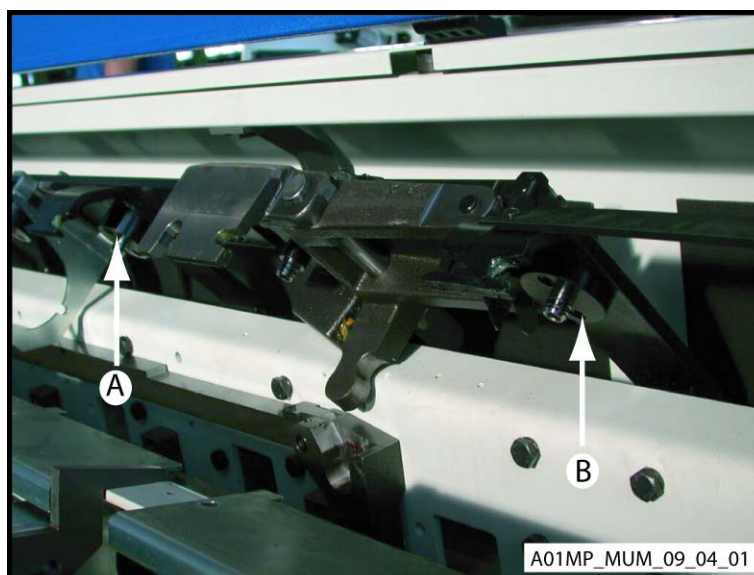
9.3.1 Disassembly of insert guide channels

- Remove the bar pusher (A) and the first feeding (C) together with the driving flag (B).



9.3.2 Polyurethane guide channel assembly

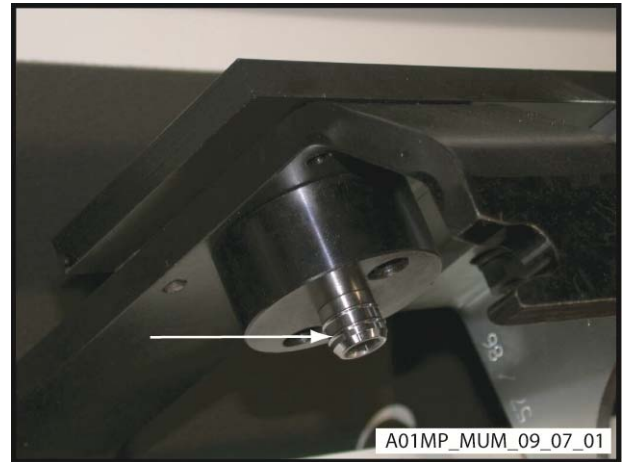
- Fit the spacers on the upper guide channel support;
- assemble spacers H=22.5 (code 380010911) (A) on the supports before the collet device and spacers H=12.5 (code 380010901) (B) on the supports after the collet device.



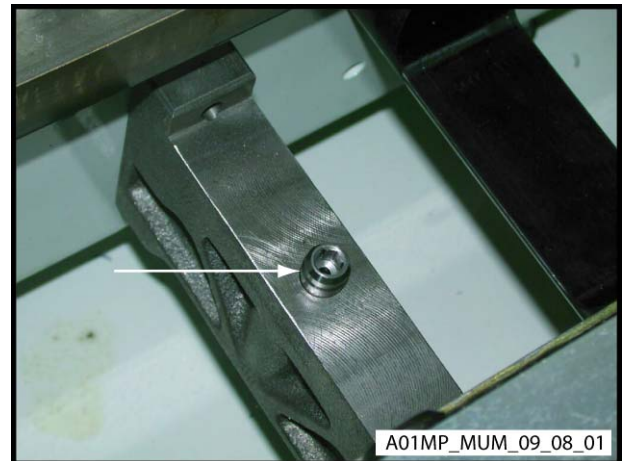
- Assemble the fastening pin of the upper guide channel (code 380010961) on the upper clamp support.



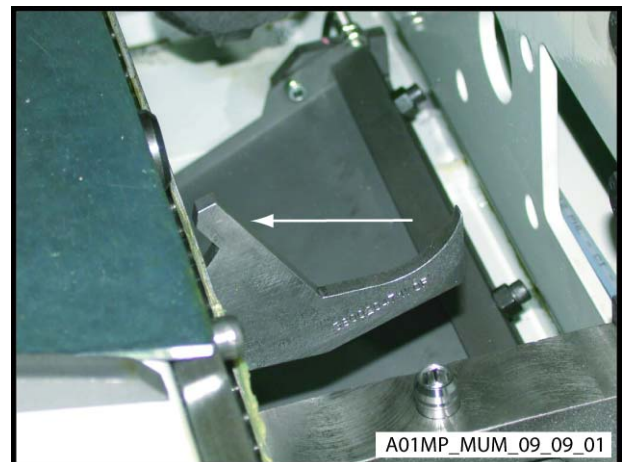
- Assemble the quick coupling pins of the guide channels.
- Assemble pins code 380010921 on the upper guide channel supports.



- Assemble pins code 380010931 on the lower guide channel supports.



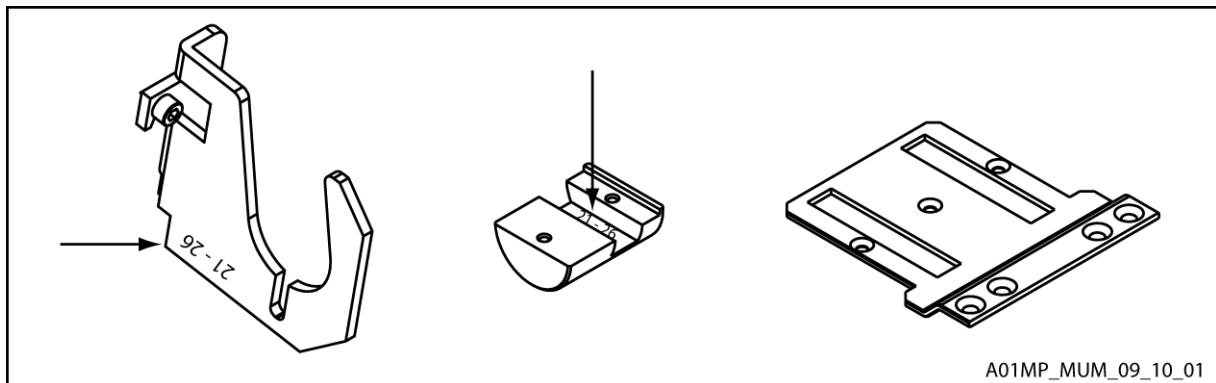
- Replace the bar drop control levers.
- The new bar drop control devices have been modified in the area indicated in the figure.



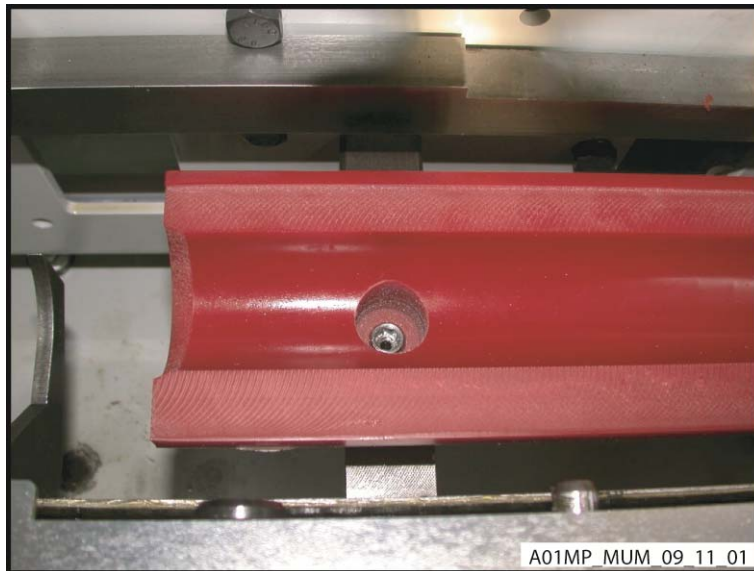
- The bar pusher supports and the driving flag of the bar pusher must not be replaced again each time the guide channel diameter is changed: the same component is used for several guide diameters. The following table indicates the diameter field of each component type.

Guide channel diameter	Code Bar pusher support	Code Flag	Code Flag pin
21 – 26	381019641	380600181	380600141
33 – 38	381019631	380600181	380600151
43 – 52	381019621	380600181	380600161
57 – 86	381019611	380600181	380600171

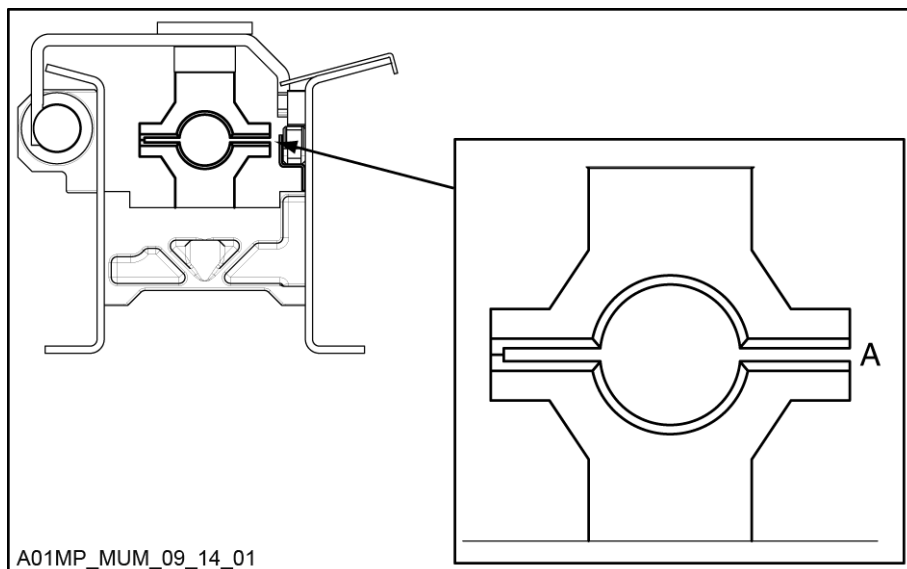
- For an easier identification, each single component indicates the operation field.



- Assemble the upper guide channels, then the lower ones according to the attached diagrams
- For a correct assembly it is necessary to make sure that the guide channel is completely inserted in the quick coupling pins (Snap-In).







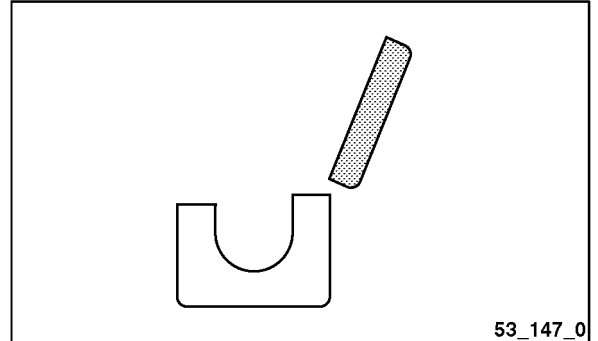
- Assemble the guide channels as shown in the figure. The slot (A) for the flag passage must be on the side of the bar pusher displacement carriage.




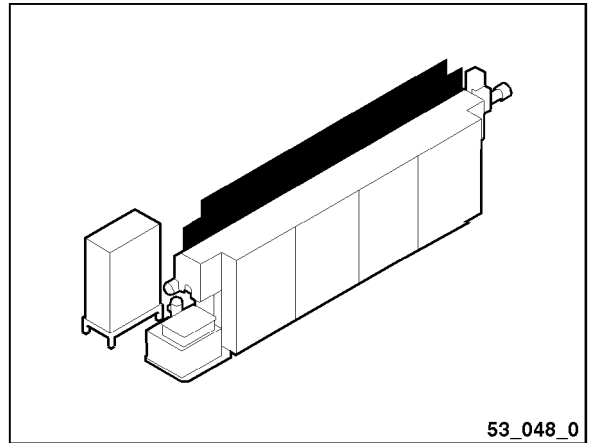
9.3.3 Insert guide channels – Replacement for bar diameter variation



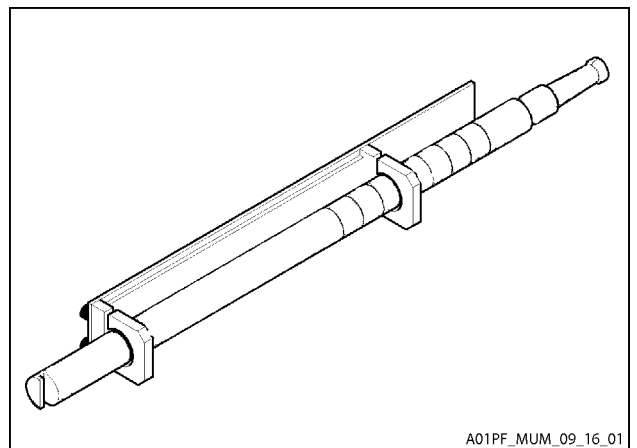
- Press  to start the bar feeder.
- press  and  to select the semiautomatic function.
- Press  several times until the upper guide channels open; "GUIDE CHANNEL FULL OPENING" should appear on the display.



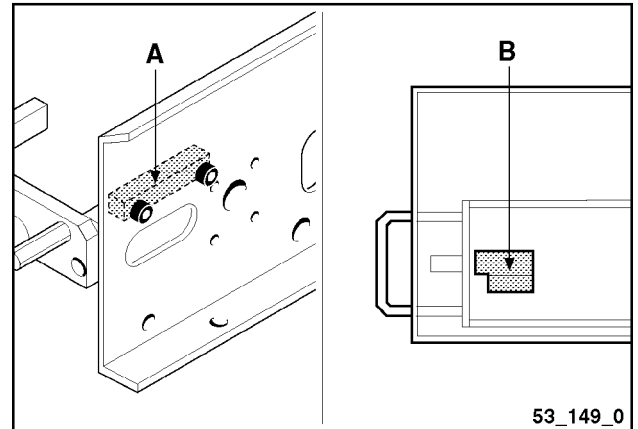
- Press  and open the upper guard.



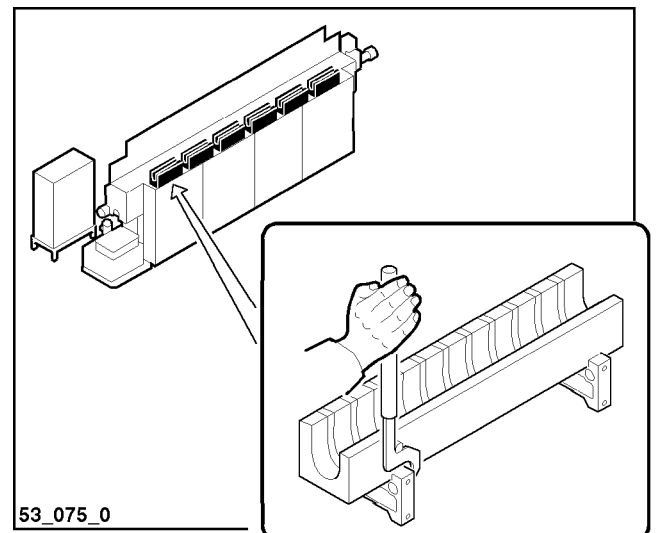
- Remove the bar pusher from both supports.



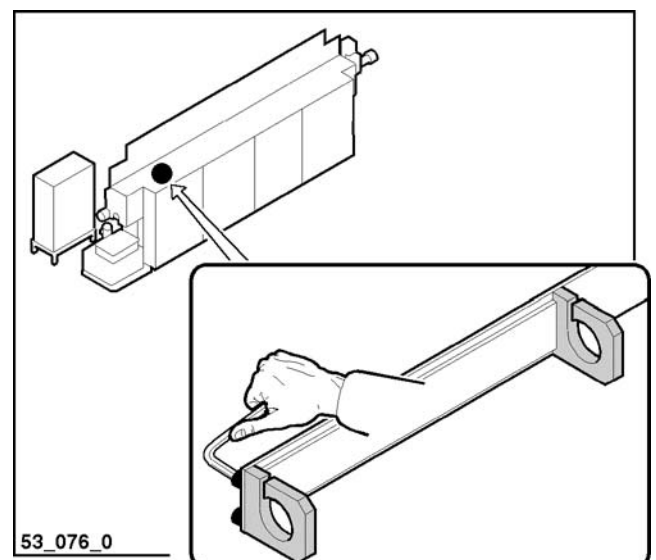
- Remove the block (A) and then, the first feeding carriage (B).



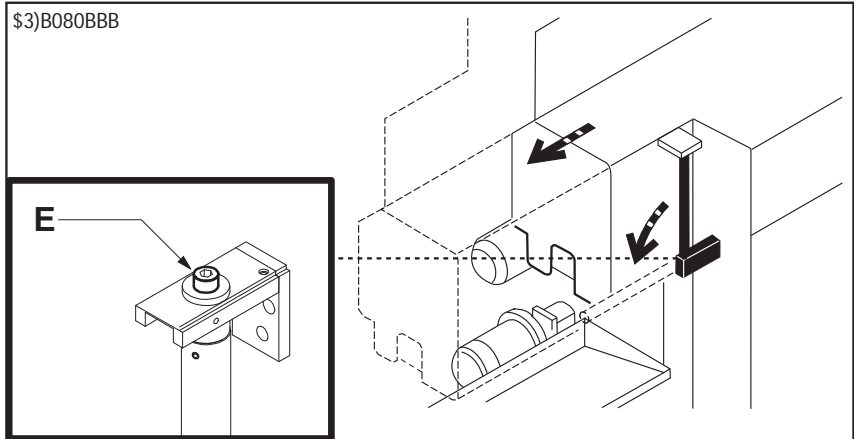
- Remove the lower guide channels using the special wrench provided.



- Replace the bar pusher supports with those of "new" diameter.

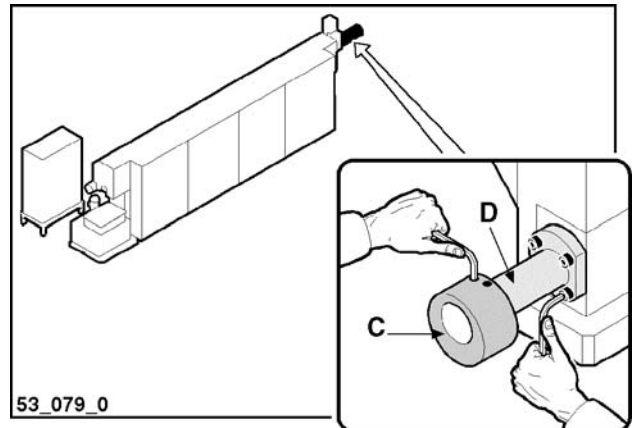


- Remove the screw (E), lower the rear lever and move the bar feeder body backwards.

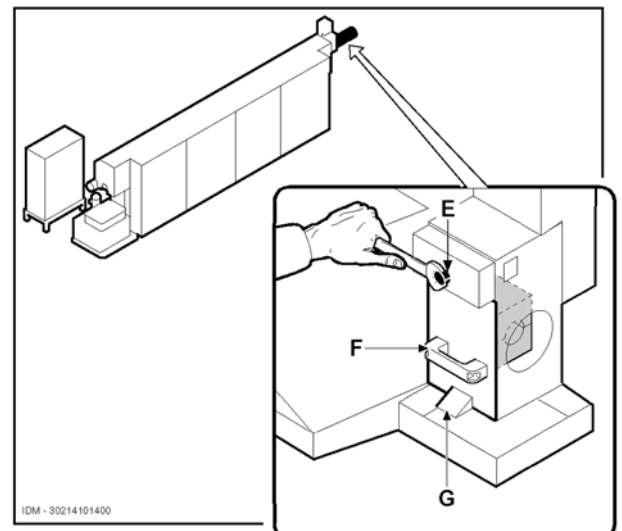


WARNING - CAUTION:
before performing this operation, open the upper guard.

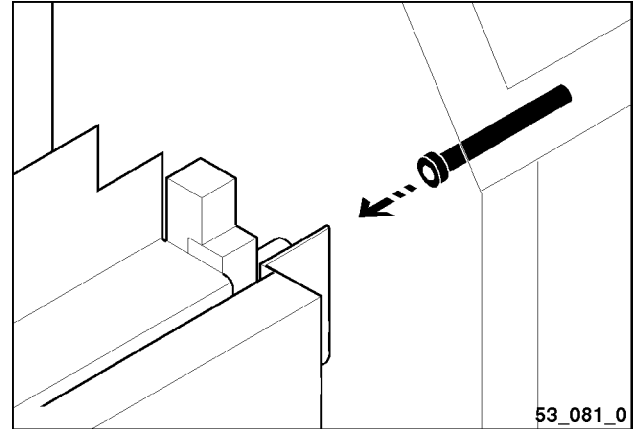
- Remove the oil recovery device (C) and sleeve (D).



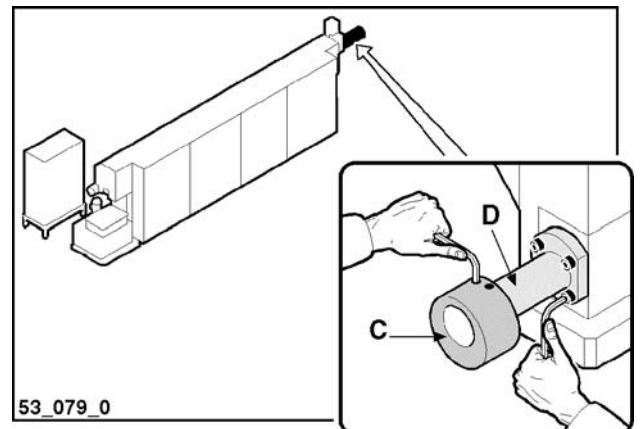
- Lower spring (G) and remove cover (F), completely open the two half-bushings by manually turning shaft (E) and remove the lower half-bushing.
- Close the upper half-bushing by turning the shaft again then replace it.
- Turn the shaft and fit the lower half-bushing.
- Close the half bushes completely and install the cover.



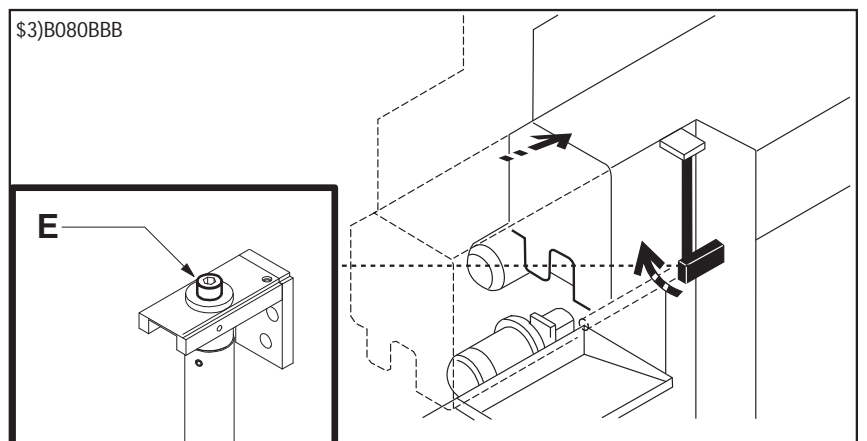
- Remove the lathe spindle liner if required and install a suitable liner for the "new" diameter, if necessary.



- Assemble sleeve (D) of the "new" diameter and the oil recovery (C).

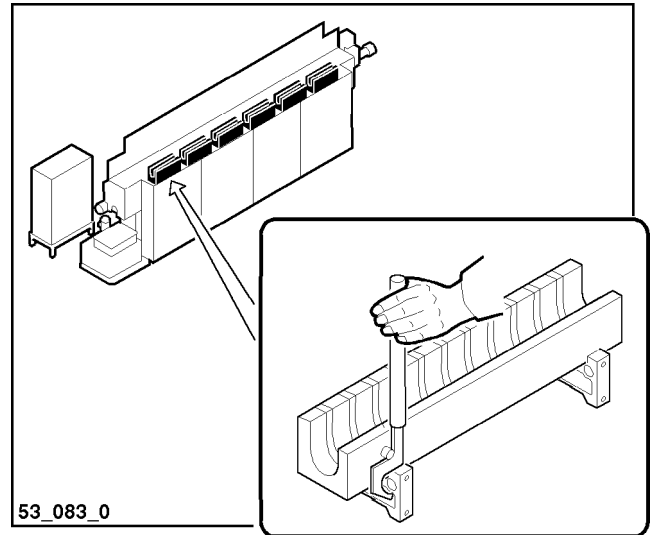


- Move the bar feeder body forwards and lift the rear lever, turn screw (E) clockwise to block the lever.


WARNING - CAUTION:

gradually bring the bar feeder body up to the stop placed on the tank, thereby eliminating the risk of damaging the displacement device.

- Assemble the lower guide channels of the "new" diameter.

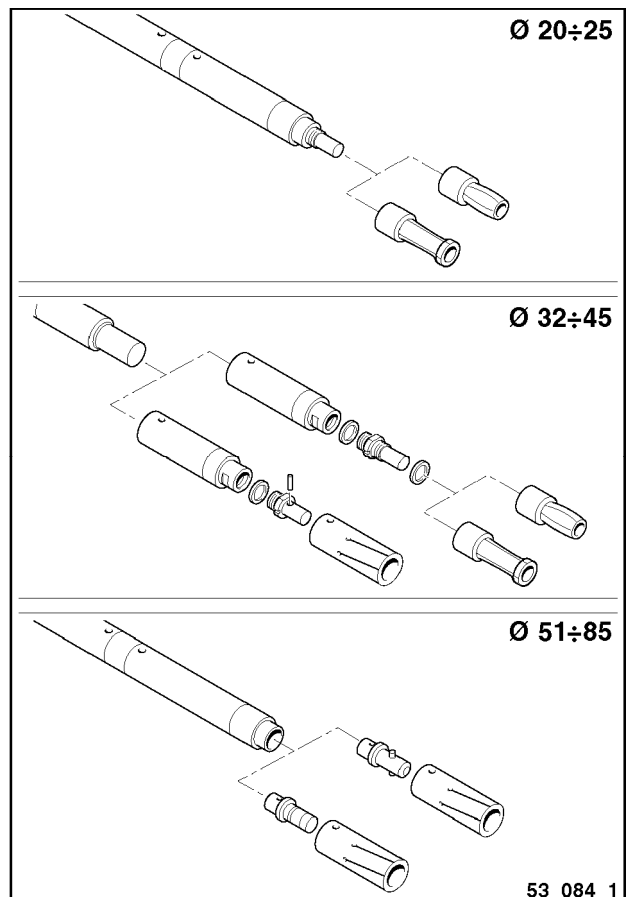


- Choose an appropriate collet for the bar diameter and profile; see "GUIDE CHANNELS-BAR PUSHER-REVOLVING TIPS-COLLETS – Manual for choice".



INFORMATION:

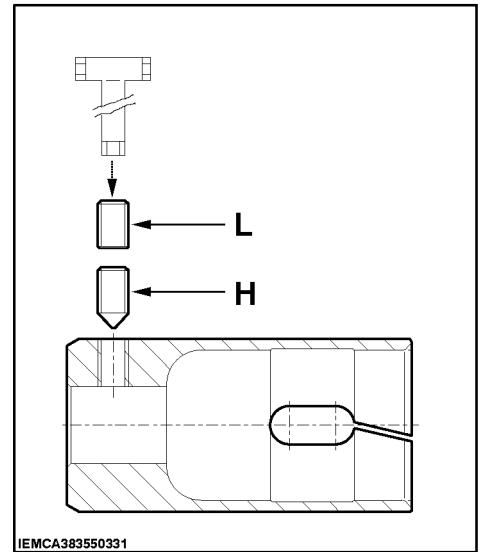
contact IEMCA service department for further information.





WARNING - CAUTION:

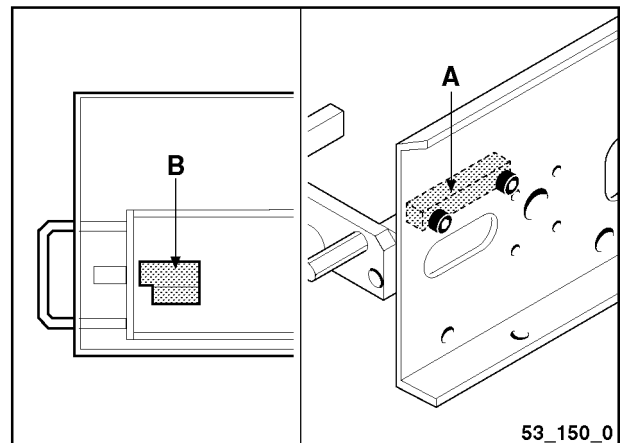
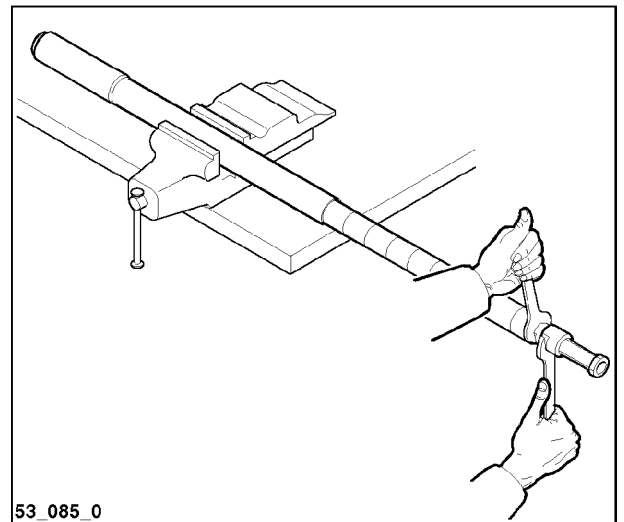
At every collet change (model 381p, 381p..011, 381p..021 e 386p) it is necessary to install the grub screw H and the counter screw L.



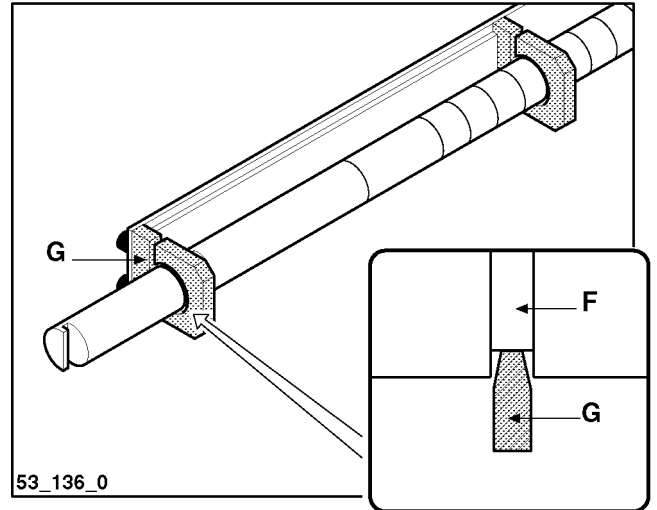
WARNING - CAUTION:

the collet external diameter should be at least 0.5 mm smaller than the bar pusher external diameter.

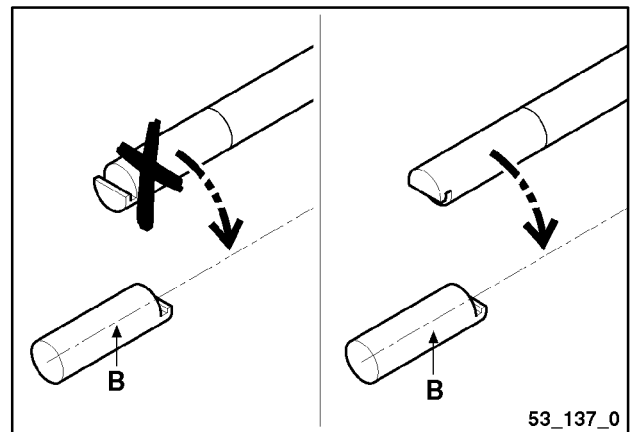
- Install the collet in the bar pusher and make sure that the rings are riveted in their special recess to prevent accidental loosening of the collet and/or its connection.
- Install the first feeding carriage (B) for the "new" diameter, followed by the block (A).



- Insert the bar pusher into both supports. Properly position the bar pusher in the axial direction, so that (F) groove matches support (G).



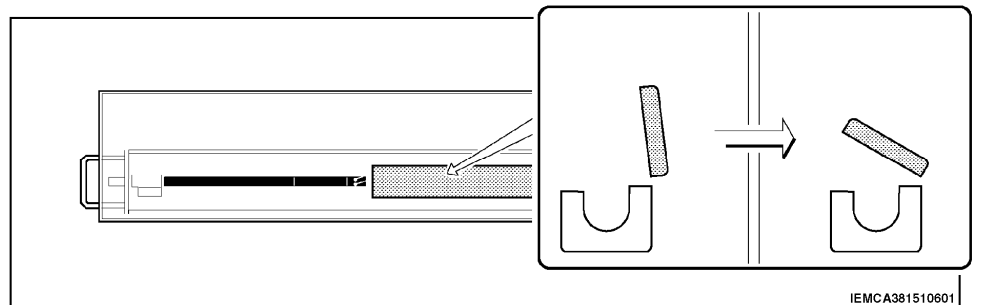
- Properly position the bar pusher in the radial direction so that in the next phase of the upper guide channel closing, the coupling between the bar pusher and the first feeding carriage (B) occurs correctly.



WARNING - CAUTION:

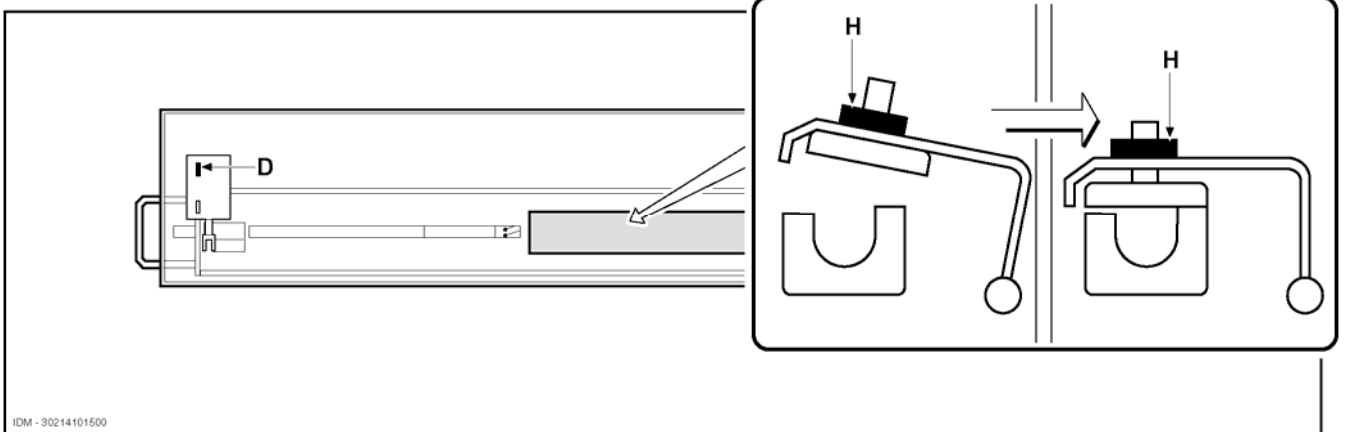
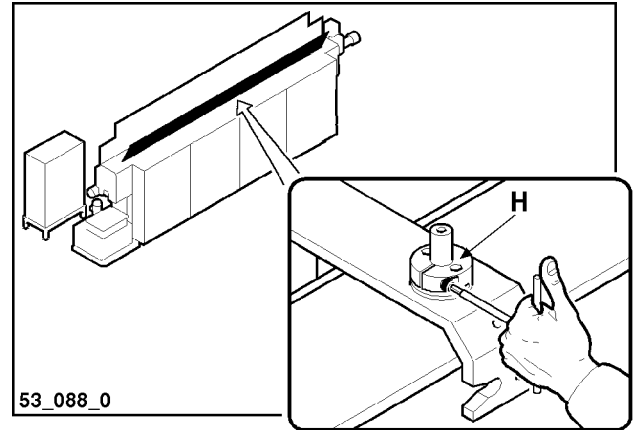
the above mentioned positioning has to be always assured. Therefore during the setup or maintenance operations, if the bar pusher is struck involuntarily, it has to be correctly repositioned.

- Press the start button together with  4, to partially open the upper guide channels.







- Loosen all the elastic clamps (H) (socket screw key CH6 supplied).

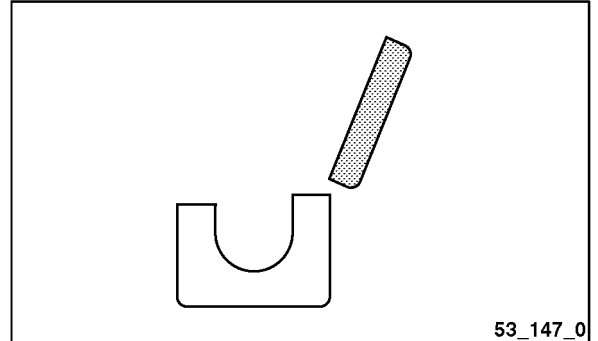
- Close the upper guide channels (5) until sensor (D) turns on. By carrying out this operation, the upper guide channels will rest against the lower guide channels. Tighten all the clamps (H).




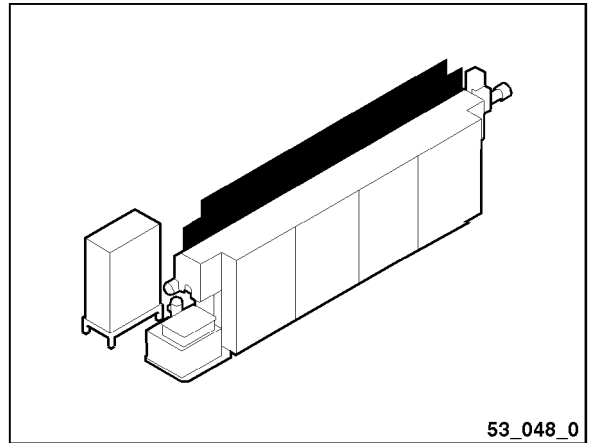
9.3.4 Insert guide channels – Replacement due to failure



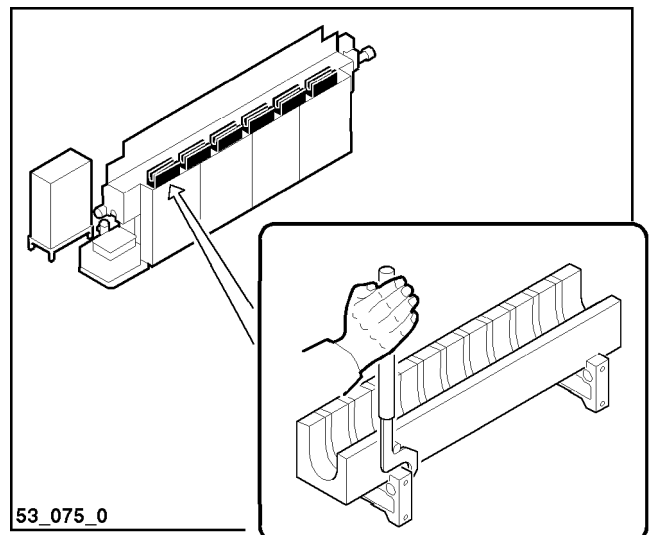
- Press  to start the bar feeder.
- press  and  to select the semiautomatic function.
- Press  several times until the upper guide channels open; "GUIDE CHANNEL FULL OPENING" should appear on the display.



- Press  and open the upper guard.




- Remove the lower guide channels using the special wrench provided.

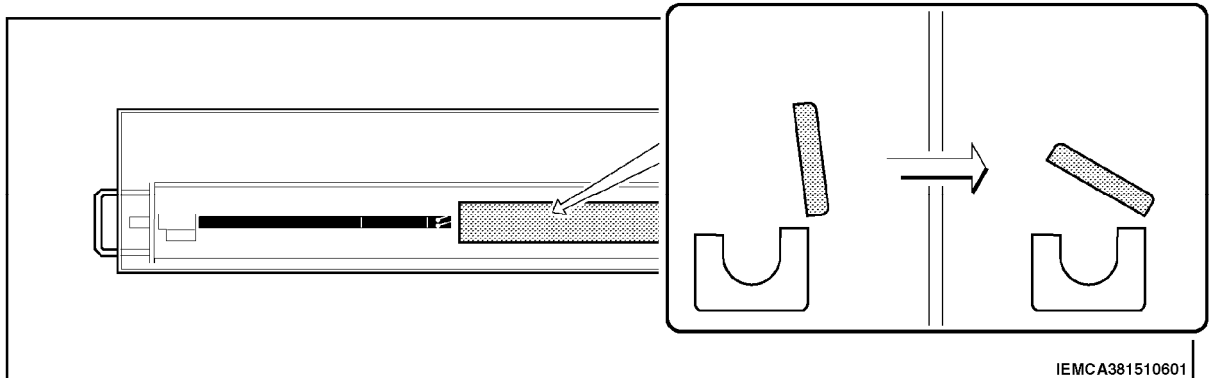
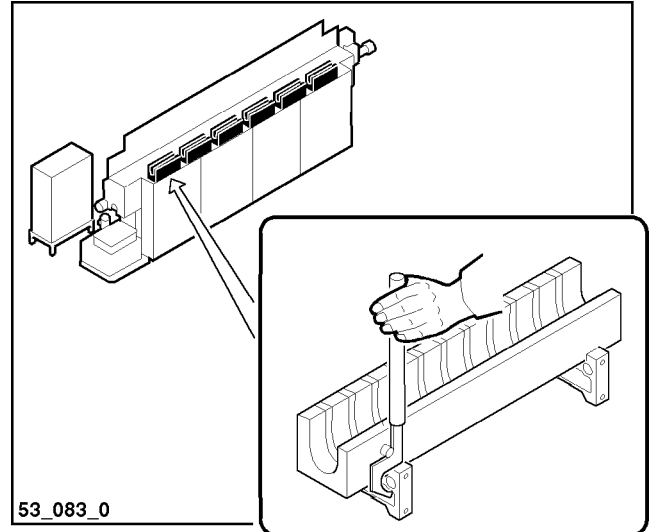


- Assemble the lower guide channels of the "new" diameter.



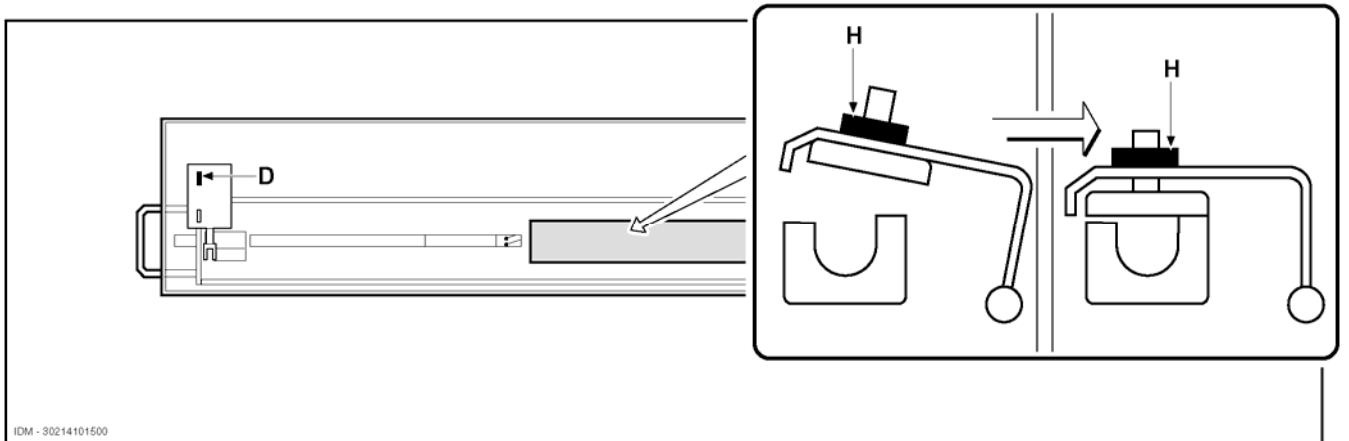
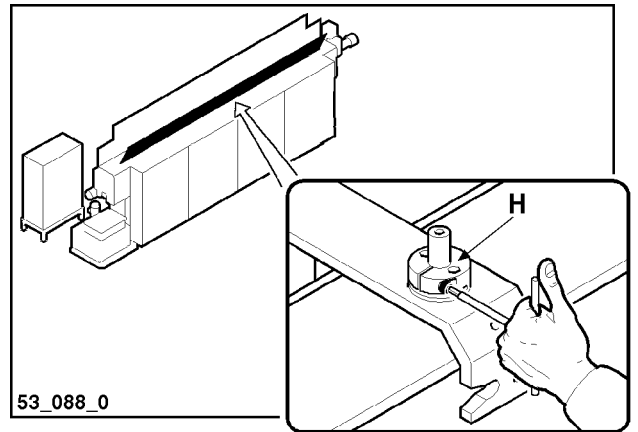
INFORMATION:
contact IEMCA service department for further information.

- Press the start button together with  4, to partially open the upper guide channels.



- Loosen all the elastic clamps (H) (socket screw key CH6 supplied).

- Close the upper guide channels (5) until sensor (D) turns on. By carrying out this operation, the upper guide channels will rest against the lower guide channels. Tighten all the clamps (H).



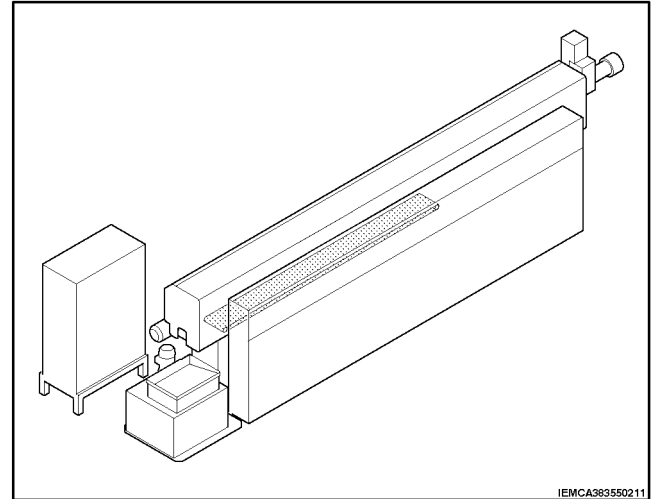
9.4 REMNANT CONVEYOR BELT - REPLACEMENT

- Slacken the belt.
- Lift the belt.

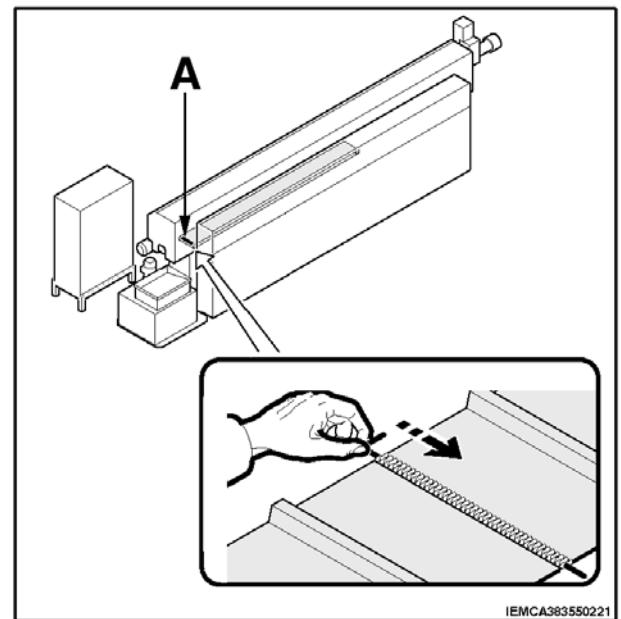


WARNING - CAUTION:

During this manoeuvre be careful not to damage the remnant passage door.



- Cut the worn belt so that it can be removed from its seat.
- Splice one end of the worn belt with one end of the new belt. Slide out the worn belt so that the new one can be simultaneously inserted along the entire path.
- Separate the worn belt from the new one.
- Splice the ends of the new belt using lacing A.
- Tension the belt according to the instructions given in § "Remnant conveyor belt", section 5
- Restore the bar feeder initial operating conditions.



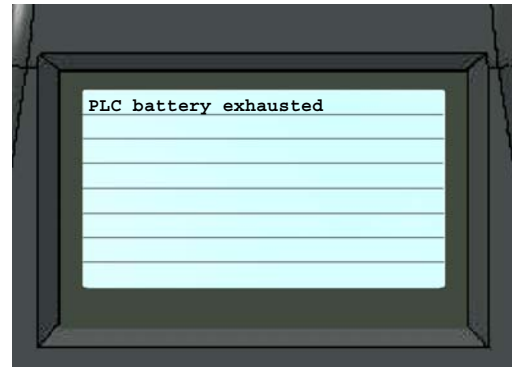
9.5 PLC BATTERY – REPLACEMENT

Replace the battery every year, or when the following message is displayed: "PLC battery exhausted"

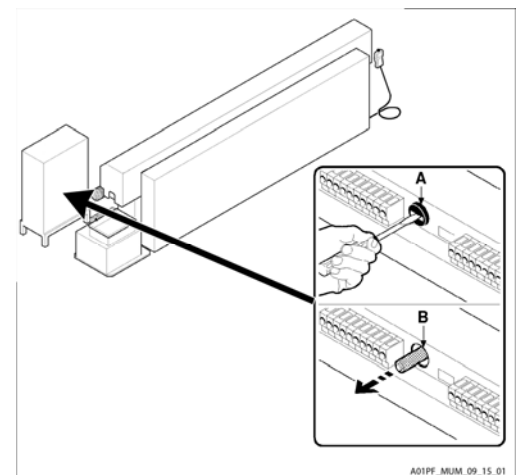


INFORMATION:

when this message is displayed, the battery should be replaced within one day, otherwise, the "PLC/NC Software" data will be deleted.



- unscrew plug (A) and remove battery (B);
- insert a new battery (3.6 volts lithium AA battery) and make sure that it is introduced correctly, then tighten the plug (A).



9.6 RECOMMENDED SPARE PARTS

The parts subject to wear or easily breakable parts are listed below (for a period of two years, normal use of the bar feeder).

Model	Code	Name	Features	Notes	Qty
MASTER 880 P MASTER 880 F		Feeding chain		Vers.19	1
	24220108	Feeding chain	1/2"x5/16"	Vers.33	1
	24220109	Feeding chain	1/2"x5/16"	Vers.38	1
	24220121	Feeding chain	1/2"x5/16"	Vers.43	1
	24290606	Connecting link	1/2"x5/16"		1
	32210004	Sensor	3RG4012-0AG07		1
	32210013	Sensor	3RG4012-0AG33		1
	32210017	Sensor	3RG4012-0AG00		1
	32210019	Sensor	3RG4012-0AG33-Z		1
		Bar pusher		Specify diameter and length	1
		Revolving tip		Specify diameter	1
		Collet		Specify internal and external diameter	1



To order the parts refer to the Spare Parts Catalogue.

9.7 DISPOSAL OF THE BAR FEEDER OR PARTS OF IT



INFORMATION:

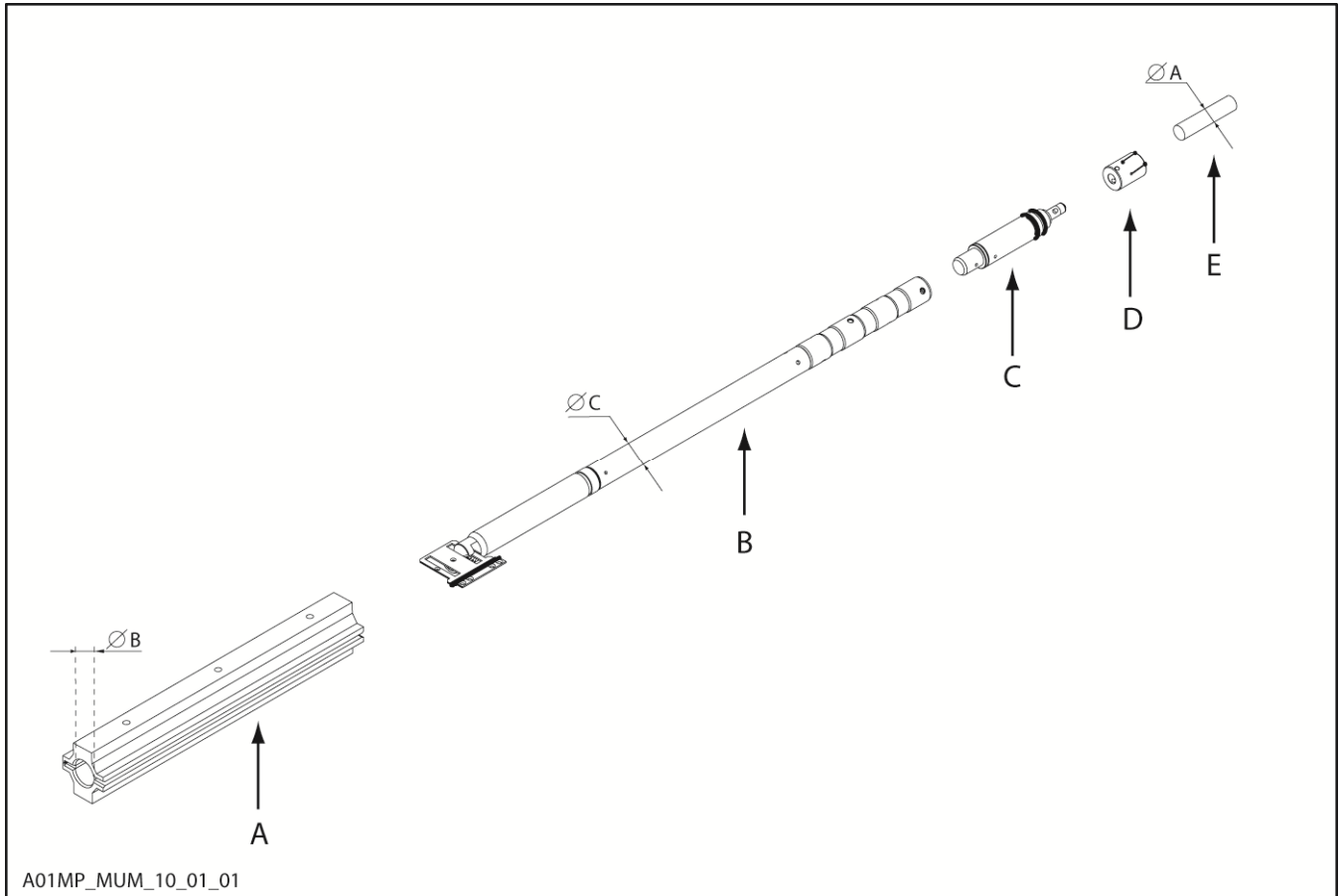
this operation must be carried out by specialized operators, in accordance with the laws in force on safety at work. Do not throw non-biodegradable products, lubricating oils and non-ferrous components (rubber, PVC, resins, etc.) in the environment. Dispose of them in compliance with the laws in force.

INDEX

10.1	GUIDE CHANNELS AND BAR PUSHER.....	2
10.2	REVOLVING TIP - TABLE	3
10.3	Revolving tips \varnothing GR 20÷25 - Table.....	5
10.4	Revolving tips \varnothing GR 20÷25 - Table.....	6
10.5	Revolving tips \varnothing GR 32÷45 - Table.....	7
10.6	Revolving tips \varnothing GR 51÷85 - Table.....	9

10.1 GUIDE CHANNELS AND BAR PUSHER

The choice of the guide channels and of the bar pusher must be made according to the diameter of the bar to be machined. The bar feeder is usually supplied with a bar pusher whose diameter is equal to the maximum bar passage of the lathe. Sometimes, in order to ensure the best working conditions, it may be necessary to use a bar pusher with a smaller diameter.



- A Guide channels
- B Bar pusher
- C Revolving tip
- D Collet
- E Bar

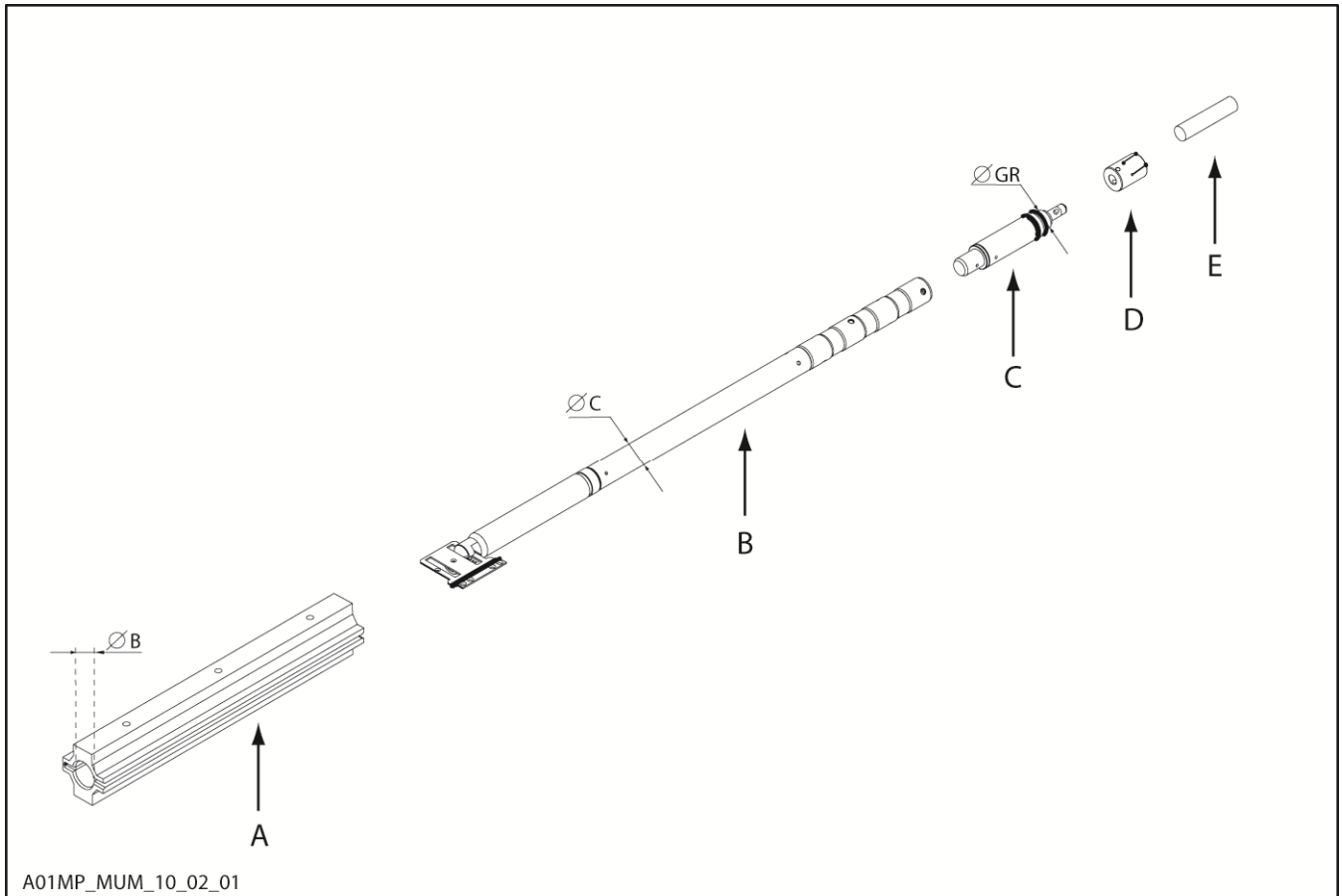


INFORMATION:

upon customer's request and according to the internal diameter of lathe spindle hole, the bar pusher and the revolving tips may be supplied with dimensions other than the ones indicated in the table.

10.2 REVOLVING TIP - TABLE

The choice of the revolving tip depends on the diameter of the guide channel, and bar pusher and on the version of the collet coupling.



- A Guide channels
- B Bar pusher
- C Revolving tip
- D Collet
- E Bar

EN	10 - GUIDE CHANNELS-BAR PUSHER-REVOLVING TIPSMATER 880/880r VERSO
-----------	--

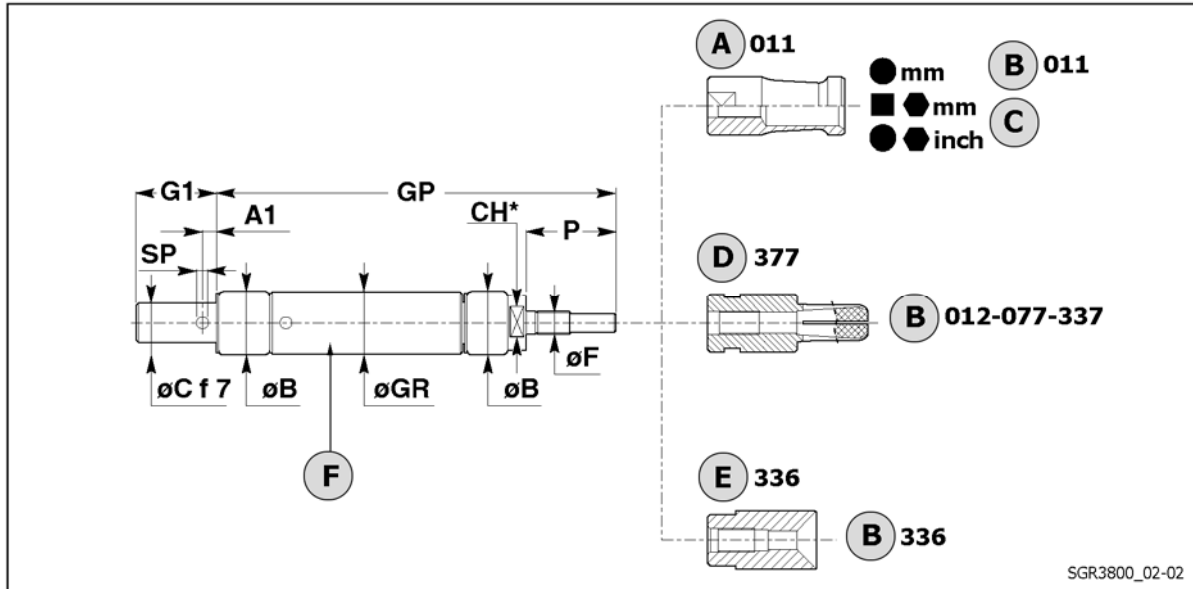
øB (mm) Guide channel diameter	øC (mm) Bar pusher diameter	Collet version– D (type of coupling)	øGR (mm) Revolving tip diameter	Revolving tip code
21	20	Threaded (IEMCA)	20	D71152010
		With quick coupling pin		D71152011
26	25	Threaded (IEMCA)	25	D71152510
		With quick coupling pin		D71152511
33	32	Threaded (IEMCA)	32	D70153210
		With quick coupling pin		
36	35	Threaded (IEMCA)	35	D70153510
		With quick coupling pin		
38	37	Threaded (IEMCA)	37	D70153710
		With quick coupling pin		
43	42	Threaded(IEMCA)	42	D70154210
		With quick coupling pin		
46	45	Threaded (IEMCA)	45	D70154510
52	51	With quick coupling pin(IEMCA) With quick coupling screw(IEMCA) Threaded "OPTIONAL"	51	D77155110
57	56		56	D77155610
61	60		60	D77156000
66	65		65	D77156500
69	68		68	D77156800
71	70		70	D77157000
73	72		72	D77157200
76	75		75	D77157500
81	80		80	D77158000
86	85		85	D77158500



IMPORTANT: the single components of the bar pusher and revolving tips are showed in the spare parts catalogue.

10.3 Revolving tips \varnothing GR 20÷25 - Table

- For collets with threaded coupling (IEMCA)



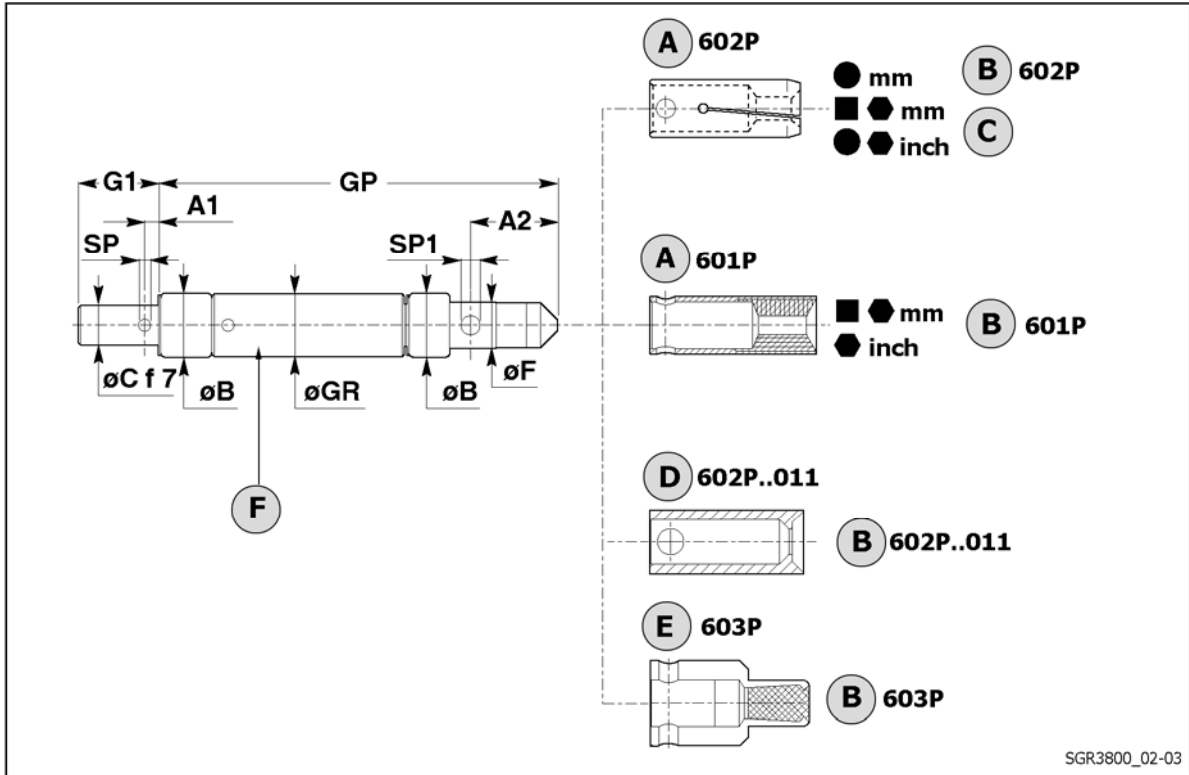
CH*: double-ended fork wrench DIN3110

- A Collet
- B See file
- C See file 001 then 011
- D Pipe collet
- E Ejector
- F Revolving tip

\varnothing GR (mm)	Revolving tip code	\varnothing F	\varnothing B (mm)	GP (mm)	G1 (mm)	C (mm)	A1 (mm)	\varnothing SP (mm)	P (mm)	CH (mm)
20	D71152010	M10x1	20.5	172.5	35	14	6	4	38.5	15
25	D71152510	M10x1	25.5	172.5	35	17	6	5	38.5	21

10.4 Revolving tips \varnothing GR 20÷25 - Table

- For collets with quick coupling pin "OPTIONAL"

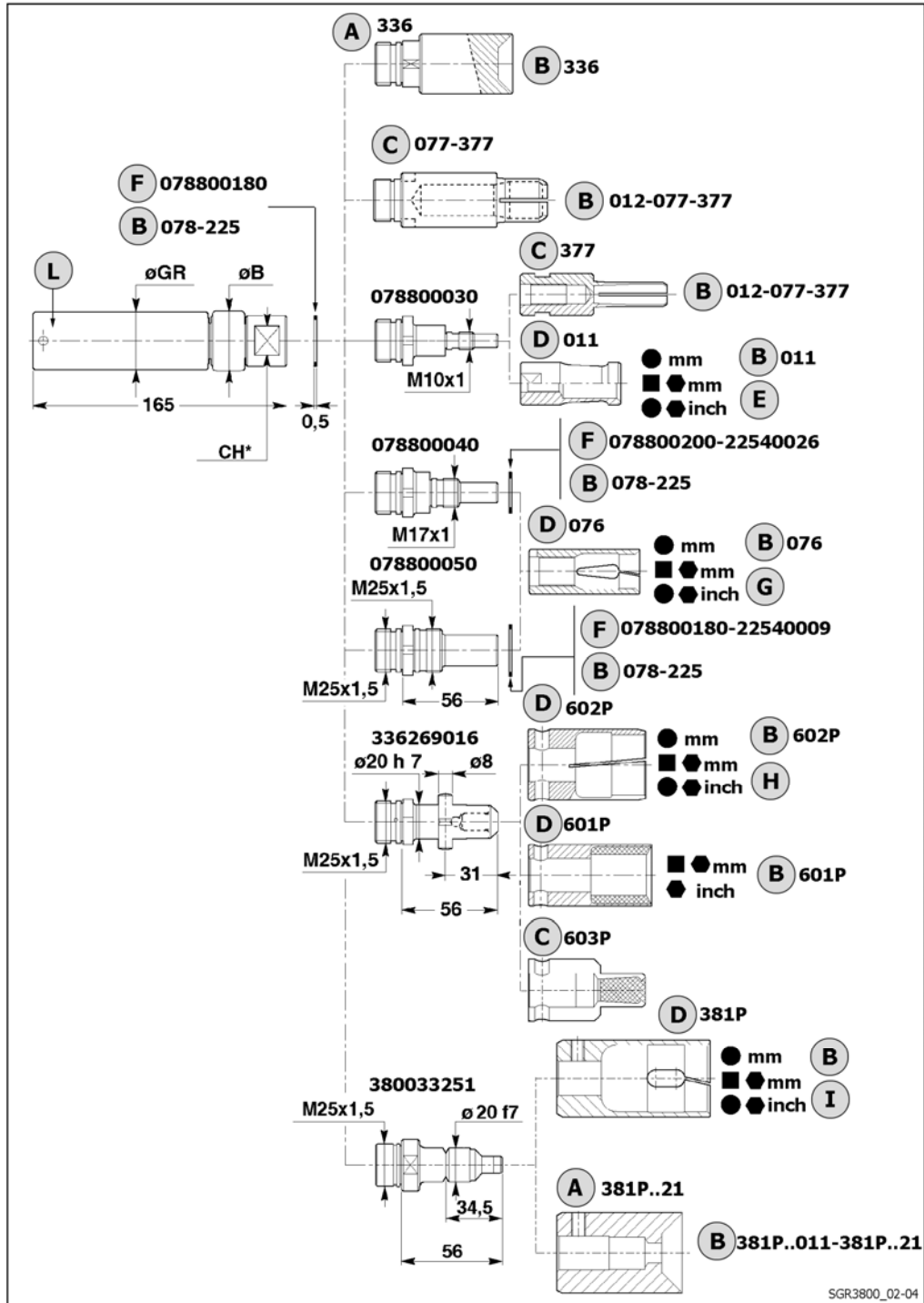


- A Collet
- B See file
- C See file 001 then 602P
- D Ejector
- E Pipe collet
- F Revolving tip

\varnothing GR (mm)	Revolving tip code	\varnothing F (mm)	\varnothing B (mm)	GP (mm)	G1 (mm)	C (mm)	A1 (mm)	\varnothing SP (mm)	A2 (mm)	\varnothing SP1 (mm)
20	(*)	14	/	172.5	35	14	6	4	37.5	8
25	(*)	20	/	172.5	35	17	6	5	37.5	8

10.5 Revolving tips \varnothing GR 32÷45 - Table

- For collets with threaded coupling (IEMCA) or with quick coupling pin

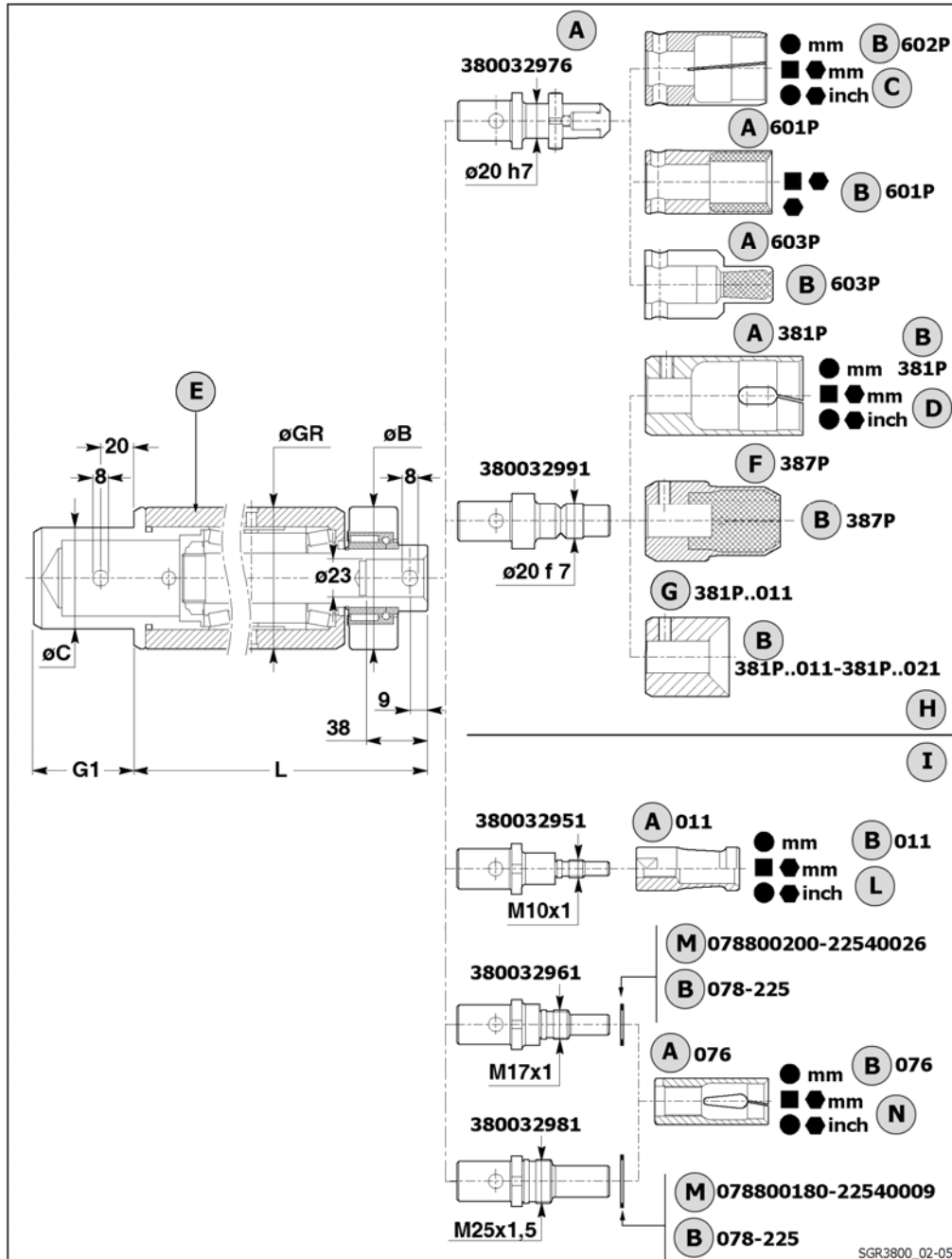


- A Ejector
- B See file
- C Collet for pipe
- D Collet
- E See file - 001
then - 011
- F Ring
- G See file - 001
then - 076
- H See file - 001
then - 602P
- I See file - 001
then - 381P
- L Revolving tip

øGR (mm)	Revolving tip code	øB (mm)	CH (mm)
32	(*)	/	27
35	(*)	/	27
37	(*)	/	27
42	(*)	/	32
45	(*)	/	32

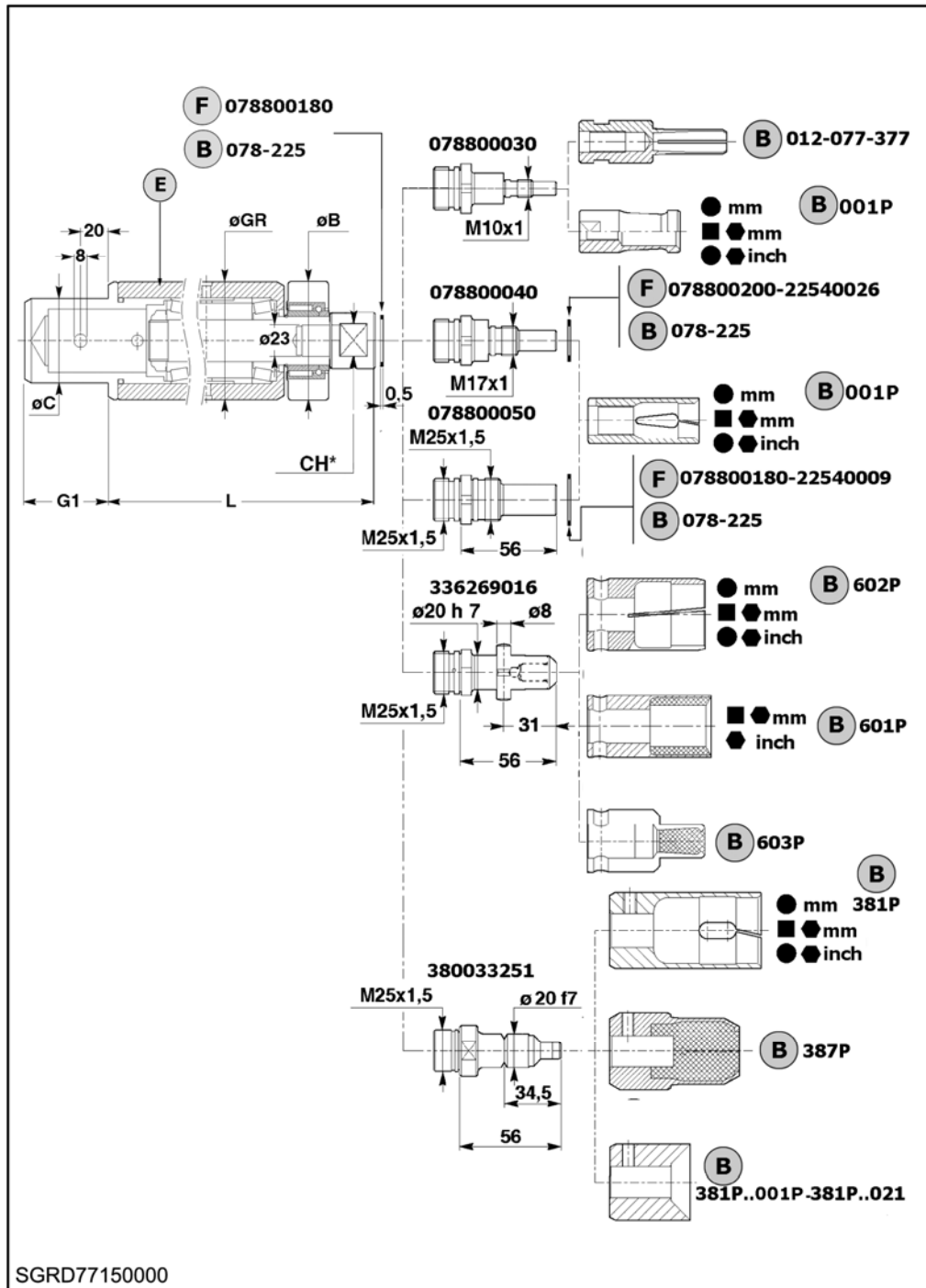
10.6 Revolving tips \varnothing GR 51÷85 - Table

- For collets with pin coupling (IEMCA), screw coupling (IEMCA) or threaded coupling (IEMCA) "OPTIONAL"



- A Collet
- B See file
- C See file 001
then 602P
- D See file 001
then 381P
- E Revolving tip
- F Collet for pipe
- G Ejector
- H STANDARD
- I OPTIONAL
- L See file 001
then 011
- M Ring
- N See file 001
then 076

øGR (mm)	Revolving tip code	øB (mm)	G1 (mm)	C (mm)	L (mm)
51	D77155110	51.5	50	37	181
56	D77155600	56.5	50	40	181
60	D77155000	60.5	50	40	202
65	D77156500	65.5	60	46	202
68	D77156800	68.5	60	51	202
70	D771557000	70.5	60	51	202
72	D77157200	72.5	60	51	202
75	D77157500	75.5	70	60	202
80	D77158000	80.5	70	61	202
85	D77158500	85.5	70	61	202



CH*: double-ended fork wrench DIN3110

B See conversion table therefore collet table

F Ring

E Revolving tip

øGR (mm)	Revolving tip code	øB (mm)	G1 (mm)	C (mm)	L (mm)
51	D01155150	51.5	50	37	181
56	D01155650	56.5	50	40	181
60	D01156050	60.5	50	40	202
65	D01156550	65.5	60	46	202
68	D01156850	68.5	60	51	202
70	D01157050	70.5	60	51	202
72	D01157250	72.5	60	51	202
75	D01157550	75.5	70	60	202
80	D01158050	80.5	70	61	202
85	D01158550	85.5	70	61	202

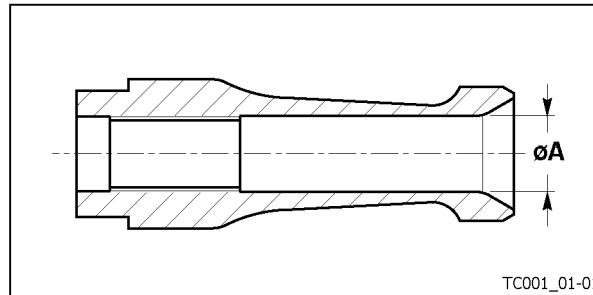
INDEX

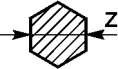

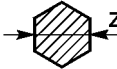

11.1	CONVERSION TABLES 001	3
11.2	HEXAGONAL BARS (unit of measurement "millimetres") - Table.....	3
11.3	SQUARE BARS (unit of measurement "millimetres") - Table	5
11.4	HEXAGONAL BARS (unit of measurement "inches") - Table.....	6
11.5	ROUND BARS - (unit of measurement "inches") - Table.....	7
11.6	CONVERSION TABLE Inches/Millimetres	8
11.7	COLLETS FOR 011P BARS.....	10
11.8	COLLET FOR BARS - Table.....	10
11.9	PIPE COLLETS 012-077-377	13
11.10	PIPE COLLETS - Table	13
11.11	EJECTOR 336	16
11.12	EJECTOR — Guide channels $\varnothing < 30$ - Table	16
11.13	EJECTOR — Guide channels $\varnothing > 32$ - Table	18
11.14	COLLETS FOR BARS 602P.....	20
11.15	COLLET FOR BARS - Table.....	20
11.16	BORING COLLETS FOR BARS 601P.....	22
11.17	BORING COLLETS FOR SQUARE AND HEXAGONAL BARS - Table	22
11.18	EJECTORS 602P..011	24
11.19	EJECTORS —Guide channels $\varnothing 13 \div 28$ - Table.....	24
11.20	PIPE COLLETS 603P	26
11.21	PIPE COLLETS - Table	26
11.22	COLLETS FOR BARS 076.....	28
11.23	COLLET FOR BARS - Table.....	28
11.24	COLLETS FOR BARS 381P.....	31
11.25	COLLET FOR BARS - Table.....	31
11.26	EJECTORS 381P..011 - 381P..021	34

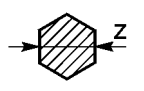
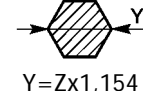
11.27	381P..021 EJECTORS - Guide channels $\varnothing 33 \div 46$ - Table	34
11.28	381P..011 EJECTORS - Guide channels $\varnothing 52 \div 86$ - Table	36
11.29	PIPE COLLETS 386P	38
11.30	PIPE COLLETS - Table	38
11.31	RINGS FOR COLLETS 078-225	40
11.32	RINGS FOR COLLETS - Table	40

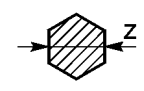
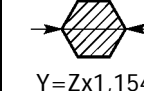
11.1 CONVERSION TABLES 001
11.2 HEXAGONAL BARS (unit of measurement "millimetres") - Table

Before selecting the steel collet, define the internal diameter $\varnothing A$ by referring to the table below.



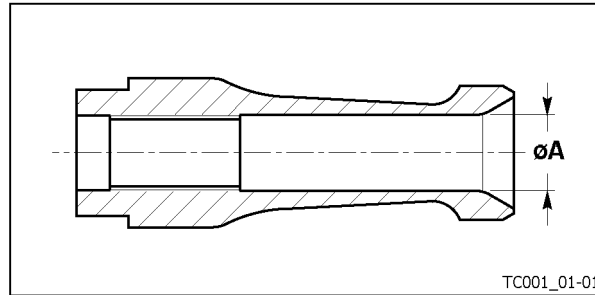
	 $Y = Z \times 1,154$	$\varnothing A$		 $Y = Z \times 1,154$	$\varnothing A$
mm	mm	mm	mm	mm	mm
1.5	1.73	1.7	28	32.33	32
2	2.31	2.2	29	33.48	33.2
2.5	2.89	2.8	30	34.64	34.5
3	3.48	3.25	31	35.79	35.5
3.5	4.04	3.8	32	36.95	36.8
4	4.61	4.5	33	38.10	37.8
4.5	5.19	5	34	39.25	39
5	5.77	5.5	35	40.41	40.2
5.5	6.35	6.2	36	41.56	41.3
6	6.92	6.8	38	43.87	43.5
6.5	7.50	7.3	39	45.03	44.8
7	8.08	7.8	40	46.18	46
7.5	8.66	8.5	41	47.34	47
8	9.23	9	42	48.49	48.2
9	10.39	10.2	43	49.65	49.5
10	11.54	11.3	44	50.80	50.5
11	12.70	12.5	45	51.96	51.8
12	13.85	13.5	46	53.11	52.8
13	15.02	14.8	48	55.42	55
14	16.16	16	50	57.73	57.5
15	17.32	17.2	52	60.04	59.5
16	18.47	18.3	55	63.50	63
17	19.62	19.5	57	65.78	65.25
18	20.78	20.6	60	69.24	68.75
19	21.93	21.8	62	71.55	71
20	23.09	22.8	65	75	74.5
21	24.24	24	67	77.3	76.75
22	25.40	25.2	70	80.78	80.25

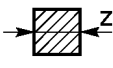

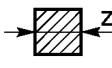

	 $Y=Z \times 1,154$	ØA
mm	mm	mm
23	26.55	26.2
24	27.71	27.5
25	28.86	28.5
26	30.02	29.8
27	31.17	31

	 $Y=Z \times 1,154$	ØA
mm	mm	mm
72	83.08	82.5
75	86.55	86
80	92.32	91.75
85	98.1	97.5

11.3 SQUARE BARS (unit of measurement "millimetres") - Table

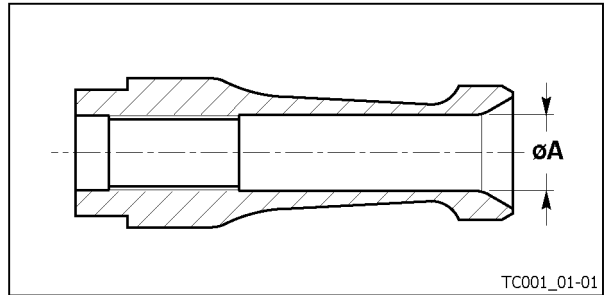
Before selecting the steel collet, define the internal diameter $\varnothing A$ by referring to the table below.

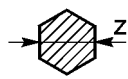


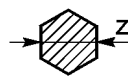
	 $Y=Z \times 1,414$	$\varnothing A$		 $Y=Z \times 1,414$	$\varnothing A$
mm	mm	mm	mm	mm	mm
1	1.41	1.3	20	28.28	27.5
1.5	2.12	2	22	31.10	30.5
2	2.82	2.7	23	32.52	32
2.5	3.53	3.4	24	33.93	33
3	4.24	4	25	35.35	34.5
4	5.65	5.5	26	36.76	36
4.5	6.36	6.2	27	38.17	37.5
5	7.07	6.8	28	39.59	38.5
5.5	7.77	7.5	30	42.42	41.5
6	8.48	8.3	32	45.24	44.5
6.5	9.19	9	34	48.07	47
7	9.89	9.7	35	49.49	48.5
8	11.31	11	36	50.90	50
8.5	12.01	11.8	37	52.31	51.5
9	12.72	12.5	38	53.73	52.5
10	14.14	13.8	39	55.15	54.5
10.5	14.84	14.5	40	56.56	55.5
11	15.55	15	41	57.97	57
12	16.97	16.5	42	59.38	58.5
12.5	17.67	17	43	60.08	59
13	18.38	18	44	62.21	61
14	19.79	19.5	45	63.63	62.5
15	21.21	20.8	46	65.04	64
16	22.62	22	50	70.7	69.5
17	24.04	23.5	55	77.77	76.75
18	25.52	25	60	84.84	83.75
19	26.86	26	65	91.91	91

11.4 HEXAGONAL BARS (unit of measurement "inches") - Table

Before selecting the steel collet, define the internal diameter $\varnothing A$ by referring to the table below.

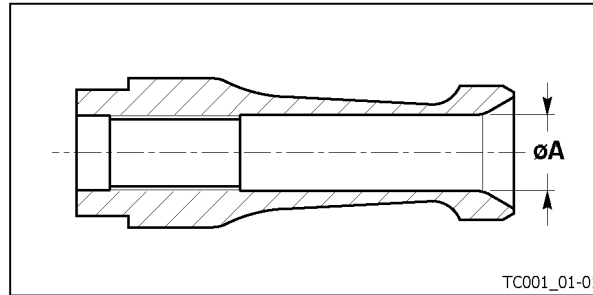


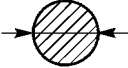
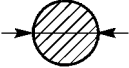
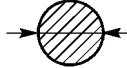
	$\varnothing A$	
	mm	inches
inches		
1/8	3.5	9/64
3/16	5.25	13/64
1/4	7	9/32
5/16	8.75	11/32
3/8	10.75	27/64
7/16	12.5	31/64
1/2	14.25	9/16
9/16	16.25	41/64
5/8	18	45/64
11/16	19.75	25/32
3/4	21.75	55/64
13/16	23.5	59/64
7/8	25.25	63/64
15/16	27.25	1"5/64
1"	29	1"9/64
1"1/16	30.75	1"13/64
1"1/8	32.5	1"9/32
1"3/16	34.25	1"11/32
1"1/4	36.25	1"27/64
1"5/16	38	1"1/2

	$\varnothing A$	
	mm	inches
inches		
1"3/8	39.75	1"9/16
1"7/16	41.75	1"41/64
1"1/2	43.5	1"23/32
1"9/16	46.5	1"53/64
1"5/8	47.25	1"55/64
1"11/16	49	1"15/16
1"3/4	50.75	2"
1"13/16	52.75	2"5/64
1"7/8	54.5	2"9/64
1"15/16	56.25	2"7/32
2"	58	2"9/32
2"1/16	59.75	2"11/32
2"1/8	61.5	2"27/64
2"3/16	63.5	2"1/2
2"1/4	65.25	2"37/64
2"1/2	72.5	2"55/64
2"3/4	79.75	3"9/64
3"	87	3"27/64
3"1/4	94.25	3"23/32

11.5 ROUND BARS - (unit of measurement "inches") - Table

Before selecting the steel collet, define the internal diameter $\varnothing A$ by referring to the table below.



	$\varnothing A$		$\varnothing A$		$\varnothing A$
inches	mm	inches	mm	inches	mm
1/32	0.8	17/32	13.5	1"1/8	28.5
3/64	1.2	35/64	14	1"3/16	30.25
1/16	1.6	9/16	14.25	1"1/4	31.75
5/64	2	37/64	14.75	1"5/16	33.25
3/32	2.4	19/32	15	1"3/8	35
7/64	2.8	39/64	15.5	1"7/16	36.25
1/8	3.2	5/8	16	1"1/2	38
9/64	3.6	41/64	16.25	1"9/16	39.75
5/32	4	21/32	16.75	1"5/8	41.25
11/64	4.4	43/64	17	1"11/16	43
3/16	4.8	11/16	17.5	1"3/4	44.5
13/64	5.2	45/64	18	1"13/16	46
7/32	5.6	23/32	18.25	1"7/8	47.75
15/64	6	47/64	18.75	1"15/16	49.25
1/4	6.4	3/4	19	2"	50.75
17/64	6.8	49/64	19.5	2"1/16	52.5
9/32	7.2	25/32	19.75	2"1/8	54
19/64	7.6	51/64	20.25	2"3/16	55.5
5/16	8	13/16	20.75	2"1/4	57.25
21/64	8.4	53/64	21	2"5/16	58.75
11/32	8.8	27/32	21.5	2"3/8	60.5
23/64	9.1	55/64	21.75	2"7/16	62
3/8	9.6	7/8	22.25	2"1/2	63.5
25/64	10	57/64	22.75	2"9/16	65
13/32	10.4	29/32	23	2"5/8	66.75
27/64	10.8	59/64	23.5	2"11/16	68.25
7/16	11.25	15/16	24	2"3/4	70
29/64	11.5	61/64	24.25	2"13/16	71.5
15/32	12	31/32	24.75	2"7/8	73
31/64	12.5	63/64	25	2"15/16	74.75
1/2	12.75	1	25.5	3"	76.25
33/64	13.25	1"1/16	27		

11.6 CONVERSION TABLE Inches/Millimetres

Inch fraction		Inch fraction			
		1	2	3	4
		Millimetres			
0	0	0	25,400 0	50,800 0	76,200 0
1/64	0,015 625	0,396 9	25,796 9	51,196 9	76,596 9
1/32	0,031 25	0,793 8	26,193 8	51,593 8	76,993 8
3/64	0,046 875	1,190 6	26,590 6	51,990 6	77,390 6
1/16	0,062 5	1,587 5	26,987 5	52,387 5	77,787 5
5/64	0,078 125	1,984 4	27,384 4	52,784 4	78,184 4
3/32	0,093 75	2,381 2	27,781 2	53,181 2	78,581 2
7/64	0,109 375	2,778 1	28,178 1	53,578 1	78,978 1
1/8	0,125	3,175 0	28,575 0	53,985 0	79,375 0
9/64	0,140 625	3,571 9	28,971 9	54,371 9	79,771,9
5/32	0,156 25	3,968 8	29,368 8	54,768 8	80,168 8
11/64	0,171 875	4,365 6	29,765 6	55,165 6	80,565 6
3/16	0,187 5	4,762 5	30,162 5	55,562 5	80,962 5
13/64	0,203 125	5,159 4	30,559 4	55,959 4	81,359 4
7/32	0,218 75	5,556 2	30,956 2	56,356 2	81,756 2
15/64	0,234 375	5,953 1	31,353 1	56,753 1	82,153 1
1/4	0,25	6,350 0	31,750 0	57,150 0	82,550 0
17/64	0,265 625	6,746 9	32,146 9	57,546 9	82,946 9
9/32	0,281 25	7,143 8	32,543 8	57,943 8	83,343 8
19/64	0,296 875	7,540 6	32,940 6	58,340 6	83,740 6
5/16	0,312 5	7,937 5	33,337 5	58,737 5	84,137 5
21/64	0,328 125	8,334 4	33,734 4	59,134 4	84,534 4
11/32	0,343 75	8,731 2	34,131 2	59,531 2	84,931 2
23/64	0,359 375	9,128 1	34,528 1	59,928 1	85,328 1
3/8	0,375	9,525 0	34,925 0	60,325 0	85,725 0
25/64	0,390 625	9,921 9	35,321 9	60,721 9	86,121 9
13/32	0,406 25	10,318 8	35,718 8	61,118 8	86,518 8
27/64	0,421 875	10,715 6	36,115 6	61,515 6	86,915 6
7/16	0,437 5	11,112 5	36,512 5	61,912 5	87,312 5
29/64	0,453 125	11,509 4	36,909 4	62,309 4	87,709 4
15/32	0,468 75	11,906 2	37,306 2	62,706 2	88,106 2
31/64	0,484 375	12,303 1	37,703 1	63,103 1	88,503 1
1/2	0,5	12,700 0	38,100 0	63,500 0	88,900 0
33/64	0,515 625	13,096 9	38,496 9	63,896 9	89,296 9
17/32	0,531 25	13,493 8	38,893 8	64,293 8	89,693 8
35/64	0,546 875	13,890 6	39,290 6	64,690 6	90,090 6
9/16	0,562 5	14,287 5	39,687 5	65,087 5	90,487 5
37/64	0,578 125	14,684 4	40,084 4	65,484 4	90,884 4
19/32	0,593 75	15,081 2	40,481 2	65,881 2	91,281 2
39/64	0,609 375	15,478 1	40,878 1	66,278 1	91,678 1
5/8	0,625	15,875 0	41,275 0	66,675 0	92,075 0
41/64	0,640 625	16,271 9	41,671 9	67,071 9	92,471 9
21/32	0,656 25	16,668 8	42,068 8	67,468 8	92,868 8
43/64	0,671 875	17,065 6	42,465 6	67,865 6	93,265 6

Inch fraction		Inch fraction			
		1	2	3	4
		Millimetres			
11/16	0,687 5	17,462 5	42,862 5	68,262 5	93,662 5
45/64	0,703 125	17,859 4	43,259 4	68,659 4	94,059 4
23/32	0,718 75	18,256 2	43,656 2	69,056 2	94,456 2
47/64	0,734 375	18,653 1	44,053 1	69,453 1	94,853 1
3/4	0,75	19,050 0	44,450 0	69,850 0	95,250 0
49/64	0,765 625	19,446 9	44,846 9	70,246 9	95,646 9
25/32	0,781 25	19,843 8	45,243 8	70,643 8	96,043 8
51/64	0,796 875	20,240 6	45,640 6	71,040 6	96,440 6
13/16	0,812 5	20,637 5	46,037 5	71,437 5	96,837 5
53/64	0,828 125	21,034 4	46,434 4	71,834 4	97,234 4
27/32	0,843 75	21,431 2	46,831 2	72,231 2	97,631 2
55/64	0,859 375	21,828 1	47,228 1	72,628 1	98,028 1
7/8	0,875	22,225 0	47,625 0	73,025 0	98,425 0
57/64	0,890 625	22,621 9	48,021 9	73,421 9	98,821 9
29/32	0,906 25	23,018 8	48,418 8	73,818 8	99,218 8
59/64	0,921 875	23,415 6	48,815 6	74,215 6	99,615 6
15/16	0,937 5	23,812 5	49,212 5	74,612 5	100,012 5
61/64	0,953 125	24,209 4	49,609 4	75,009 4	100,409 4
31/32	0,968 75	24,606 2	50,006 2	75,406 2	100,806 2
63/64	0,984 375	25,003 1	50,403 1	75,803 1	101,203 1

11.7 COLLETS FOR 011P BARS

11.8 COLLET FOR BARS - Table



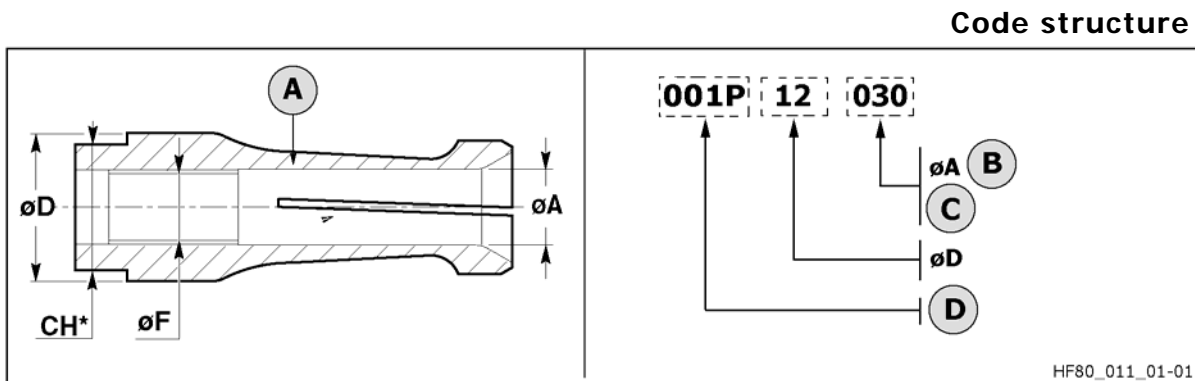
WARNING – CAUTION:

the collet external diameter should be at least 0.5 mm smaller than the bar pusher external diameter.



INFORMATION:

upon specific request, non standard collets with reduced thickness (which are not mentioned in this table) may be supplied as well. Their durability is however below the durability of standard collets.



CH*: double-ended fork wrench DIN3110

- A Collet
- B Bar diameter
- C Example:
 - 0.8 mm = 008
 - 3 mm = 030
 - 12.25 mm = 122
 - 12.5 mm = 125
- D Category



INFORMATION:

this table has to be compared with the table in section 2.6 "Guide channel, bar pusher, bar and pipe diameters" relating to the actual bar and guide channel diameters to be used in the bar feeder described in this manual.

External diameter(mm) øD	Diameter(mm) øF	Internal diameter(mm) øA	
		MIN	MAX
7,5	M5x0,5	2	6,4
8,5	M5x0,5	5,6	7,4
9,5	M5x0,5	6,6	7,4
10	M6x0,75	2	8
12	M7x0,75	2	10
15	M8x1	3	13
16	M8x1	10	14
17	M8x1	11	15
18	M8x1	12	16,2
19	M8x1	13	17
20	M10x1	3	18
23	M10x1	14	21
25	M10x1	18	23
27	M10x1	20	25,5
30	M10x1	21	27
32	M25x1,5	23	30
34	M25x1,5	27	32
35	M25x1,5	29	32
37	M25x1,5	32	34
38	M25x1,5	31	33
40	M25x1,5	33	37
42	M25x1,5	37	40
45	M25x1,5	39	42
48	M25x1,5	40	44

External diameter(mm) øD	Diameter(mm) øF	Internal diameter(mm) øA	
		MIN	MAX
50	M25x1,5	44	46
51	M25x1,5	46	47
52	M25x1,5	47	48
55	M25x1,5	48	51
56	M25x1,5	51	52
58	M25x1,5	52	54
60	M25x1,5	54	56
64	M25x1,5	56	59
65	M25x1,5	59	61
68	M25x1,5	61	64
70	M25x1,5	64	66
72	M25x1,5	66	67
74	M25x1,5	67	70
76	M25x1,5	70	72
80	M25x1,5	72	75

11.9 PIPE COLLETS 012-077-377

11.10 PIPE COLLETS - Table



WARNING – CAUTION:

the collet external diameter should be at least 0.5 mm smaller than the bar pusher external diameter.



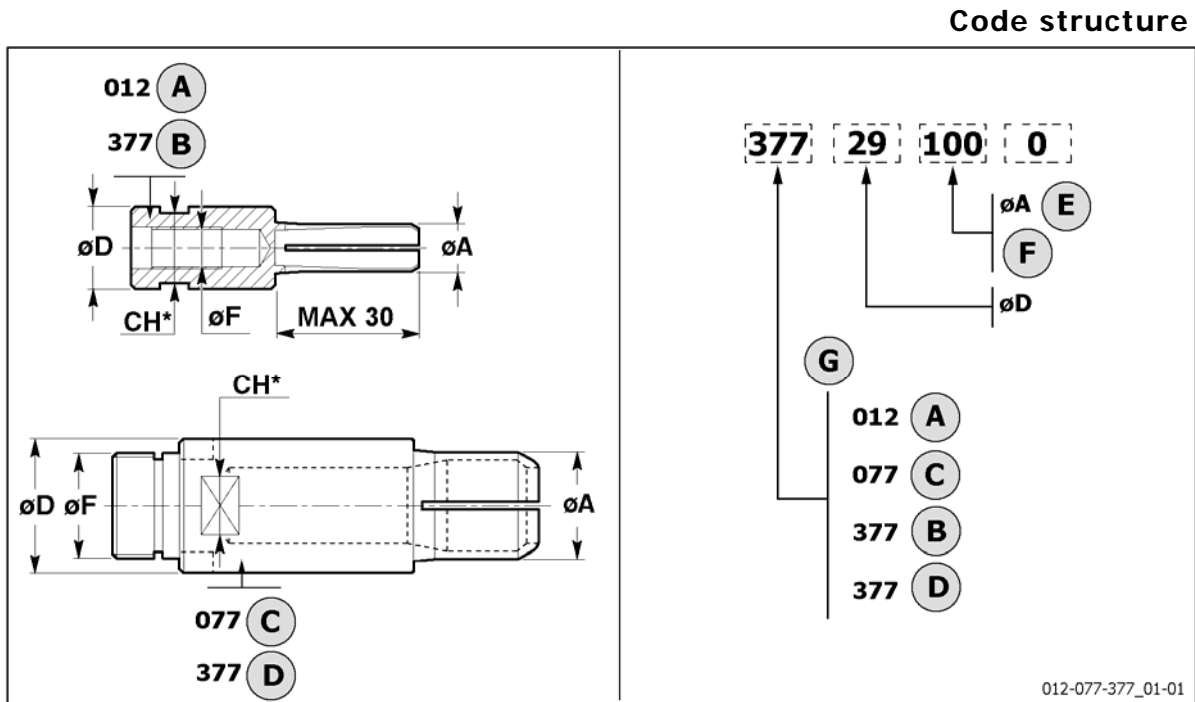
INFORMATION:

collets 377... (bar feeder BOSS) with ϕF M10x1 have been designed to be assembled on lower revolving tips with $\phi 28$; if mounted on the revolving tips with diameter greater than $\phi 30$ and with nipples 078800030, it is necessary to lengthen the bar pusher carriage first feeding value by 7.5 mm.



INFORMATION:

upon specific request, non standard collets with reduced thickness (which are not mentioned in this table) may be supplied as well. Their durability is however below the durability of standard collets.



CH*: double-ended fork wrench DIN3110

- A Collets for pipe (type AS) $\varnothing F$ M7x0.75 - M8x1
 B Collets for pipe (type BOSS) $\varnothing F$ M10x1
 C Collets for pipe (type T560) $\varnothing F$ M17x1 - M25x1
 D Collets for pipe (type T560) $\varnothing F$ M25x1.5
 E Bar diameter
 F Example:
 5 mm = 060
 10 mm = 100
 12.5 mm = 125
 G Category

External diameter(mm) $\varnothing D$	Diameter(mm) $\varnothing F$	External diameter(mm) $\varnothing A$	
		MIN	MAX
10	M6x0,75	5,9	6
12	M7x0,75	5	9,5
15	M8x1	5	13
16	M8x1	13,5	14
20	M10x1	6	18
23	M10x1	8	21,75
24	M17x1	6	23,5
25	M10x1	14	23,5
27	M17x1	23	25,5
29	M17x1	22	27
29	M25x1,5	8	27
30	M25x1,5	25	26,75
32	M25x1,5	27	30,25
35	M25x1,5	29	33
37	M25x1,5	33,5	33,5
38	M25x1,5	32	33
40	M25x1,5	33,25	37

External diameter(mm) øD	Diameter(mm) øF	External diameter(mm) øA	
		MIN	MAX
42	M25x1,5	37,5	40
44-45	M25x1,5	40	42,5
49	M25x1,5	43	46,5
54-55	M25x1,5	46,5	52,5
59	M25x1,5	52,5	56
64	M25x1,5	56,5	61
68	M25x1,5	61,5	66

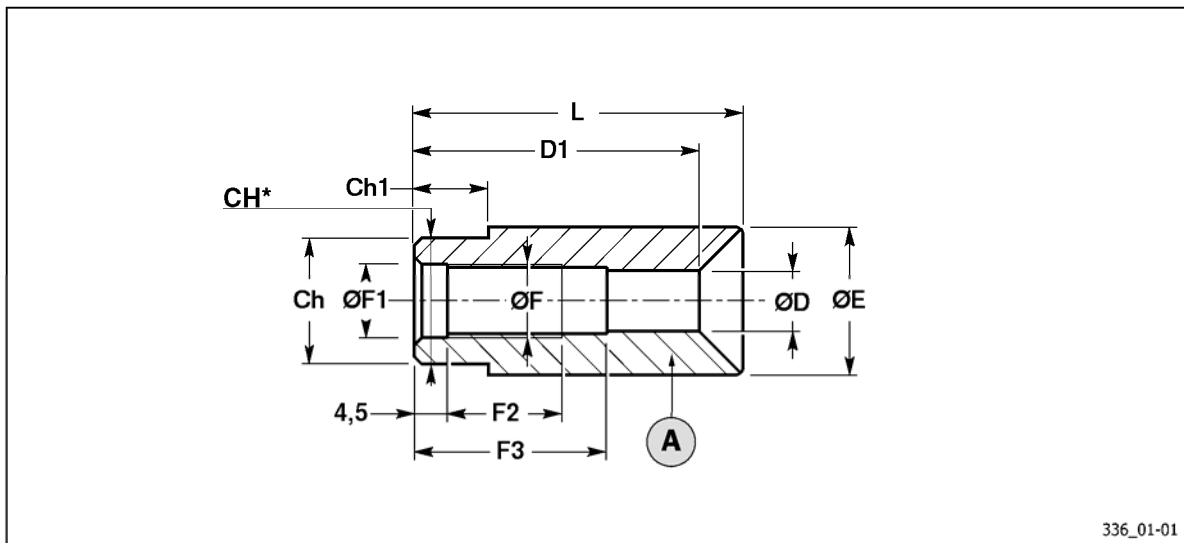
11.11 EJECTOR 336
11.12 EJECTOR — Guide channels $\varnothing < 30$ - Table

WARNING — CAUTION:

the external diameter of the ejector must be at least 0.5 mm less than the external diameter of the bar pusher.


INFORMATION:

upon specific request, non standard collets with reduced thickness (which are not mentioned in this table) may be supplied as well. Their durability is however below the durability of standard collets.



CH*: double-ended fork wrench DIN3110

A Ejector

øF	F1 (mm)	F2 (mm)	F3 (mm)	øE (mm)	L (mm)	øD (mm)	D1 (mm)	Ch (mm)	Ch1 (mm)	Code no.
M7x0.75	7	12	18	12	29.75	5.5	26.5	10	6	336803120
M8x1	8	12	18	15	30.75	6.5	26.5	13	10	336803150
M8x1	8	12	18	18	32	6.5	26.5	15	10	336803180
M10x1	10	15.5	26	20	44.4	8.2	38.5	17	10	336803200
M10x1	10	15.5	26	23	46	8.2	38.5	19	10	336803230
M10x1	10	15.5	26	25	47	8.2	38.5	22	12	336803250
M10x1	10	15.5	26	27	48	8.2	38.5	24	12	336803270
M10x1	10	15.5	26	29	49	8.2	38.5	27	12	336803290

11.13 EJECTOR — Guide channels $\varnothing > 32$ - Table



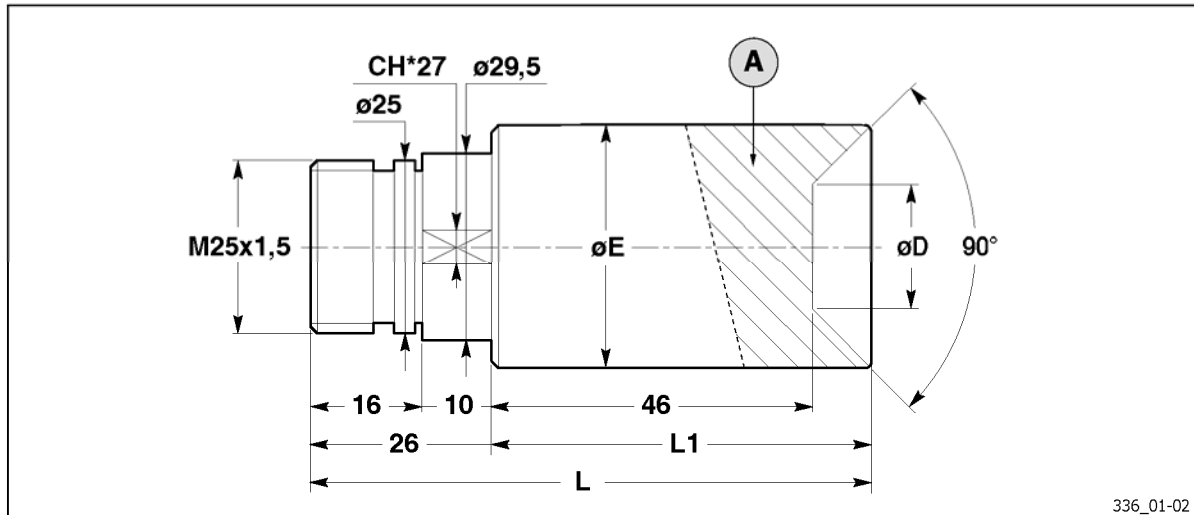
WARNING — CAUTION:

the external diameter of the ejector must be at least 0.5 mm less than the external diameter of the bar pusher.



INFORMATION:

upon specific request, non standard collets with reduced thickness (which are not mentioned in this table) may be supplied as well. Their durability is however below the durability of standard collets.



CH*: double-ended fork wrench DIN3110

A Ejector

øE (mm)	øD (mm)	L (mm)	L1 (mm)	Code no.
31	10	82.5	56.5	336803310
32	14	81	55	336803320
35	18	80.5	54.5	336803350
40	18	83	57	336803400
42	18	84	58	336803420
44	20	84	58	336803440
45	21	84	58	336803450
50	23	84	58	336803500
52	25	84	58	336803520
55	28	84	58	336803550
60	33	84	58	336803600
65	38	84	58	336803650
70	43	84	58	336803700

11.14 COLLETS FOR BARS 602P

11.15 COLLET FOR BARS - Table



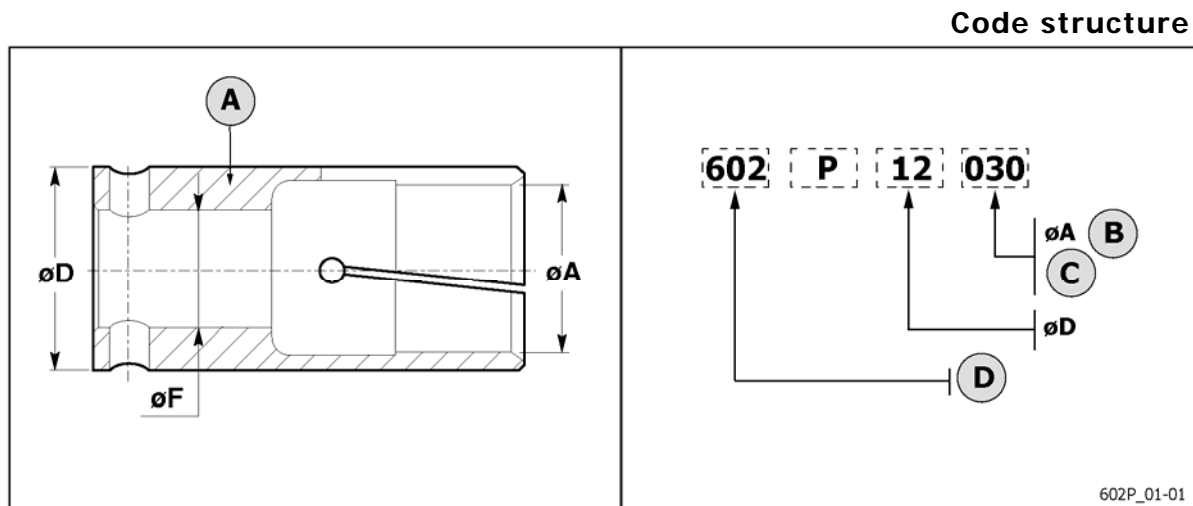
WARNING – CAUTION:

the collet external diameter should be at least 0.5 mm smaller than the bar pusher external diameter.



INFORMATION:

upon specific request, non standard collets with reduced thickness (which are not mentioned in this table) may be supplied as well. Their durability is however below the durability of standard collets.



- A Collet
- B Bar diameter
- C Example:
 - 3 mm = 030
 - 3.5 mm = 035
 - 12.5 mm = 125
 - 12.75 mm = 127
- D Category

External diameter(mm) øD	Diameter(mm) øF	Internal diameter(mm) øA	
		MIN	MAX
10	Ø7 G6	3	8
12	Ø8 G6	3	10
15	Ø11 G6	4	13
16	Ø11 G6	11	14
18	Ø11 G6	8	16
20	Ø14 G6	6	18
21	Ø14 G6	16,5	19
23	Ø14 G6	14	21
25	Ø20 G6	4,3	23
27	Ø20 G6	21	25,5
29	Ø20 G6	22,75	27
32	Ø20 G6	6	30
35	Ø20 G6	27	32
36	Ø20 G6	26	34
39	Ø20 G6	32	37
42	Ø20 G6	31	40
45	Ø20 G6	33	42
51	Ø20 G6	39,75	47
52	Ø20 G6	44	49
56	Ø20 G6	47	52

11.16 BORING COLLETS FOR BARS 601P

11.17 BORING COLLETS FOR SQUARE AND HEXAGONAL BARS - Table



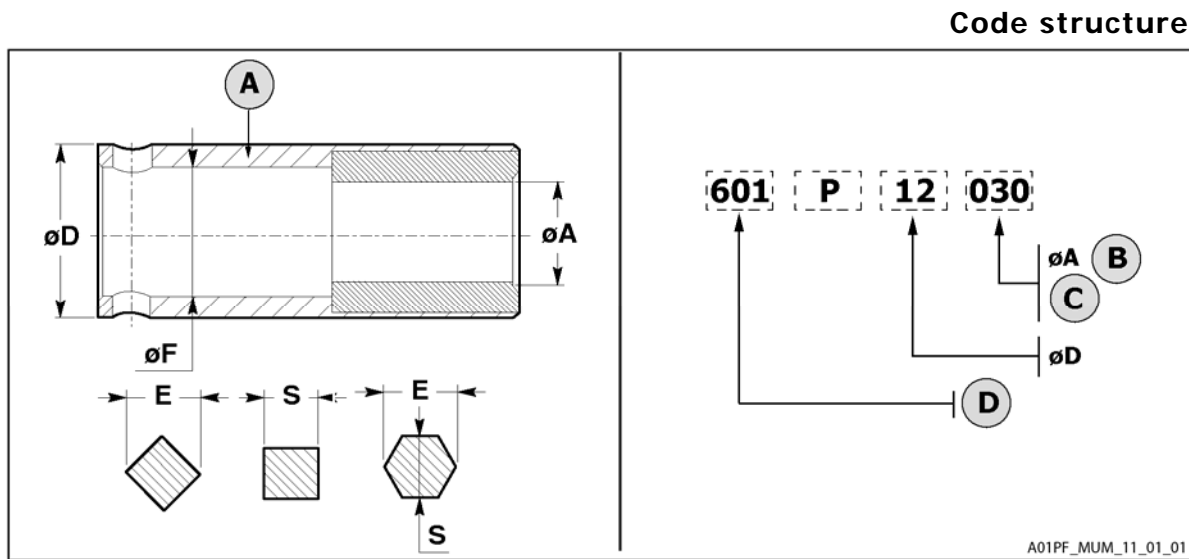
INFORMATION:

to determine the internal diameter ϕA do not refer to "001 - Conversion Tables", but refer directly to the table below.



INFORMATION:

upon specific request, non standard collets with reduced thickness (which are not mentioned in this table) may be supplied as well. Their durability is however below the durability of standard collets.



- A Collet
- B Bar diameter
- C Example:
 - 3 mm = 030
 - 3.5 mm = 035
 - 12.5 mm = 125
 - 12.75 mm = 127
- D Category

S square bars (S=E/1,414)		S hexagonal bars (S=E/1,154)		External diameter(mm) øD	Diameter(mm) øF
MIN	MAX	MIN	MAX		
3	3	3	4	7,5	M5x0,5
4	6	5	7	12	Ø8 G6
6	10	6	13	18	Ø11 G6
7	12	* 5/16"	15	21	Ø14 G6
10	12	8,5	19	25	Ø20 G6
13	15	/	/	25	M5x0,5
16	17	/	/	29	Ø8 G6
/	/	17	* 7/8"	29	Ø20 G6
18	20	/	/	32	Ø11 G6
/	/	20	25	32	Ø20 G6
		21	* 1" 1/8	36	Ø20 G6
21	23	/	/	36	Ø14 G6
/	/	* 1" 1/16	* 1" 1/16	40	Ø20 G6



WARNING: the values indicated with * are expressed in inches.

11.18 EJECTORS 602P..011

11.19 EJECTORS —Guide channels $\varnothing 13 \div 28$ - Table



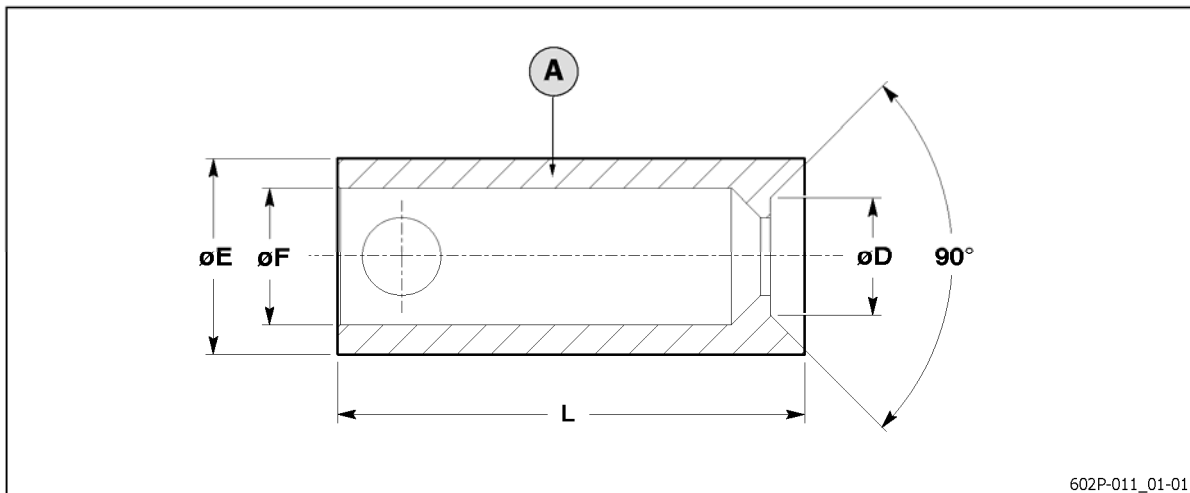
WARNING — CAUTION:

the external diameter of the ejector must be at least 0.5 mm less than the external diameter of the bar pusher.



INFORMATION:

upon specific request, non standard collets with reduced thickness (which are not mentioned in this table) may be supplied as well. Their durability is however below the durability of standard collets.



A Ejector

øE (mm)	øF (mm)	øD (mm)	L (mm)	Code no.
12	8	8	24	602P12011
15	11	11	26	602P15011
16	11	12	26	602P16011
18	11	12	27.5	602P18011
19	11	12	28	602P19011
20	14	12	47.5	602P20011
23	14	12	49	602P23011
25	20	12	50.5	602P25011
27	20	12	51.5	602P27011
29	20	14	51.5	602P29011
30	20	15	51.5	602P30011
35	20	18	51.5	602P35011
40	20	18	55	602P40011
45	20	19	56	602P45011
51	20	25	56	602P51011

11.20 PIPE COLLETS 603P

11.21 PIPE COLLETS - Table



WARNING – CAUTION:

the collet external diameter should be at least 0.5 mm smaller than the bar pusher external diameter.



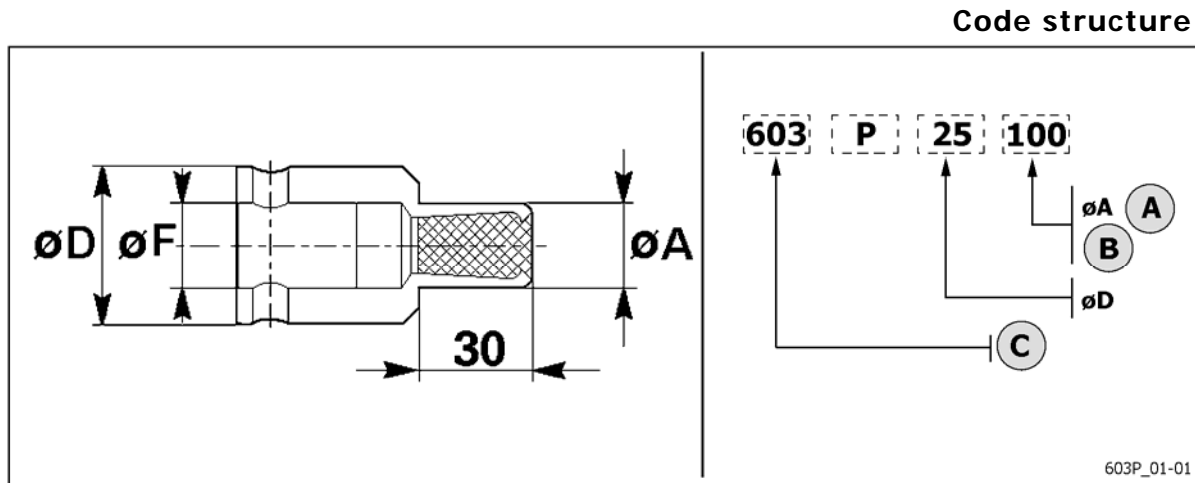
INFORMATION:

The 603P collets....., fitted with a quick coupling allowing them to be assembled on revolving tips, are designed with an oversized length. Therefore, the first feeding value of the bar pusher carriage should be increased by 7.5 mm with respect to the standard value.



INFORMATION:

upon specific request, non standard collets with reduced thickness (which are not mentioned in this table) may be supplied as well. Their durability is however below the durability of standard collets.



- A Bar diameter
- B Example:
5 mm = 060
10 mm = 100
12.5 mm = 125
- C Category

External diameter(mm) øD	Diameter(mm) øF	External diameter(mm) øA	
		MIN	MAX
12	Ø8 G6	5	9,5
15	Ø11 G6	5	11
15-16	Ø11 G6	11,5	14
20	Ø14 G6	6	18
25	Ø20 G6	10	23
27	Ø20 G6	21,5	25
29	Ø20 G6	25,5	27
32	Ø20 G6	15	30
35	Ø20 G6	23	33
40	Ø20 G6	34	37
42	Ø20 G6	23	40
44-45	Ø20 G6	39,5	42,5
49	Ø20 G6	30	45

11.22 COLLETS FOR BARS 076

11.23 COLLET FOR BARS - Table



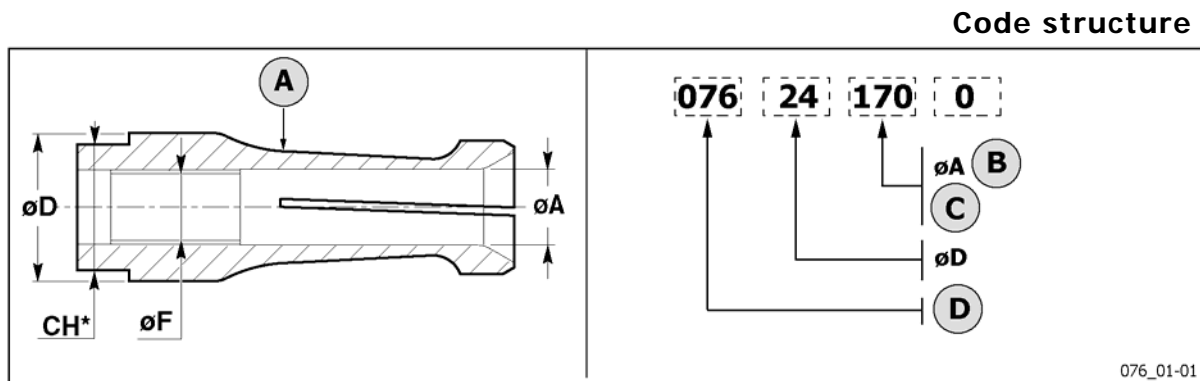
WARNING – CAUTION:

the collet external diameter should be at least 0.5 mm smaller than the bar pusher external diameter.



INFORMATION:

upon specific request, non standard collets with reduced thickness (which are not mentioned in this table) may be supplied as well. Their durability is however below the durability of standard collets.



CH*: double-ended fork wrench DIN3110

- A Collet
- B Bar diameter
- C Example
 - 17 mm = 170
 - 22.5 mm = 225
 - 39.75 mm = 397
- D Category

External diameter(mm) øD	Diameter(mm) øF	Internal diameter(mm) øA	
		MIN	MAX
22	M10x1	15	15,7
23	M10x1	16	16,5
24	M17x1	16,5	17,7
25	M17x1	18	22,8
27	M17x1	19,5	25
28	M17x1	21,5	21,7
29	M17x1	22	27
30	M25x1,5	16,9	28,5
32	M25x1,5	10	30
34	M25x1,5	27	32
35	M25x1,5	28,5	33,5
36	M25x1,5	29	34
37	M25x1,5	30,2	35,51
38	M25x1,5	31	36
40	M25x1,5	24	38
42	M25x1,5	23,7	40
43	M25x1,5	37	38,5
44	M25x1,5	38	42
45	M25x1,5	39	42,2
46	M25x1,5	40	40,5
48	M25x1,5	41	43,5
49	M25x1,5	43	43,5

External diameter(mm) $\varnothing D$	Diameter(mm) $\varnothing F$	Internal diameter(mm) $\varnothing A$	
		MIN	MAX
50	M25x1,5	44	46
52	M25x1,5	45	48
54	M25x1,5	48	50
55	M25x1,5	50	52
56	M25x1,5	50	51,5
57	M25x1,5	51	51,5
58	M25x1,5	47,5	53,5
59	M25x1,5	53	53,5
60	M25x1,5	54	58
62	M25x1,5	56	57,5
64	M25x1,5	57	59,5
65	M25x1,5	59	62
66	M25x1,5	60	61
68	M25x1,5	61,5	63,5
69	M25x1,5	63,5	66
70	M25x1,5	41	68
72	M25x1,5	66	68
74	M25x1,5	67,5	69
76	M25x1,5	69,5	70

11.24 COLLETS FOR BARS 381P

11.25 COLLET FOR BARS - Table



WARNING – CAUTION:

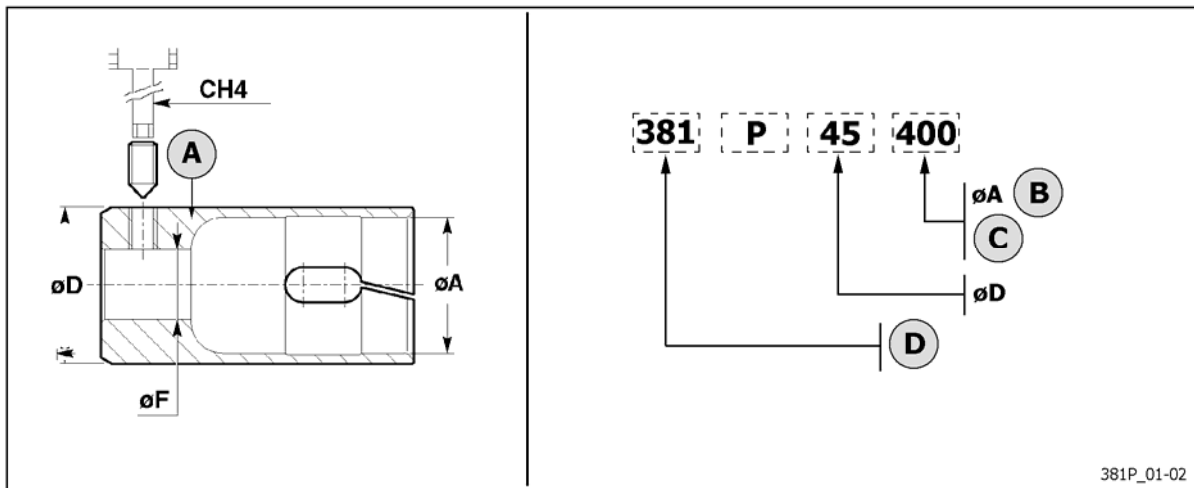
the collet external diameter should be at least 0.5 mm smaller than the bar pusher external diameter.



INFORMATION:

upon specific request, non standard collets with reduced thickness (which are not mentioned in this table) may be supplied as well. Their durability is however below the durability of standard collets.

Code structure



381P_01-02

- A Collet
- B Bar diameter
- C Example:
40 mm = 400
39.75 mm = 397
- D Category

CH4 : T Allen wrench - DIN911

External diameter(mm) øD	Diameter(mm) øF	Internal diameter(mm) øA	
		MIN	MAX
32	Ø20 G6	10	29
35	Ø20 G6	27	32
37	Ø20 G6	29	34
40	Ø20 G6	30	33
42	Ø20 G6	33,25	39
44	Ø20 G6	38	38,75
45	Ø20 G6	39	42
48	Ø20 G6	40	42,75
49	Ø20 G6	43	43,75
50	Ø20 G6	44	47
51	Ø20 G6	45	47
52	Ø20 G6	45	47,75
54	Ø20 G6	48	49,75
56	Ø20 G6	49,75	52
58	Ø20 G6	51	52,75
59	Ø20 G6	53	53,75

External diameter(mm) øD	Diameter(mm) øF	Internal diameter(mm) øA	
		MIN	MAX
60	Ø20 G6	54	56
62	Ø20 G6	56	56,75
64	Ø20 G6	57	60
65	Ø20 G6	59	61
66	Ø20 G6	60	62
68	Ø20 G6	61,25	63,75
70	Ø20 G6	64	65,75
72	Ø20 G6	65,25	67
74-75	Ø20 G6	67,25	70
76	Ø20 G6	69	70
78	Ø20 G6	70,25	72
80	Ø20 G6	69,75	76,75
85	Ø20 G6	74	80

11.26 EJECTORS 381P..011 - 381P..021

11.27 381P..021 EJECTORS - Guide channels $\varnothing 33 \div 46$ - Table



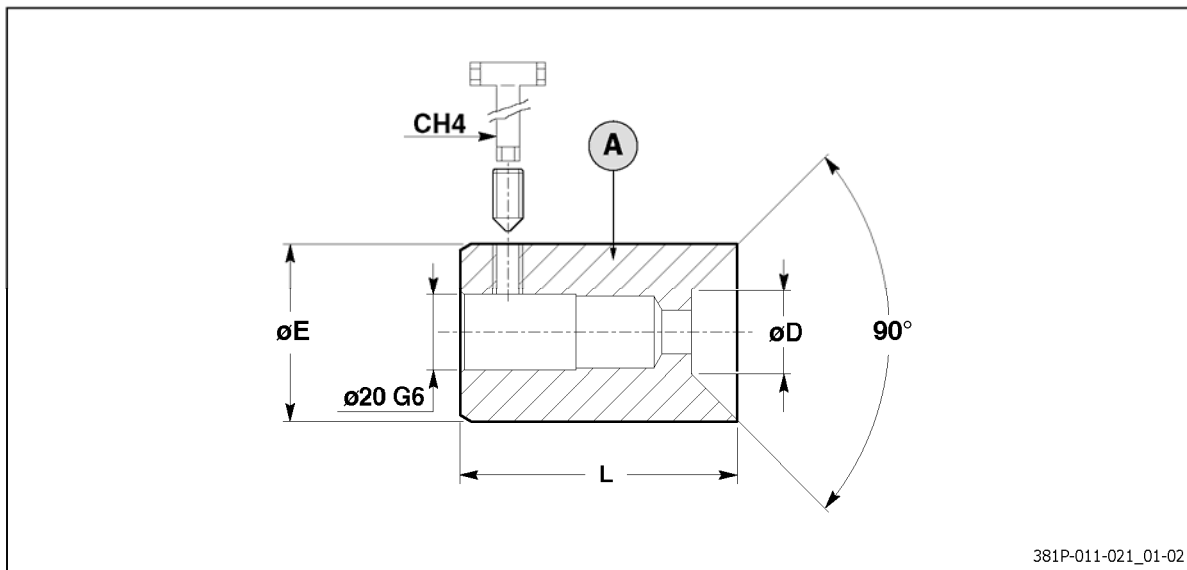
WARNING – CAUTION:

the external diameter of the ejector must be at least 0.5 mm less than the external diameter of the bar pusher.



INFORMATION:

upon specific request, non standard collets with reduced thickness (which are not mentioned in this table) may be supplied as well. Their durability is however below the durability of standard collets.



CH4: T Allen wrench - DIN 911

A Ejector

øE (mm)	øD (mm)	L (mm)	Code no.
30	12	69	381P30021
31	13	70	381P31021
32	14	71	381P32021
35	18	69	381P35021
37	18	70	381P37021
40	18	71.5	381P40021
42	18	72.5	381P42021
45	21	72.5	381P45021

11.28 381P..011 EJECTORS - Guide channels $\varnothing 52 \div 86$ - Table



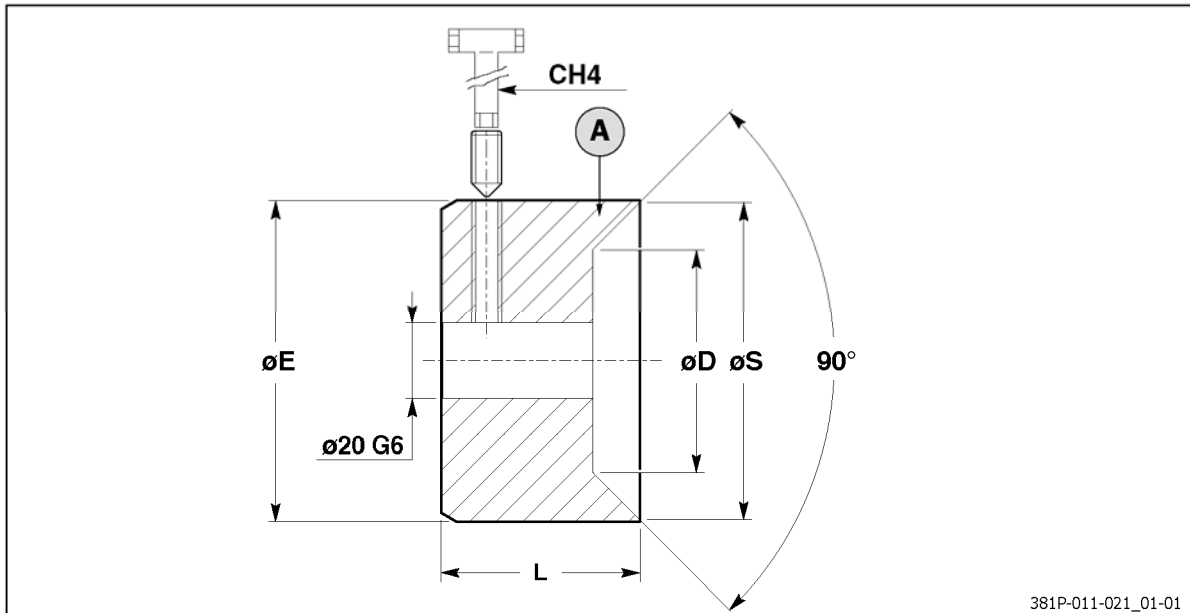
WARNING – CAUTION:

the external diameter of the ejector must be at least 0.5 mm less than the external diameter of the bar pusher.



INFORMATION:

upon specific request, non standard collets with reduced thickness (which are not mentioned in this table) may be supplied as well. Their durability is however below the durability of standard collets.



381P-011-021_01-01

CH4: T Allen wrench - DIN 911

A Ejector

øE (mm)	L (mm)	øS (mm)	øD (mm)	Code no.
51	52.5	50	25	381P51011
56	52.5	55	30	381P56011
60	52.5	59	34	381P60011
65	52.5	64	39	381P65011
68	52.5	67	42	381P68011
70	52.5	69	44	381P70011
72	52.5	71	46	381P72011
75	52.5	74	50	381P75011
80	52.5	79	55	381P80011
85	52.5	84	60	381P85011

11.29 PIPE COLLETS 386P

11.30 PIPE COLLETS - Table



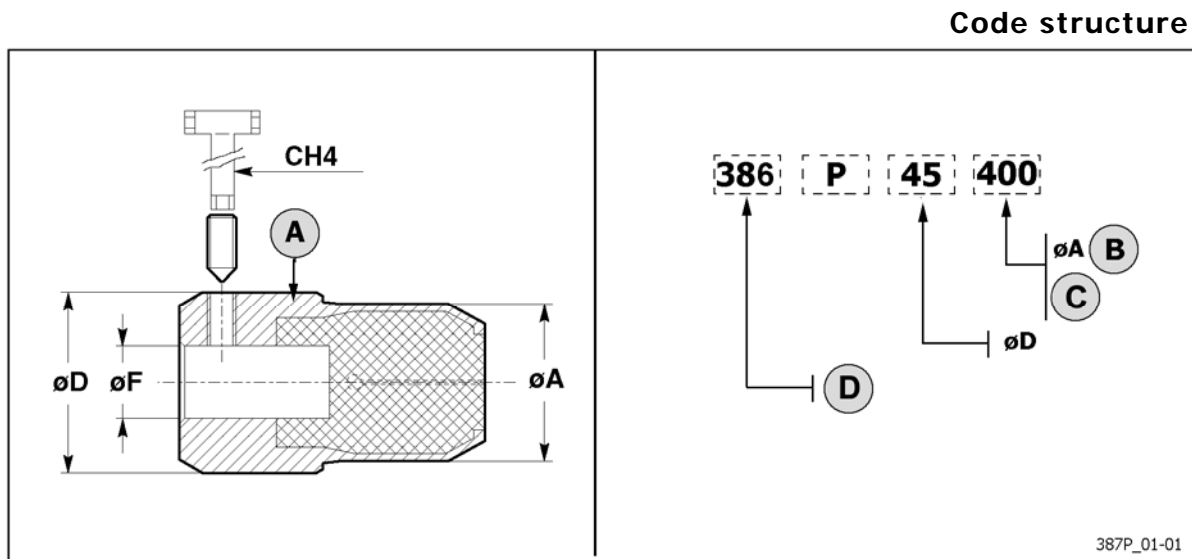
WARNING – CAUTION:

the collet external diameter should be at least 0.5 mm smaller than the bar pusher external diameter.



INFORMATION:

upon specific request, non standard collets with reduced thickness (which are not mentioned in this table) may be supplied as well. Their durability is however below the durability of standard collets.

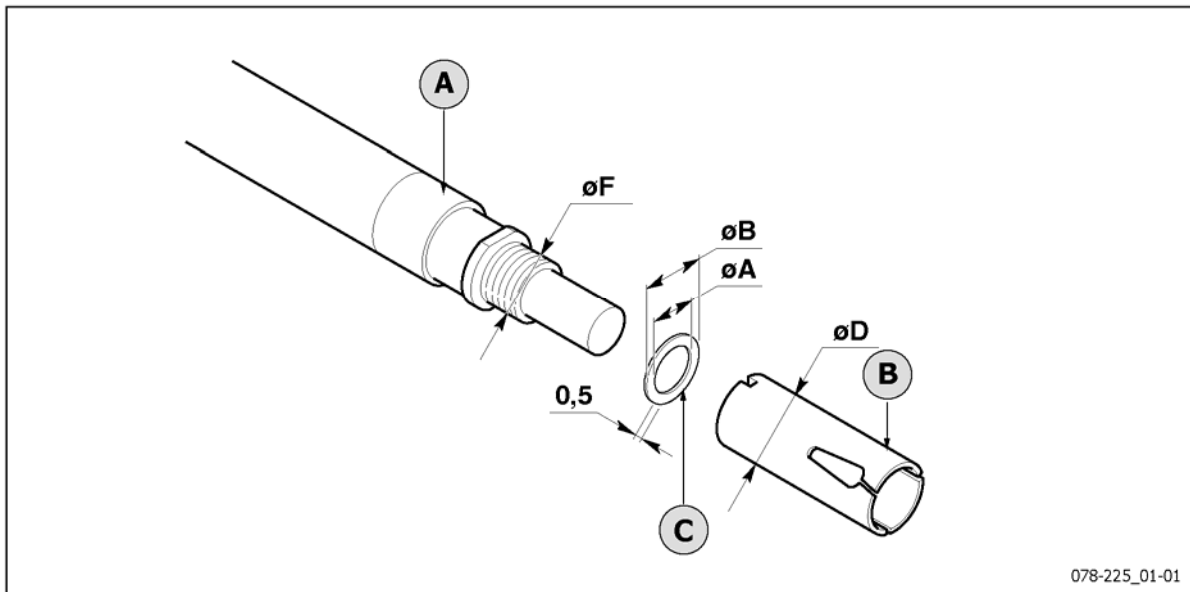


- A Collet
- B Bar diameter
- C Example:
40 mm = 400
39.75 mm = 397
- D Category
- CH4 : T Allen wrench - DIN911

External diameter(mm) øD	Diameter(mm) øF	External diameter(mm) øA	
		MIN	MAX
40	Ø20 G6	23	34,75
41	Ø20 G6	35	37
44	Ø20 G6	36	40
45	Ø20 G6	40,25	42
49	Ø20 G6	42	45,5
50	Ø20 G6	43	47
54	Ø20 G6	46	50
56	Ø20 G6	49	52,25
59	Ø20 G6	52,5	54,75
60	Ø20 G6	54	56,75
64	Ø20 G6	57	58,75
65	Ø20 G6	59	60,75
68	Ø20 G6	61	63,75
70	Ø20 G6	64	65,75
71	Ø20 G6	66	66,75
75	Ø20 G6	67	70
80	Ø20 G6	70	77,5
85	Ø20 G6	74,25	76

11.31 RINGS FOR COLLETS 078-225

11.32 RINGS FOR COLLETS - Table



- A Revolving tip
- B Collet
- C Ring

$\varnothing A$ (mm)	$\varnothing B$ (mm)	$\varnothing D$ (mm)	$\varnothing F$	Ring code
8	14	16		22540008(*)
12	18	20		22540004(*)
12	25	25		078800220(*)
17	24	30	M17x1	22540026
17	30	35		078800200
25	30	30	M25x1.5	078800220
25	35	40		22540009
25	45	51		078800230

(*) Only for collets 316 (TAL)