AUTOMATIC BAR FEEDER

ELENCO ALLEGATI
MANUAL FOR USE AND MAINTENANCE
KEYBOARD INSTRUCTION MANUAL
SPARE PARTS BOOK
SCHEMATICS
EC CONFORMITY DECLARATION FOR MACHINE

SIR 52 P - SIR 52 F

EN **MANUAL FOR USE AND MAINTENANCE**

Rel. 2 **Date** 01/02/2006 **Cod.** 610505400

S/N

SOFTWARE RELEASE **OP:** **PLC:**

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TIPO DI DOCUMENTO:	**MANUAL FOR USE AND MAINTENANCE**
PRODOTTO:	**AUTOMATIC BAR FEEDER**
MODELLO:	**SIR 52 P - SIR 52 F**

IEMCA S.p.A.
Via Granarolo, 167
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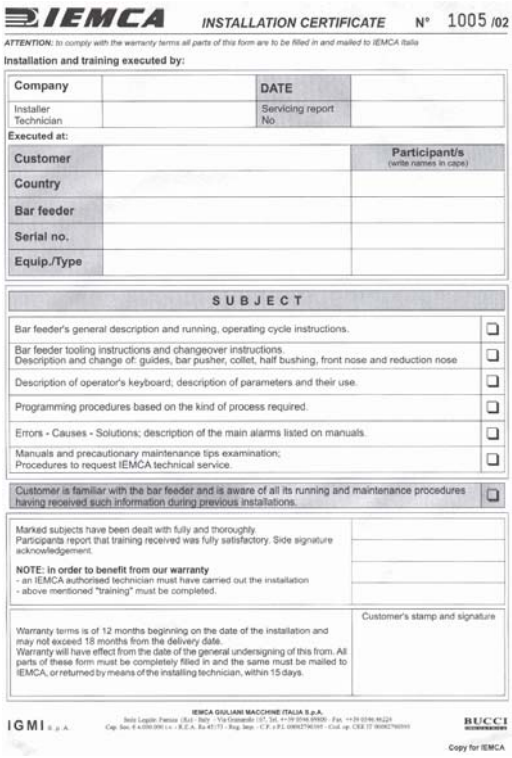
Operations described in paragraphs showing this symbol, must be performed by qualified and skilled personnel only.
Any other operation can be performed either by qualified personnel or by professional bar feeder operators.

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

1.1 TERMS OF WARRANTY

The warranty validity is subordinated to a correct assembly and coupling of the bar feeder to lathe. In particular, before the first start-up, carry out an accurate check to make sure the bar feeder is correctly aligned with the lathe and fastened with the expansion plugs as shown in section 4.

The product warranty is valid only if the bar loader 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 works being carried out.
The warranty shall begin from the date on the Installation Certificate duly filled in and signed.
The document must be sent per mail to:
CUSTOMER SERVICE
IEMCA division of IGMI spa
48018 Faenza (Ra) ITALY - Via Granarolo,167



IEMCA INSTALLATION CERTIFICATE N° 1005 /02

ATTENTION: to comply with the warranty terms all parts of this form are to be filled in and mailed to IEMCA Italia

Installation and training executed by:

Company		DATE	
Installer Technician		Servicing report No.	

Executed at:

Customer		Participant/s (write names in caps)
Country		
Bar feeder		
Serial no.		
Equip./Type		

SUBJECT	
Bar feeder's general description and running, operating cycle instructions.	❑
Bar feeder tooling instructions and changeover instructions. Description and change of: guides, bar pusher, collet, half bushing, front nose and reduction nose	❑
Description of operator's keyboard; description of parameters and their use.	❑
Programming procedures based on the kind of process required.	❑
Errors - Causes - Solutions; description of the main alarms listed on manuals.	❑
Manuals and precautionary maintenance tips examination; Procedures to request IEMCA technical service.	❑
Customer is familiar with the bar feeder and is aware of all its running and maintenance procedures having received such information during previous installations.	❑

Marked subjects have been dealt with fully and thoroughly.
Participants report that training received was fully satisfactory. Side signature acknowledgement.

NOTE: in order to benefit from our warranty
- an IEMCA authorised technician must have carried out the installation
- above mentioned "training" must be completed.

Warranty terms is of 12 months beginning on the date of the installation and may not exceed 18 months from the delivery date.
Warranty will have effect from the date of the general undersigning of this from. All parts of these form must be completely filled in and the same must be mailed to IEMCA, or returned by means of the installing technician, within 15 days.

Customer's stamp and signature

IEMCA GIULIANI MACCHINE ITALIA S.p.A.

IGMI S. p. A. BUCCI

Copy for IEMCA

1.2 MANUAL PURPOSE

This manual has been written and supplied by the manufacturer, the information herewith 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 and of its equipment.

The compliance with the instructions contained herein ensures the operator and bar feeder safety as well as a running economy and a longer life of the bar feeder itself.

In order to allow a quick search of contents, consult the descriptive index.
Particularly important parts of this manual have been highlighted in bold type and preceded by the following symbols:

DANGER - WARNING:
shows impending danger which might cause serious injuries, exert the maximum caution.

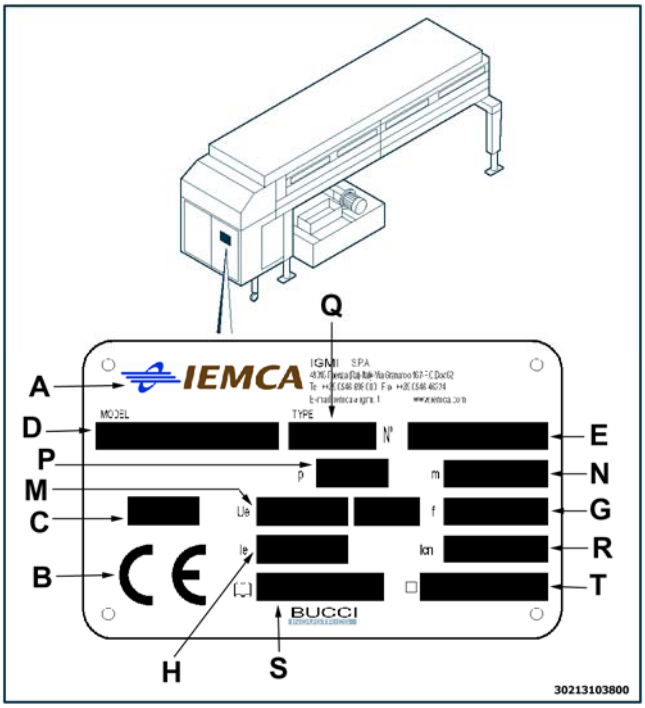
CAUTION - PRECAUTION
indicates measures to be adopted to avoid accidents or damages to property.

INFORMATION
technical instructions of particular importance.

For a quick search of topics see the table of contents.
In addition to this manual, which contains all the instructions for the bar feeder use and maintenance, one more is supplied: the "Push-button panel instruction manual".
The "Push-button panel instruction manual" contains all the instructions on how to use the installed software.

1.3 MANUFACTURER AND BAR FEEDER IDENTIFICATION

A Manufacturer's identification
B CE conformity marking
C Year of manufacture
D Bar feeder model
E Serial number
G Mains frequency
H Absorption power
M Feeding voltage
N Direct driving voltage
P Air pressure
Q Bar feeder and pusher length
R Breaking capacity
S Number of base wiring diagram
T Number of interface wiring diagram



INFORMATION:

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

1.4 TECHNICAL ASSISTANCE

Whenever necessary, please apply to one of the Technical Assistance Centres shown in the attached list.

INFORMATION

when requesting technical assistance for the bar feeder, always specify the information shown on the machine dataplate.

1.5 ANNEXES ENCLOSED

- Electric diagram
- Pneumatic diagram
- Hydraulic diagram
- Lubrication system diagram
- Technical assistance departments list.
- Push-button panel instruction manual.

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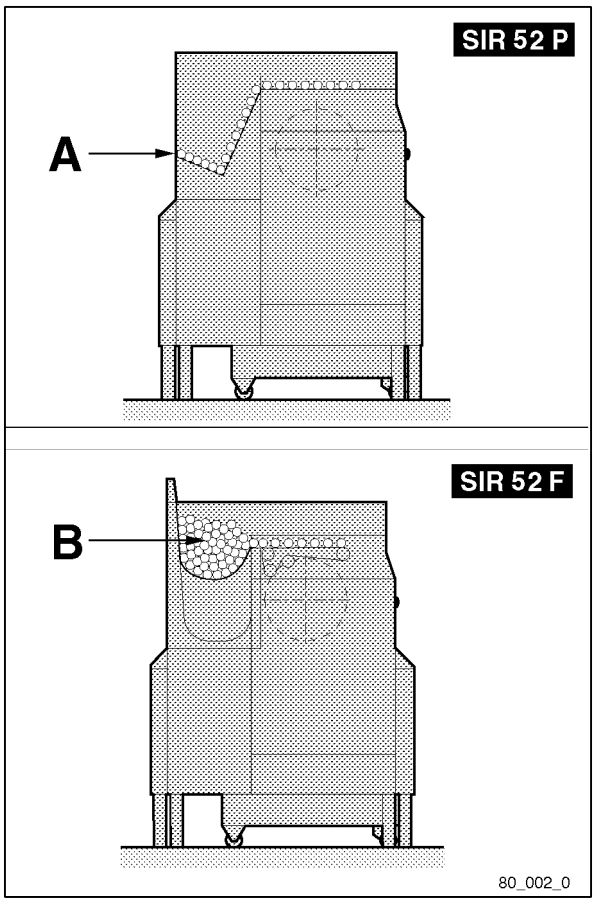
2.1 DESCRIPTION OF MODELS

The bar feeder is available in four models:
- SIR 52 P for bars to 52 mm with rack magazine type (A);
- SIR 52 F for bars to 52 mm with bar bundle magazine type (B).



MANUFACTURING FEATURES
- Maximum and minimum bar length.

Table 1.Maximum and minimum bar length.

Models	Version	Max. length (mm)	Min. length (mm) *
SIR 52 P SIR 52 F	33	3300	2500
	38	3800	3000
	43	4300	3000

(*)Please contact IEMCA Sales Department before loading bundles of short bars into the bundle magazine, in order to check whether a short bar loading set is necessary.

INFORMATION

In bundle models, bars are loaded in the middle of the magazine.

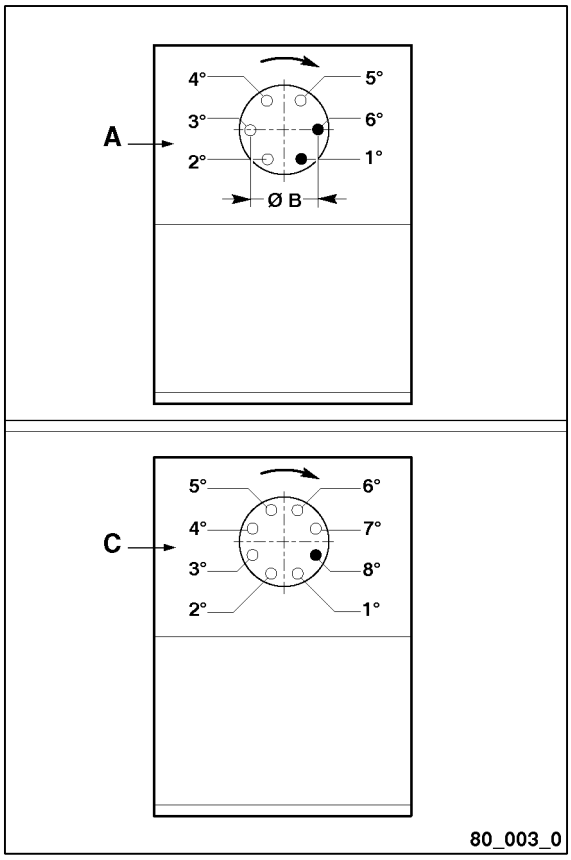
- Bar loading: into the 6th or 1st station of lathe (A) in case of 6-spindle lathe.
  Loading the bar in the seventh station of lathe (C) when the lathe has 8 spindles.
- Stock tube diameter ø (B).

Table 2.Stock tube diameter

Models	Min diameter (mm)	Max diameter (mm)
SIR 52 P/F 6 channel	276	360
SIR 52 P/F 8 channel	330	370

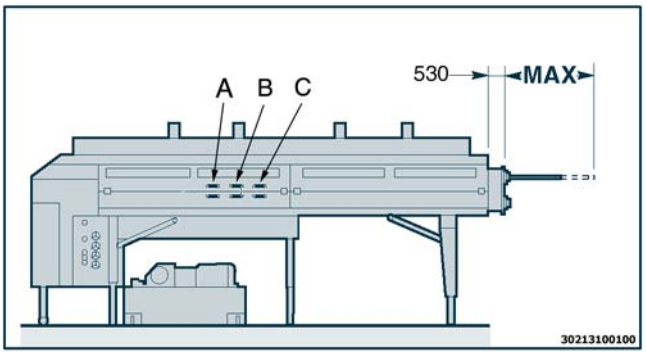
In the case of a lathe with a number of spindles other than 6 - 8, such dimensions may change.

- Bar feeding in more stations: bar feeding can occur in two or more stations, in any possible combination. For further information, apply to IEMCA service department.



- Bar pusher extension.

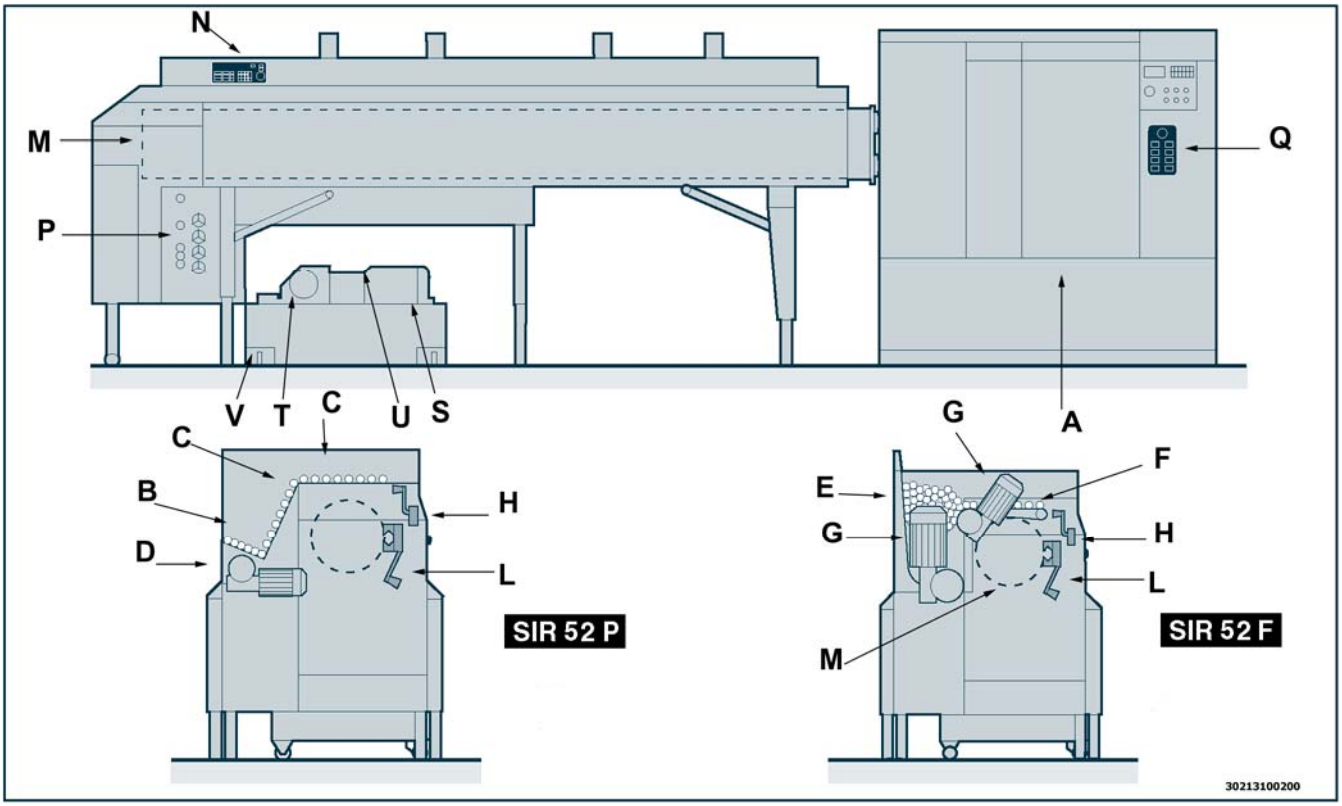
Table 3.Bar pusher features



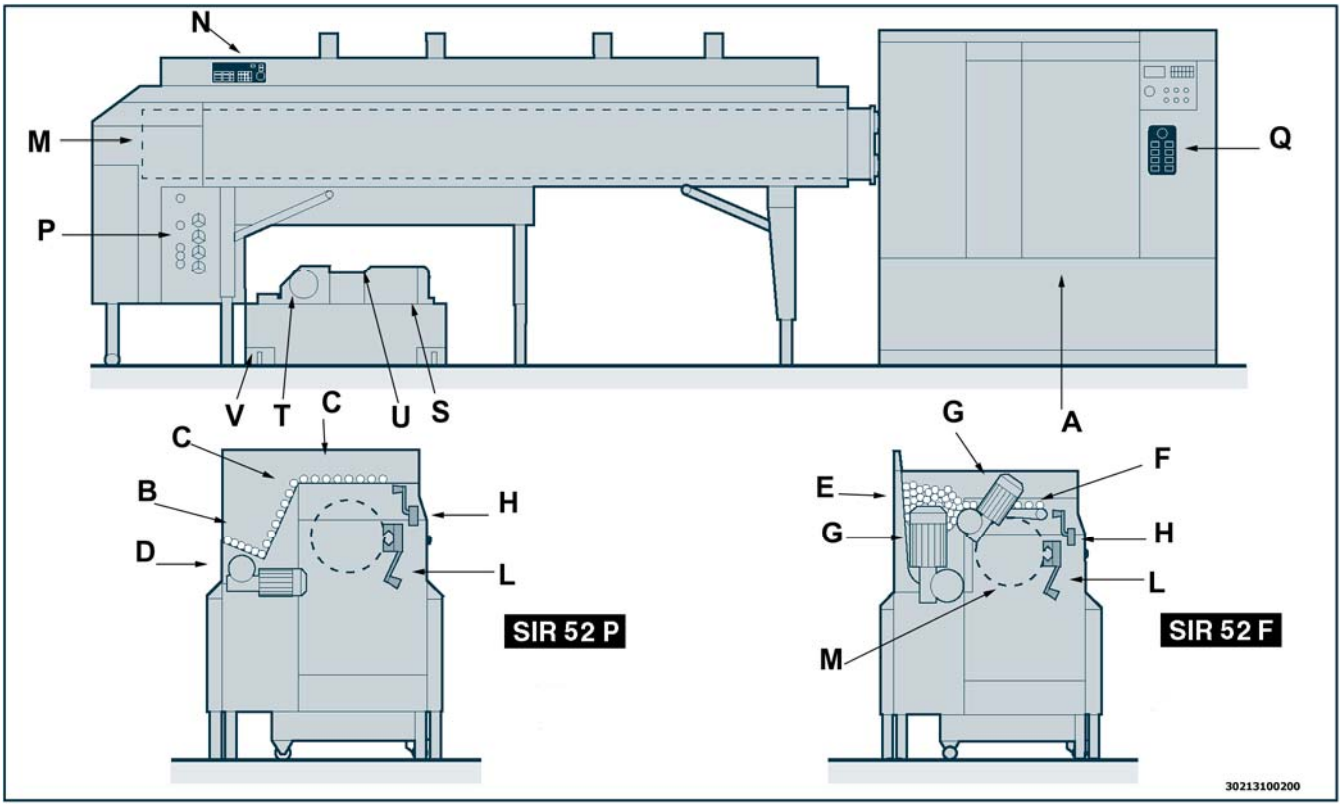
Models	Version	Bar pusher type	Bar pusher extension MAX	Clamp position
SIR 52 P SIR 52 F	N	STANDARD	1110	A
	L	LONG	1360	B
	XL	EXTRA LONG	1610	C

2.2 GENERAL BAR FEEDER DESCRIPTION

The automatic bar feeder SIR 52 P or SIR 52 F is used in the machine tools sector and more specifically to automatically feed multi-spindle lathes.
The bar feeder has been designed to be installed instead of the lathe stock tube, thus replacing the bar guiding and feeding systems. It allows round, hexagonal and square bars to be loaded.
The working cycle is controlled by a PLC fitted in the electric switchboard, able to dialogue with the lathe control.



A LATHE
machines the bars loaded by the bar feeder.
B RACK MAGAZINE
stores the bars.
C TRAVERSE DEVICE
takes single bars, moving them from the rack magazine to the inserting device.
D DRIVE
drives the bar traverse device from the rack to the inserting device.



E BUNDLE MAGAZIN/E
stores bars.

F BAR SELECTING DEVICE
selects bars.

G DRIVE
drives the bar selecting device.

H BAR INSERTING DEVICE
takes the bars and arranges them into the guide channels.

L CLAMP AND BAR PUSHER UNIT
inserts into and removes the bar from the collet.
Furthermore, it inserts into and removes the bar pusher from guide channels.

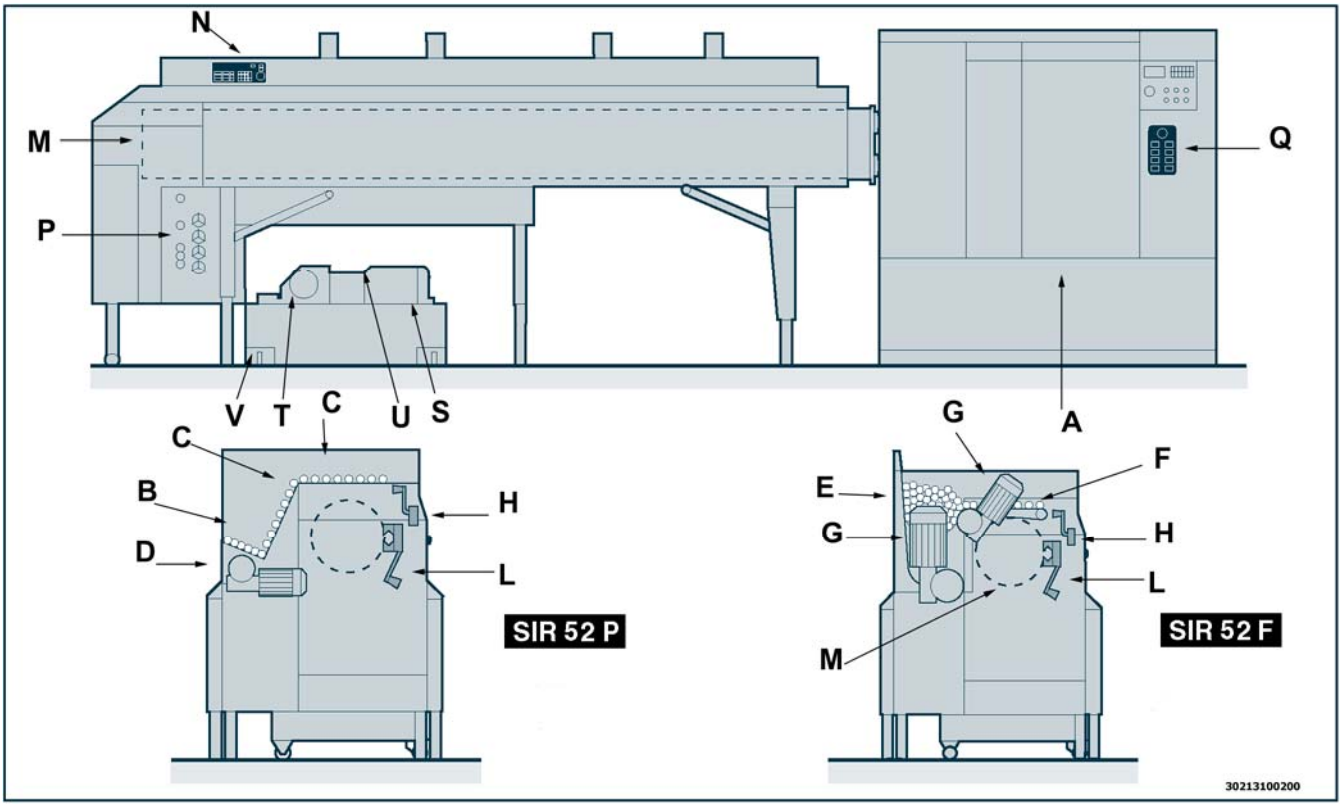
M FEEDING DRUM
inserts bars into lathe.

N CONTROL PUSH-BUTTON PANEL
controls all bar feeder functions.

P HYDRAULIC CONTROLS
adjust hydraulic oil flow.

Q ADDITIONAL PUSH-BUTTON PANEL
controls some bar feeder functions (not supplied in some models, being its functions included into the lathe push-button panel).

R CUBICLE
fits the electric switchboard.



S REMNANT RECOVERY TANK
collects bar remnants.

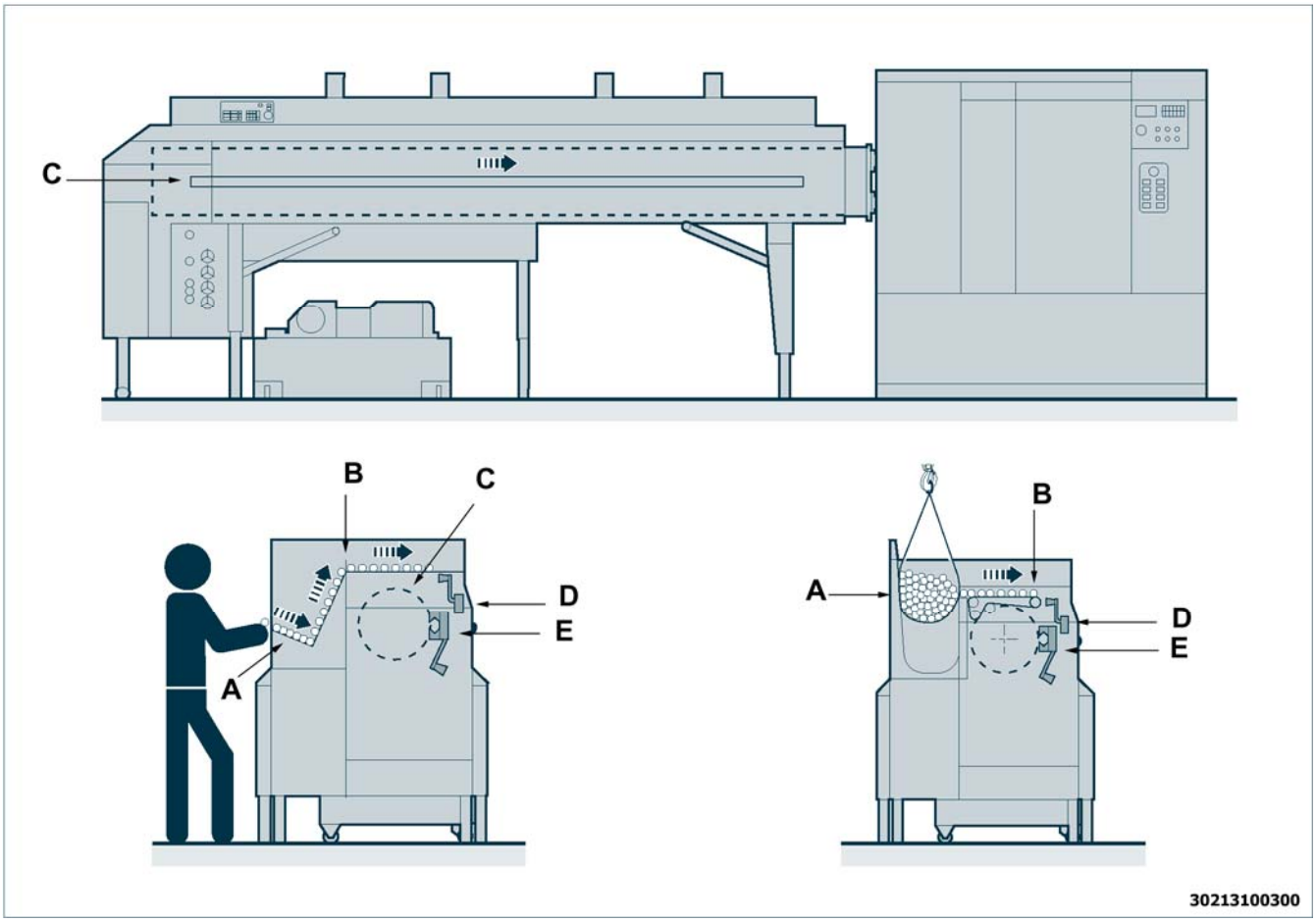
T HYDRAULIC OIL PUMP
produces pressure for the hydraulic functions of the bar feeder.

U LUBRICATING OIL PUMP
produces pressure to lubricate guide channels.

V HYDRAULIC OIL TANK
contains the hydraulic system oil.

Z LUBRICATING OIL TANK
contains the oil for the lubricating system.

2.3 WORKING CYCLE - GENERAL DESCRIPTION



SIR 52 P

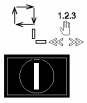
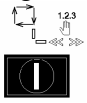
- The bars, manually loaded into magazine (A), are taken by the chain displacement device (B).
- The bar loading device (D) introduces them into drum (C).
- The clamp device (E) inserts the bar into the bar pusher collet.
- Then, bars are fed into the lathe.

SIR 52 F

- Bars, previously loaded inside the magazine (A) through a lifting device, are selected by the bar selecting device (B).
- The bar inserting device (D) introduces them into drum (C).
- The clamp device (E) inserts the bar into the bar pusher collet.
- Then, the bars are fed into the lathe.

2.4 SAFETY DEVICES

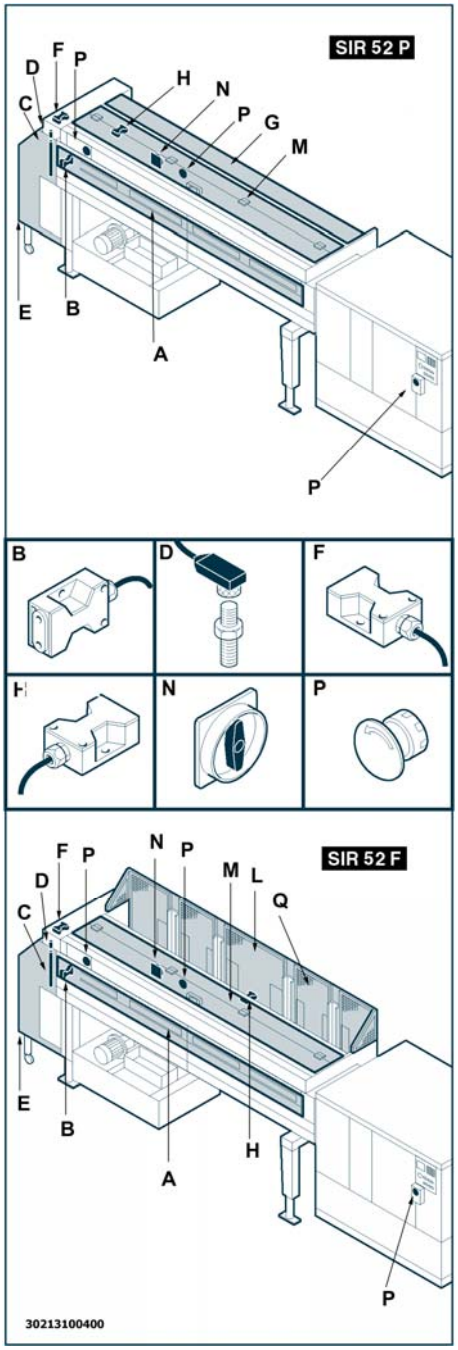
A INTERLOCKED MOBILE GUARD. It is associated to microswitch (B):

- when selector  is turned to  , the bar feeder stops by opening the guard;
- when selector  is turned to  , the bar feeder does not stop by opening the guard, but there are few controls enabled, i.e. those necessary for setting up or change the machining procedures; they are:  .

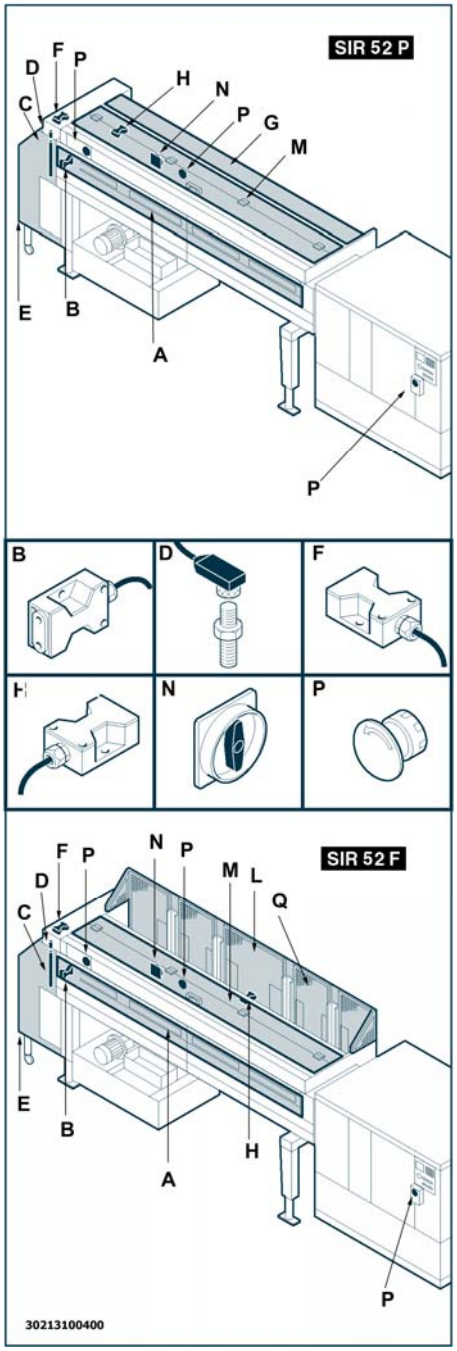
C AXIAL DISPLACEMENT LOCKING.
It is associated to sensor (D).
By releasing the lever, all lathe and bar feeder functions are disabled.

E MOBILE GUARD.
Associated to microswitch (F).
By opening the guard, all lathe and bar feeder functions are disabled.

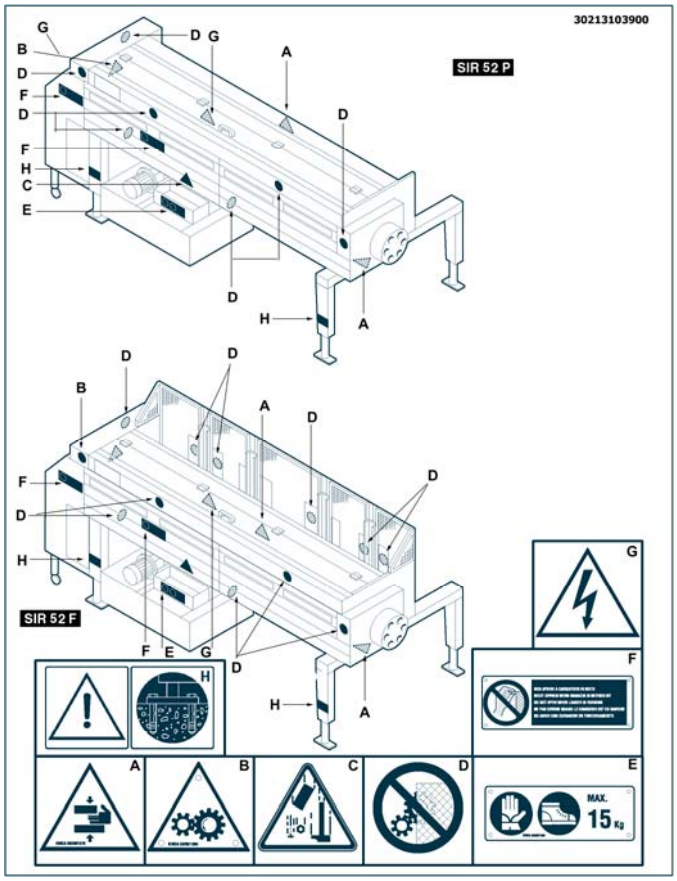
G MOBILE GUARD.
Associated to microswitch (H).
By opening the guard, all bar magazine functions are disabled. The bar feeder keeps feeding the lathe until the feeding drum runs out of bars.



L Mobile guard
Prevents the accidental access to bundle magazine.
M Mobile guard
Prevents the accidental access to the bar selecting station.
N Main switch
Disconnects the electric supply when servicing the electric switchboard.
P Emergency push-button
By pressing it, all lathe and bar feeder functions are disabled.



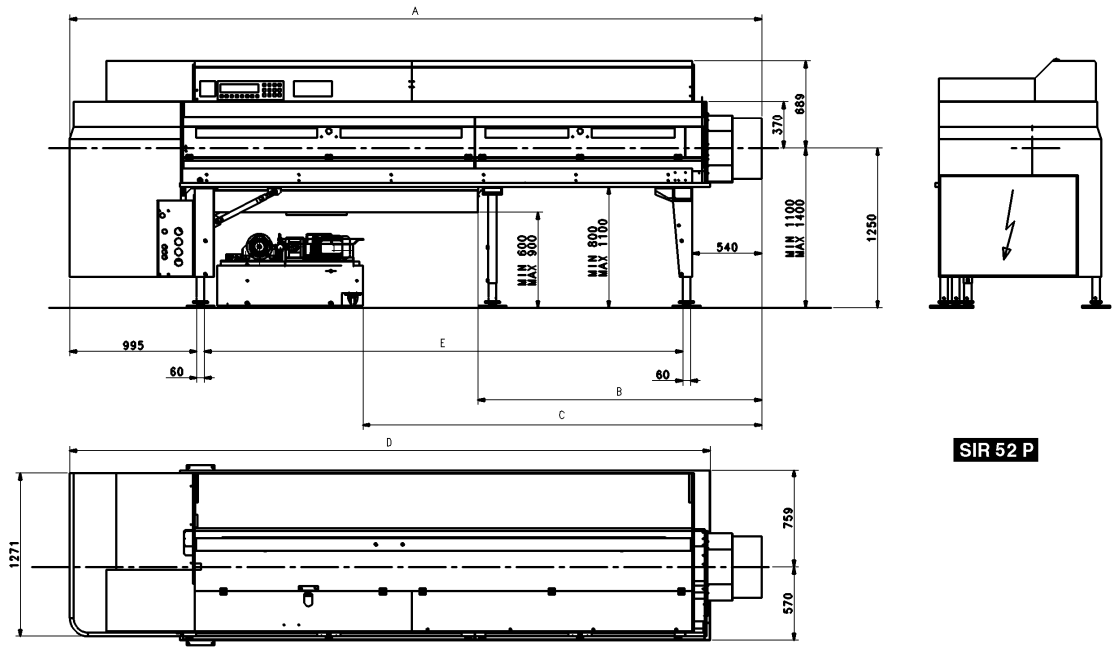
2.5 SAFETY PLATES - LOCATION AND DESCRIPTION



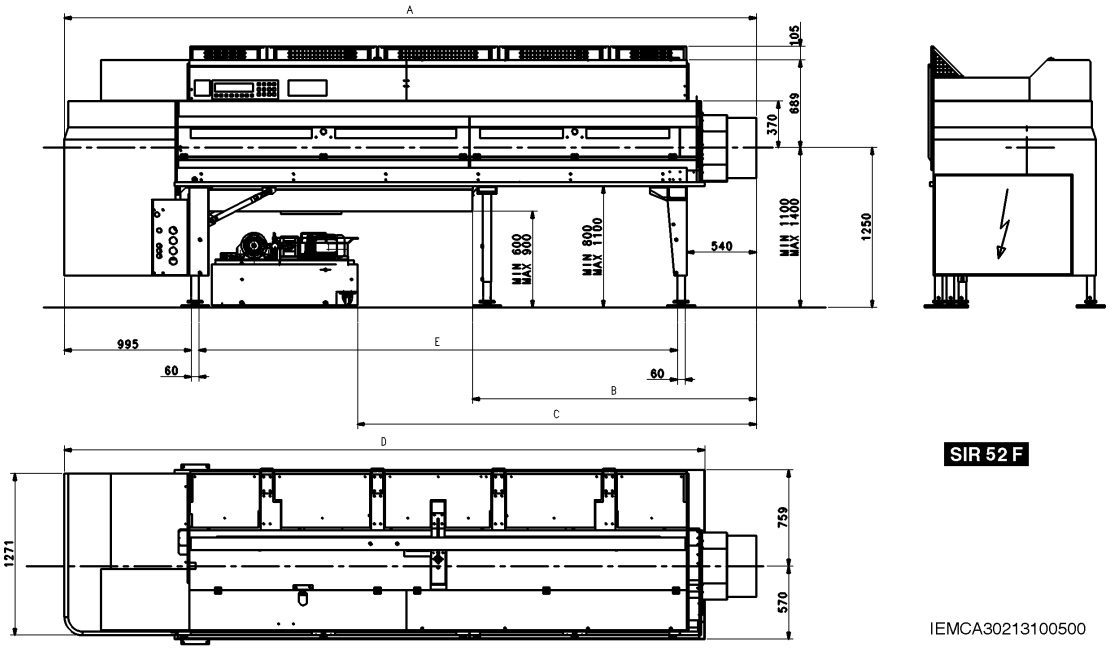
DANGER - WARNING:
Keep safety plates clean.

A Danger of arm crushing.
B Give the greatest attention to running parts.
C Danger of material falling.
D Do not remove safety guards.
E Wear safety work gloves and shoes.
Do not lift any load exceeding 15 kg manually.
F Do not open the bar feeder while it is running.
G Caution: danger of electric shock.
H Warning: fix the bar feeder to the ground.

2.6 TECHNICAL INFORMATION



SIR 52 P



SIR 52 F

IEMCA30213100500

Table 4.Technical specifications

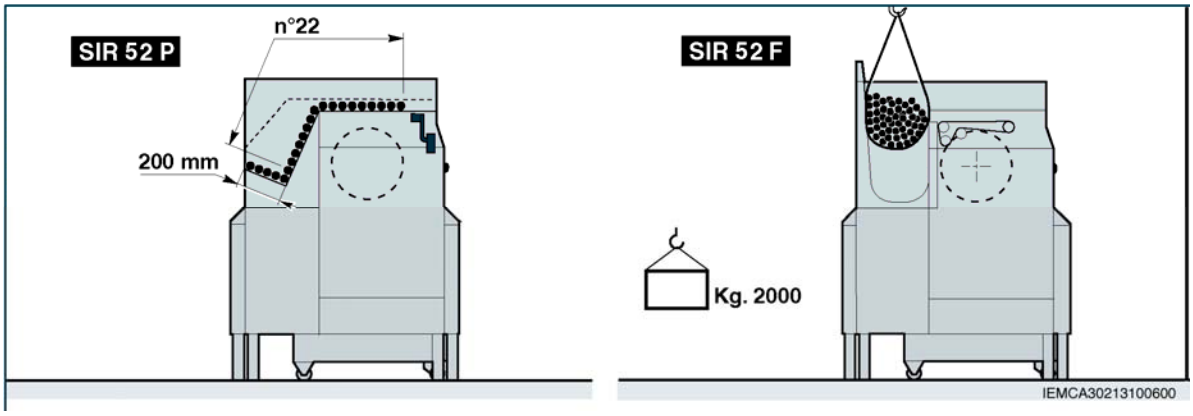
	Version		
Value	**33**	**38**	**43**
A	4900	5400	5900
B	1720	2220	2720
C	2620	3120	3620
D	4520	5020	5520
E	3250	3750	4250

Table 5.Technical specifications

	SIR 25 P	**SIR 36 P**	**SIR 25 F**	**SIR 36 F**
Min round bar diameter	4mm (11/64”) (version 33-38) 5 mm (13/64”) (version 43)	5 mm (13/64”) (version 33-38-43)	4 mm (11/64”) (version 33)	5 mm (13/64”) (version 33)
			6 mm (1/4”) (version 38)	6 mm (1/4”) (version 38)
			8 mm (21/64”) (version 43)	8 mm (21/64”) (version 43)
Max round bar diameter	25 mm (1”)	36 mm (1-3/8”)	25 mm (1”)	36 mm (1-3/8”)
Bar straightness	0,5 mm/m			
Max. bar length	3300 mm (version 33) - 3800 mm (version 38) - 4300 mm (version 43)			
Max. magazine capacity	n. 22 bars più 200 mm on the rack	n. 11 bars più 200 mm on the rack	2000 kg	
Supply voltage	380 three-phase / 50 Hz (other voltages upon request)			
Supply voltage	24 Volt D.C.			
Installed power	4,5 kW			
Feeding speed	up to 1.5 m/sec.			
Return speed	up tp 1.5 m/sec.			
Bar change-over time	30 sec.			
Hydraulic system oil (not supplied)	Type C) HG32; quantity 80 l			
Guide channel oil (not supplied)	Type (C) CKB 100; quantity 170 l			
Compressed air	6 bar			
Bar feeder weight	1650 kg (version 33)		1800 kg (version 33)	
	1750 kg (version 38)		1900 kg (version 38)	
	1850 kg (version 43)		2000 kg (version 43)	
Control unit weight (dry weight)	220 kg			

(*) Please contact IEMCA Sales or Service Departments before loading thinner bars.

In pursuing a policy of continuous updating of the product, the manufacturer might introduce changes without any prior notice.



2.6.1 Noise levels

The bar feeder does not cause acoustic noise.
Noise occurs when lathe, to which the bar feeder is connected, is running and the bar turns into the bar feeder guide channels.
In such a situation, the noise level emitted depends on the following conditions:

- perfect alignment and levelling of the lathe-bar feeder unit;
- correct fastening of the lathe and bar feeder to the ground;
- perfect working order of the lathe bar gripping device;
- use of guide channels and bar pushers whose dimensions are suitable to the diameter of the bar to be machined;
- use of a front guiding bush of suitable diameter (if supplied);
- use of bars whose straightness is within the prescribed limits (max. deflection in mm equal to 0.5 per thousand of the bar length);
- use of a spindle liner with a diameter equal to the bar feeder guide channel diameter;
- spindle rotation speed suitable to the material to be machined;
- as far as the bar feeder is concerned, use of suitable oil, according to the diameter of the bar to be machined;
- all bar feeder guards must be closed.

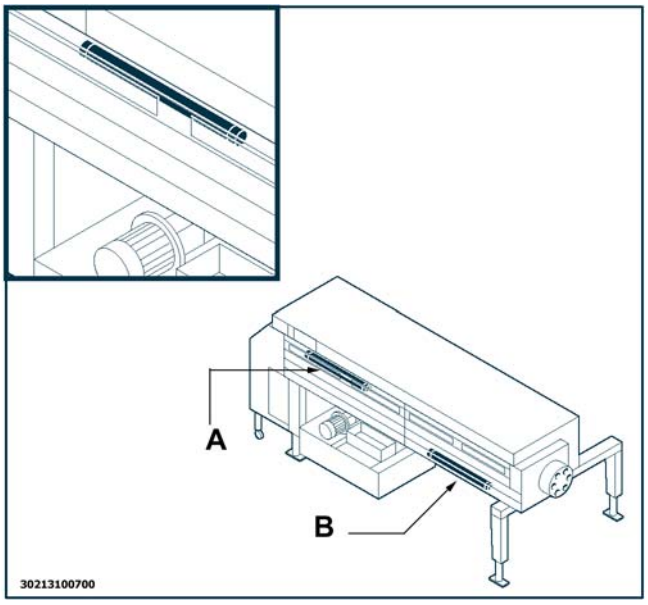
If the above mentioned conditions are complied with, the noise level emitted during the bar rotation into the guide channel and measured according to the international standards, does not exceed the following limits:

- brass and steel round bars ..... within 80 dB(A)
- steel hex. bars ..... within 83 dB(A)
- brass hex. bars ..... within 85 dB(A)

2.7 FITTINGS - DESCRIPTION

2.7.1 Additional inner lighting lamp

Lamp (A) allows the rear drum area to be lighted, to make operator's checking easier.
Lamp (B) may be fitted upon customer's request.



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3.1 GENERAL SAFETY PRESCRIPTIONS

It is of the utmost importance to read this manual carefully before installing, using or servicing the bar feeder or performing any other work . Constant compliance with the instructions in this manual is a guarantee of protection against injury.

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

3.2 HANDLING AND INSTALLATION - Safety

- The bar feeder must be handled using suitable means and methods.
- Persons must not stand or transit underneath a suspended load, or within the range of action of the crane, lift truck or other suitable means of lifting and transportation.
- The working area and bar loading area must be cordoned off to prevent collisions between the operator and machines used to transport or handle the barstock or other materials.
- Correct positioning of the bar feeder, adequate lighting and a clean working environment are of the utmost importance as far as personal safety is concerned.
- The electric system connection must be made exclusively by skilled electricians.
- Make sure the electrical system is connected to an efficient earth circuit by means of a dedicated wire.

3.3 ADJUSTMENTS AND SETTING UP - Safety

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

3.4 USE AND OPERATION - Safety

- The working area around the bar feeder must always be kept clean and uncluttered in order to allow immediate access to the emergency devices and bar loading to be performed without creating obstructions or danger.
- Perform the cycle starting sequence as prescribed.
- Keep hands and other parts of the body well clear of moving parts or live electrical parts.
- Remove bracelets, watches, rings and neckties.
- Whenever necessary, use strong work gloves with 5 fingers, which do not reduce the sensitivity or power of your grip.
- Wear working shoes as well as personal protection devices provided for by the accident prevention regulations in force in the country in which the machine is installed.
- Inform maintenance personnel of all operating anomalies that come to your attention.
- Before starting the bar feeder, make sure that there are no personnel engaged in servicing or cleaning the machine.

3.5 BAR FEEDER MAINTENANCE - Safety

- Do not allow unauthorized persons to carry out maintenance.
- Read this manual carefully before carrying out maintenance.
- Do not lubricate, repair or adjust the bar feeder while it is running, unless expressly indicated to do so in the manual.
- Stop the bar feeder in accordance with the prescribed methods before carrying out lubrication or other work.
- Do use matches, lighters or torches when servicing the machine in the presence of inflammable fluids.
- Keep spent oil in suitable containers and consign it to companies specialized in the storage and disposal of polluting waste products.
- Do not pollute the environment.
- Use original IEMCA spare parts only.

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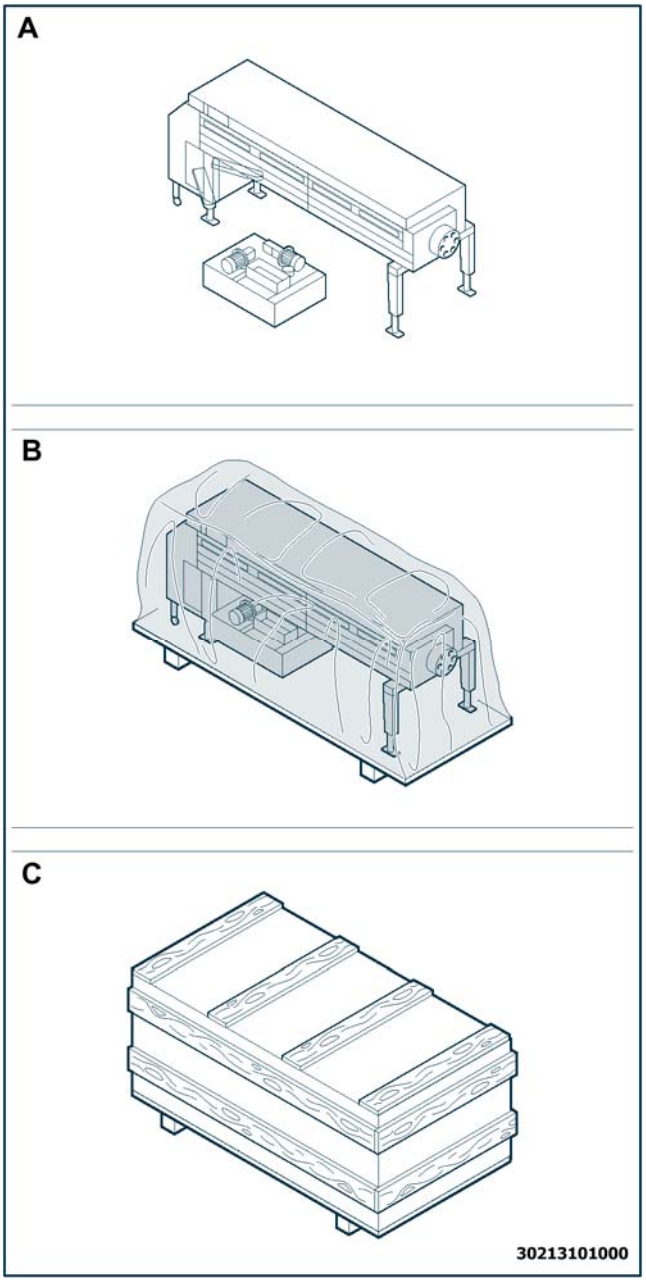
4.1 PACKING

The machine may be packed in three ways:

A WITHOUT PACKING: the bar feeder is divided from the hydraulic control unit.

B PALLET: the bar feeder is placed on a pallet and covered by a protective sheeting.

C BOX: the bar feeder is contained in a box and covered by a protective sheeting.



4.2 LIFTING - PREAMBLE

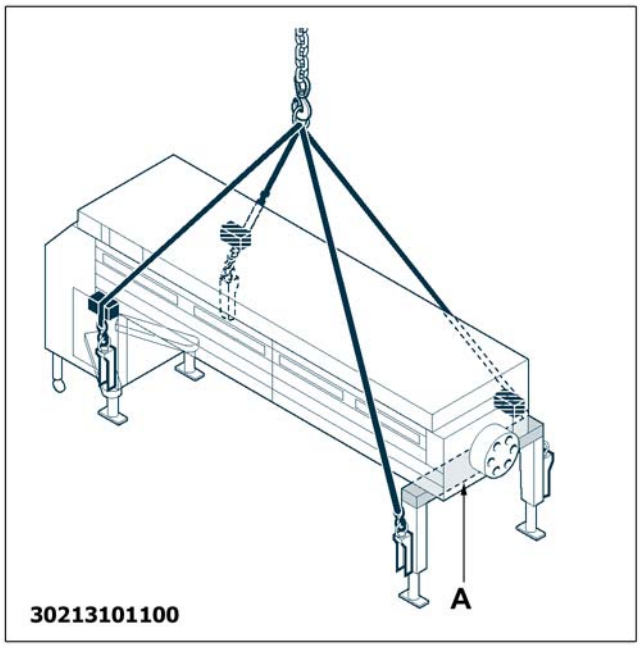
DANGER - WARNING:

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

4.2.1 Lifting without packing

With respect to the length of front crosspiece (A), two different lifting procedures are required.

If the crosspiece does not come out of the bar feeder shape, the lifting with tube is needed; otherwise, the tubeless lifting is needed.



LIFTING

Table 1.Belt length

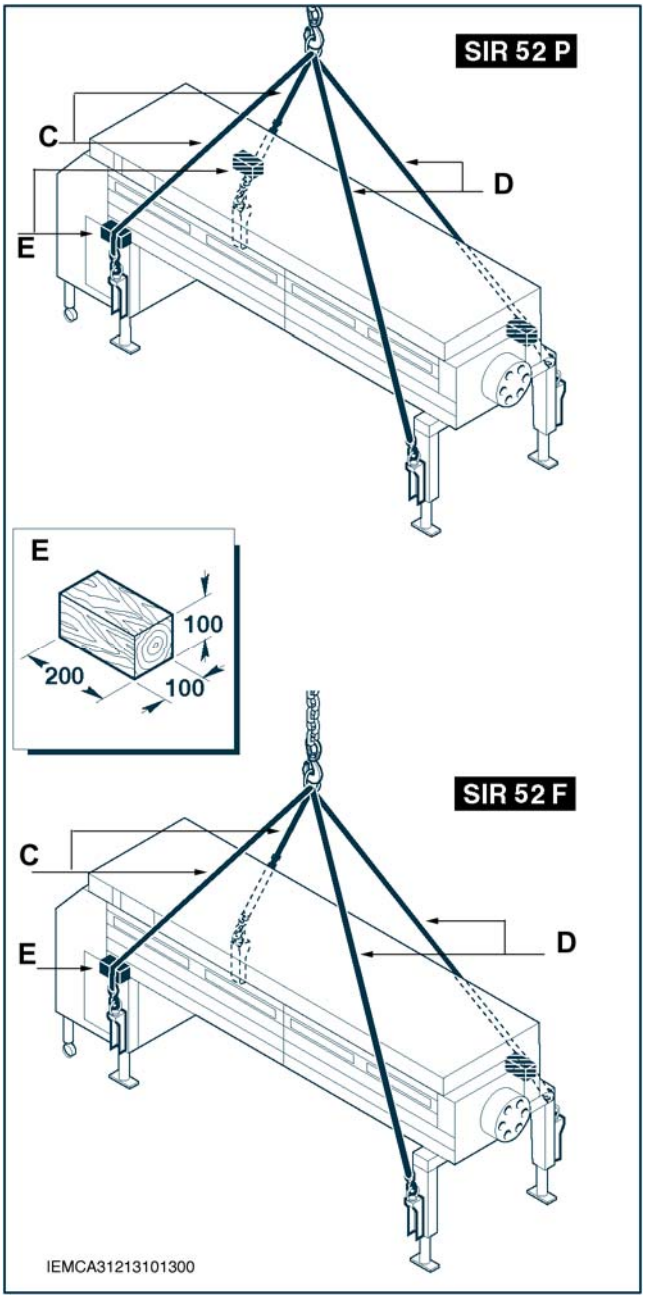
Model	Version	Belt C (mm)	Belt D (mm)
SIR 52 P SIR 52 F	33	3000	3000
	38	2500	3000
	43	2500	3000

Check the length belts (C) and (D) and apply wooden pads (E). Use a bridge crane or a self-propelled crane.

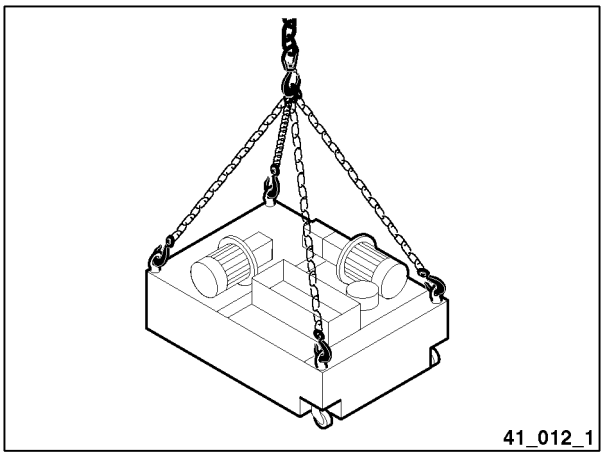
INFORMATION:

After positioning and alignment, remove the eye bolt brackets.

Use the brackets supplied with the bar feeder.

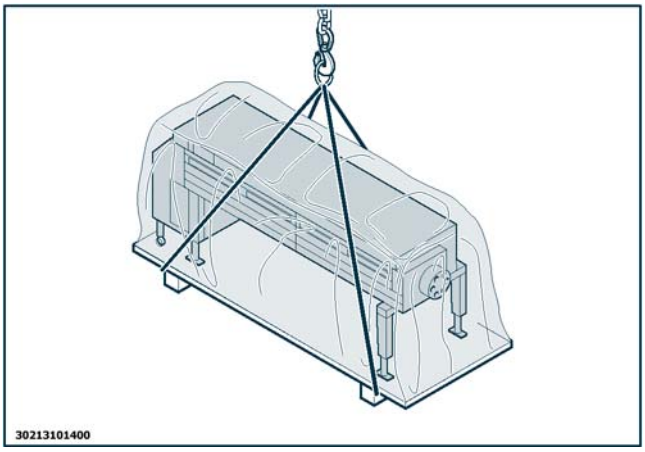


To uplift the hydraulic drive unit, use belts or chains together with a bridge crane or a self-moving crane having an appropriate loading capacity.



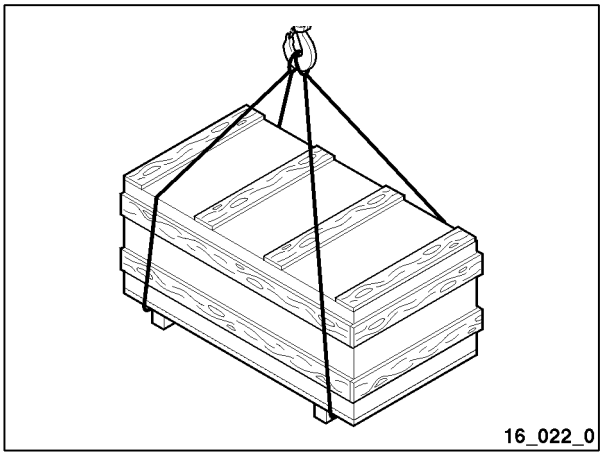
4.2.2 Lifting with a pallet

Use two belts of 8 m in length and a bridge crane or a self-propelled crane having adequate capacity load.



4.2.3 Lifting with a box

Use two belts of 8 m in length and a bridge crane or a self-propelled crane having adequate capacity load. The case weight is 1000 kg.



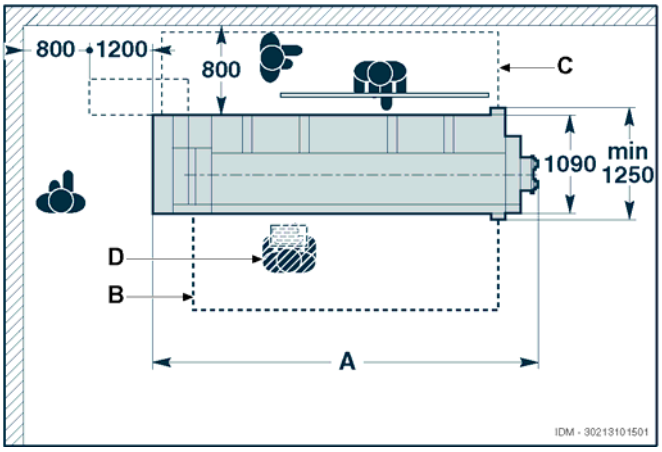
4.3 INSTALLATION AREA - FEATURES

- 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 feeder use.

Table 2.Installation area dimensions

Models	Version	A (mm)
SIR 52 P SIR 52 F	33	4950
	38	5450
	43	5950

- The areas: (B) (work area), (C) (bar feeding area) and (D9 (remnant discharge area) should be properly delimited to prevent collisions between the operator and any handling equipment or transport vehicles travelling near the bar feeder.
- The selected bar feeder setting should be suitably lit and provided with an electric power and air outlets.
- During operation, the feeder will release small amount of oil vapors. Make sure that the premises where the feeder is installed are suitably ventilated.



4.4 INSTALLATION

The most important phase of installation is the alignment between the bar feeder and lathe, hence said operation shall be carried out by skilled personnel with the maximum precision.

WARNING-CAUTION:

A wrong alignment may be the main cause of bar feeder malfunctioning and may cause damages to the machine.

4.4.1 Lathe - Preliminary operations

- Remove the lathe stock tube and the countercollet unit, disconnect the lathe bar feeding system.

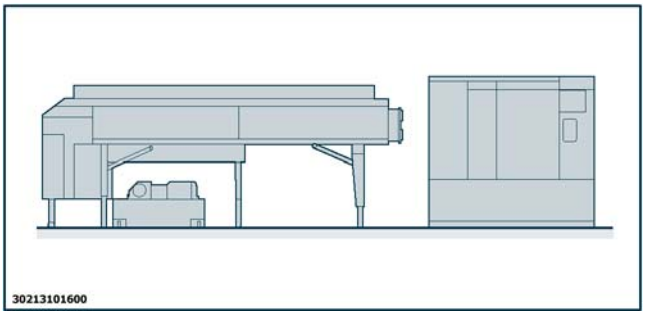
INFORMATION

This operation is necessary only if the lathe is supplied with the device.

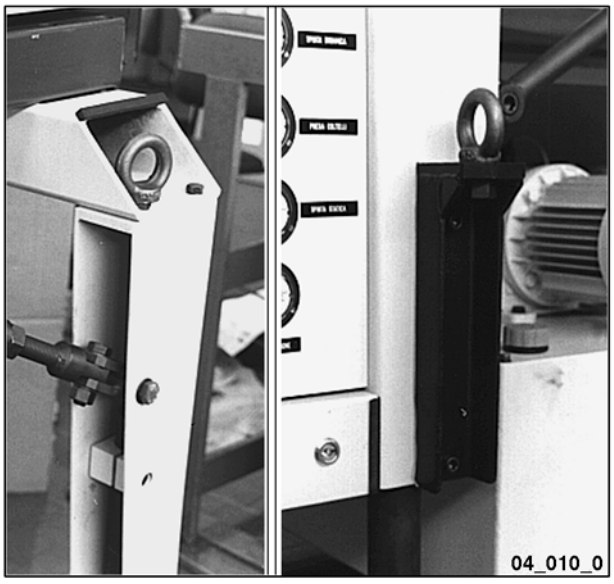
- Check the lathe alignment.

4.4.2 Positioning

- Position the bar feeder nearby the lathe.



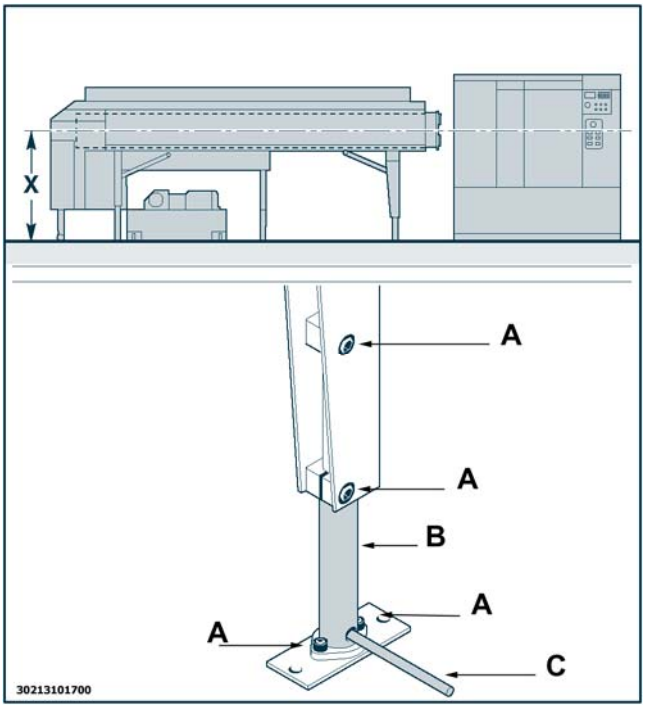
- In the front feet, remove the eyebolts (A) or the tube used for lifting.
- In the rear feet, remove brackets (B) and replace the relevant screws (C) with those supplied (M12x50 UNI 5931).



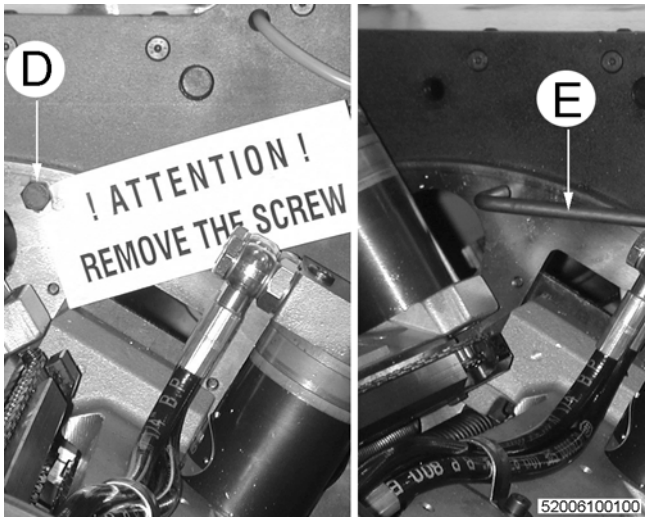
4.4.3 Height and levelling adjustment

Adjust height (X) of the bar feeder working axis with the lathe height, according to the procedure below:

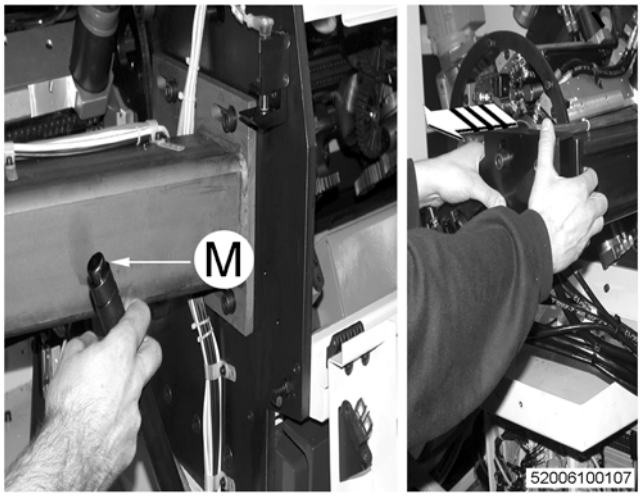
- loosen screws (A) and turn column (B) through pin (C).



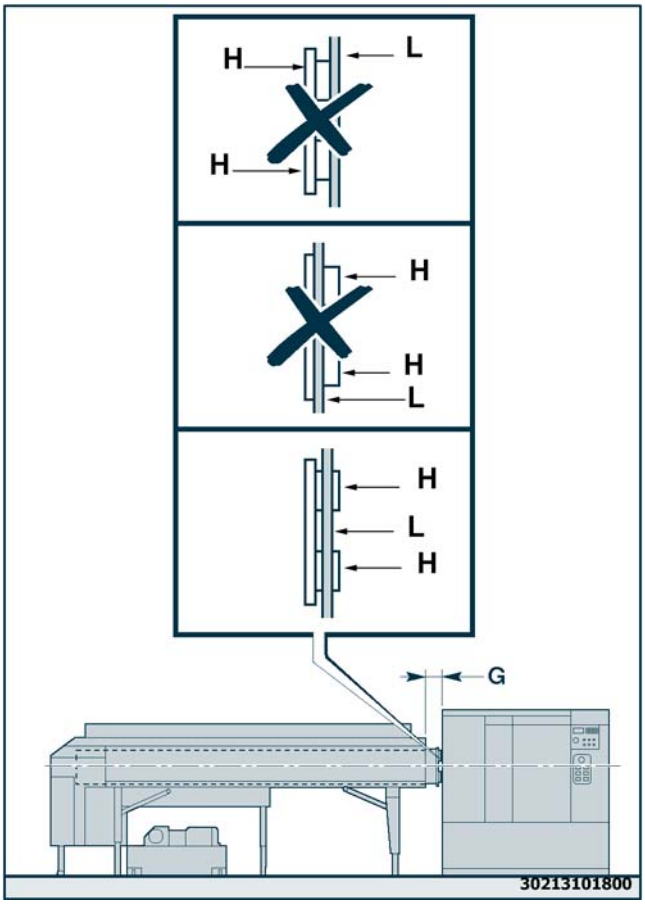
- Open rear guard and replace red screw (D) pin (E) supplied



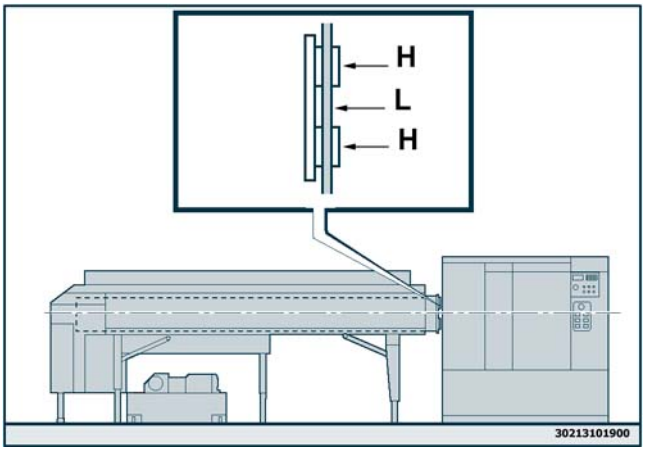
- Lower lever (M) and move feeding drum backwards of 1000 mm approx.



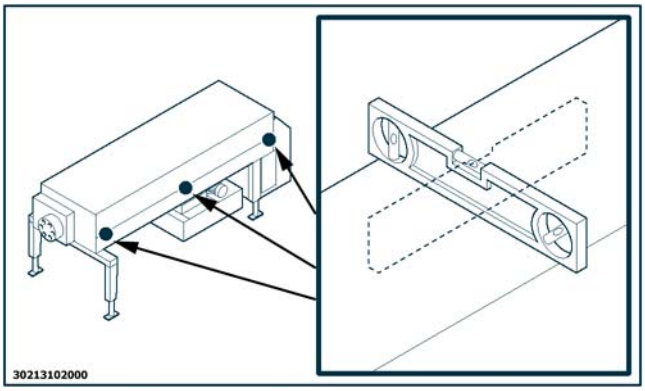
- Move the bar feeder close to the lathe, according to value (G) (previously calculated), to allow bushes (H) to be centred with respect to lathe disk (L) , previously moving the drum to its forward stop.



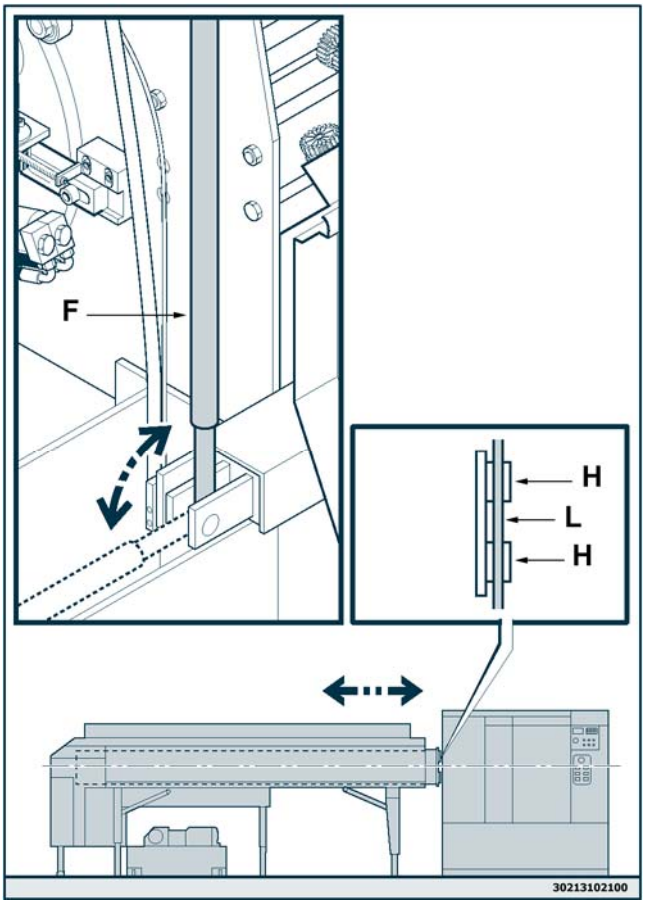
- Move the drum forward and adjust the height of the bar feeder working axis, to allow bushes (H) to fit into lathe disk (L) holes .
  Adjust through feet supports.



- Check the cross and longitudinal alignment by means of the proper tables of reference. Adjust through feet supports whenever necessary.



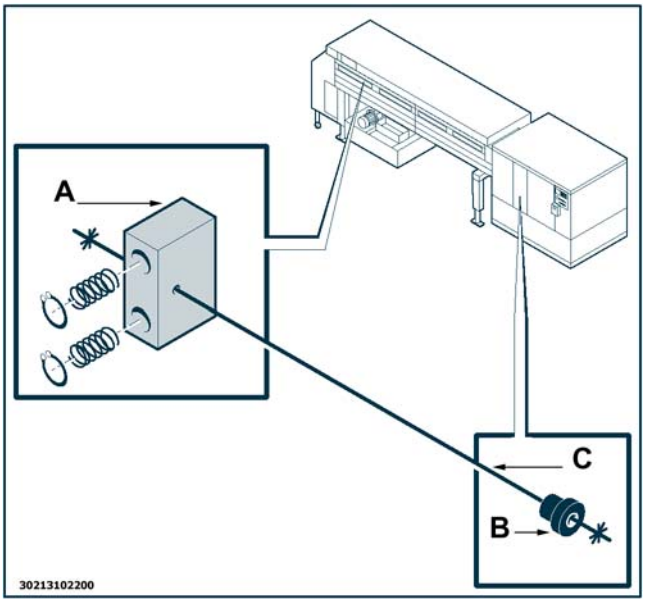
- Check the adjustment, moving the drum forwards and backwards trough lever (F); bushes (H) must fit (without an excessive effort) into lathe disk (L) holes.



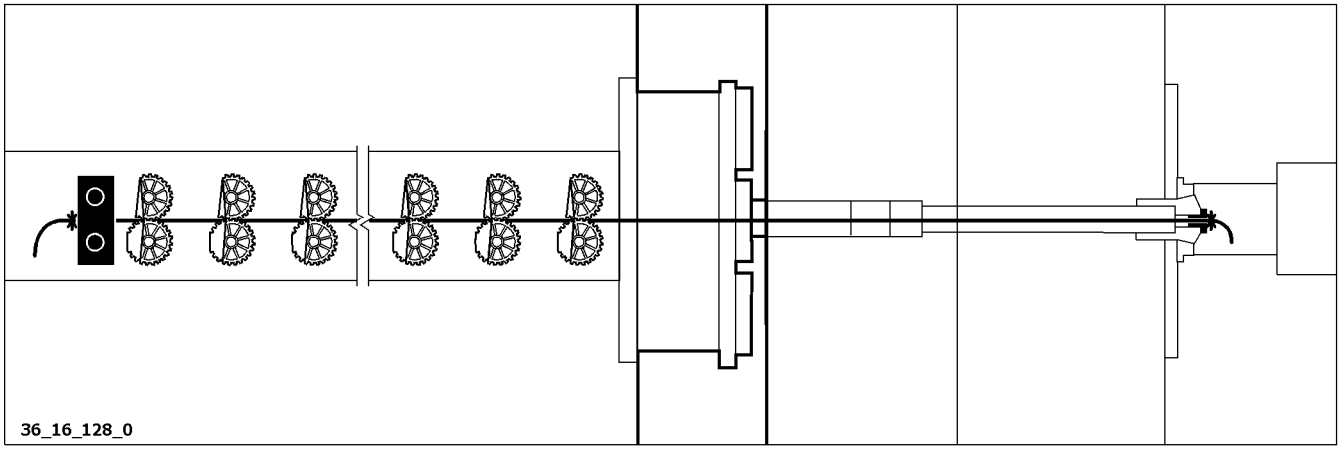
4.4.4 Alignment

INFORMATION

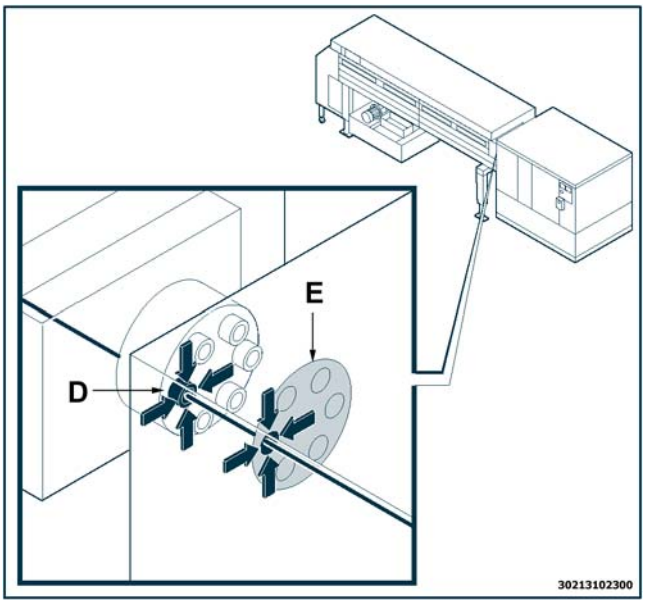
Operation to be carried out by IEMCA skilled personnel only.



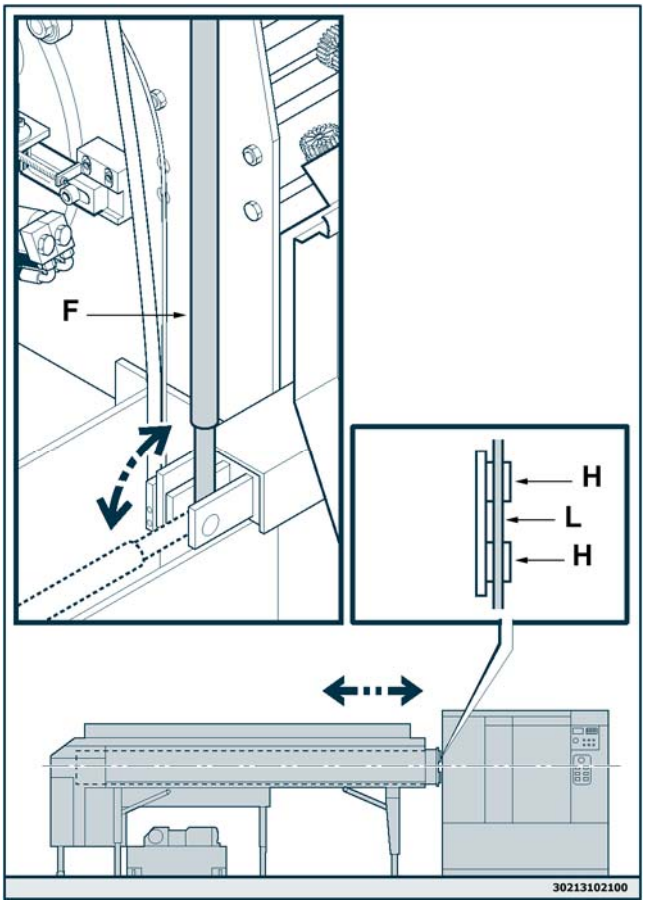
- Move the drum backwards of 500 mm approx.
- Stretch a nylon thread (ø 1 mm) between the bar feeder and the lathe collet, as follows:
  - fit thread holding block (A) instead of the last sprocket pair;
  - position a plug (B) with hole ø 1,5 mm.(to be manufacted by the client)into the lathe collet;
  - stretch nylon thread (C), moving the drum backwards and locking the displacement to keep the thread stretched.



Check, through a vernier calliper, the horizontal and vertical alignment in the front bush (D) of the bar feeder and in disk (E) of the lathe, according to the four directions shown by the arrows. Allowance must be of ± 0.15 mm. Height can be adjusted through the feet supports; side adjustments are obtained by giving calibrated blows on the feet side plates through a mallet. During this phase, keep to the height and level adjustments to find the correct bar feeder position.



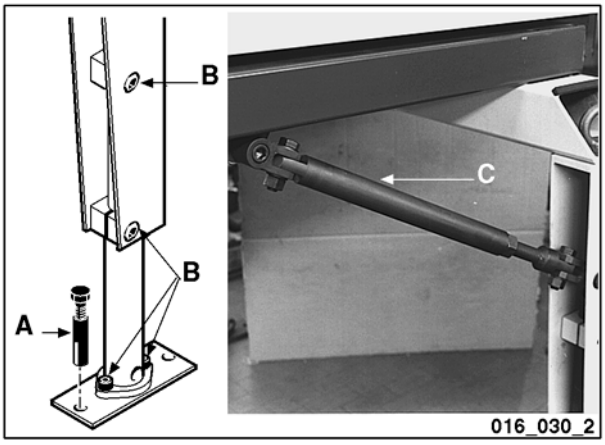
- Check the adjustments by moving the drum forward and backward through lever (F); bushes (H) must fit (without an excessive effort) into lathe disk (L) holes.



4.4.5 Fastening the bar feeder

FASTENING TO THE GROUND

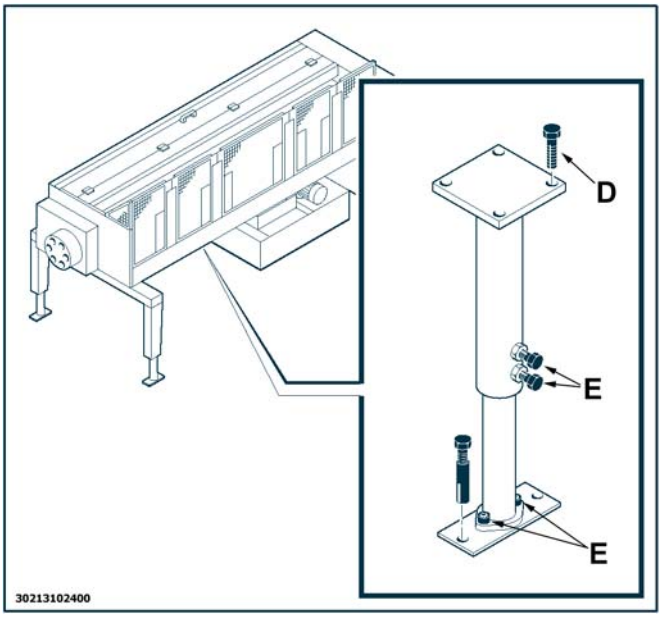
- Fasten the bar feeder to the ground using the expansion plugs (A) and tighten screws (B). Remove the front feet tie rods (C), should they hinder the chips removal or the lathe lubricating oil control unit.



Only for SIR 52 F

Install the central foot in the following way:

- Assemble the central foot by means of screws (D).
- Adjust the height.
- Fasten the plate to the ground.
- Tighten screws (E).

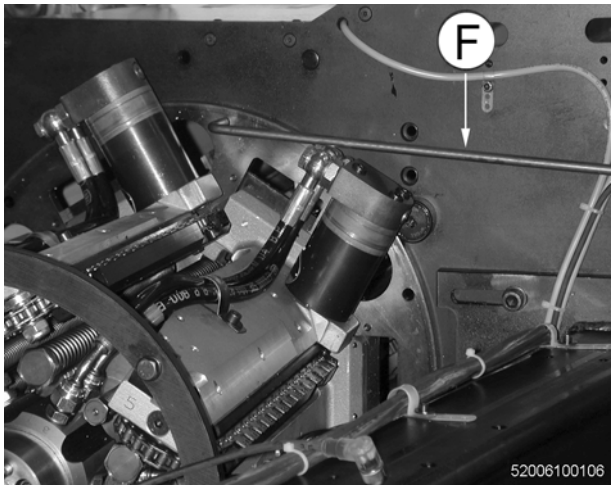


WARNING-CAUTION

When installing the central foot, make sure the magazine is empty.

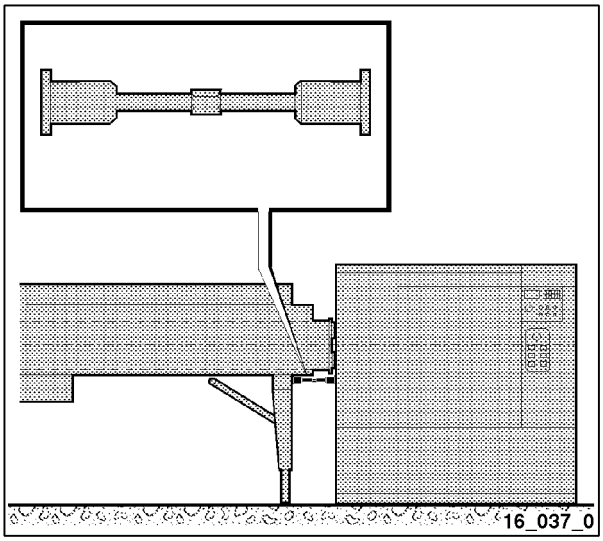
PRECAUTION WARNING:

Before starting the bar feeder, remove the rod (F).



FASTENING TO THE LATHE

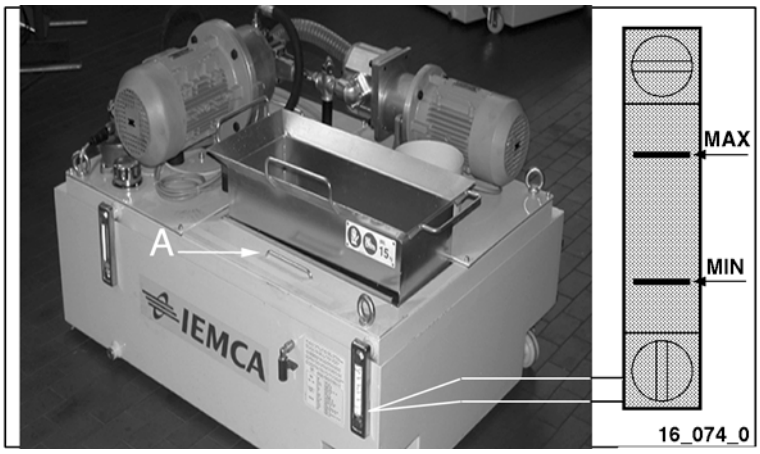
Once the bar feeder has been fastened to the ground, connect the bar feeder to the lathe. Figure 24 shows a general example; apply to IEMCA service department for more details.



4.5 HYDRAULIC CONTROL UNIT - OIL LOADING

LUBRICATING OIL

- Remove cover (A).
- Loading should be carried out by filling in lubricating oil of the following class: C CKB 100. Quantity: 170 l.
  Make sure oil is between the MAX. and MIN. level.

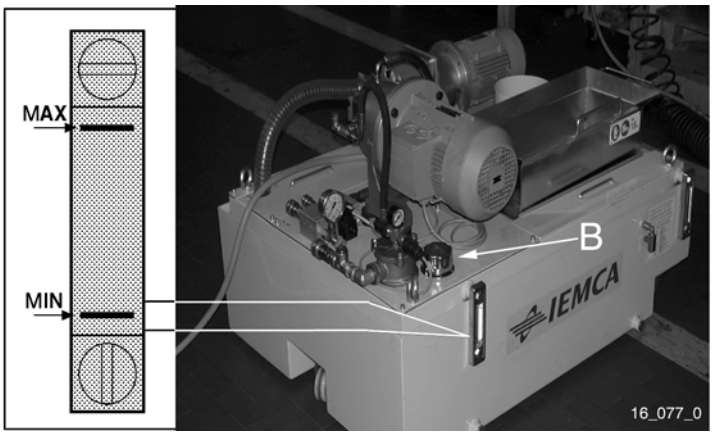


INFORMATION

Perform this operation after some hours have passed since the bar feeder stop.In that way the oil may flow back towards the control unit.

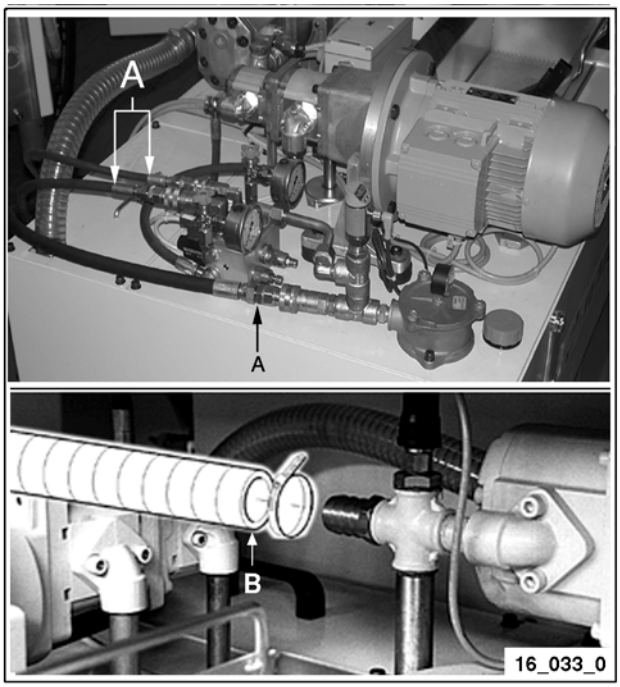
HYDRAULIC OIL

- Remove plug B.
- To top it up, fill with hydraulic oil: type class C HG 32 or equivalent. Quantity: 80 l.
  Make sure oil is between the MAX. and MIN. level.

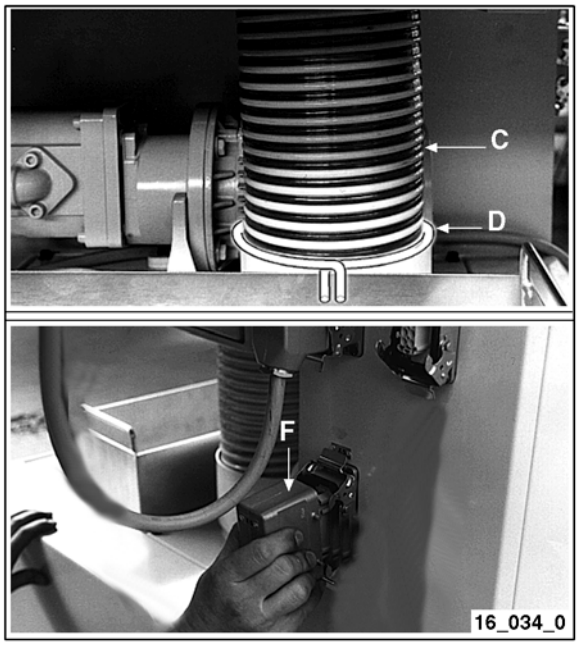


4.5.1 Hydraulic control unit - Connection

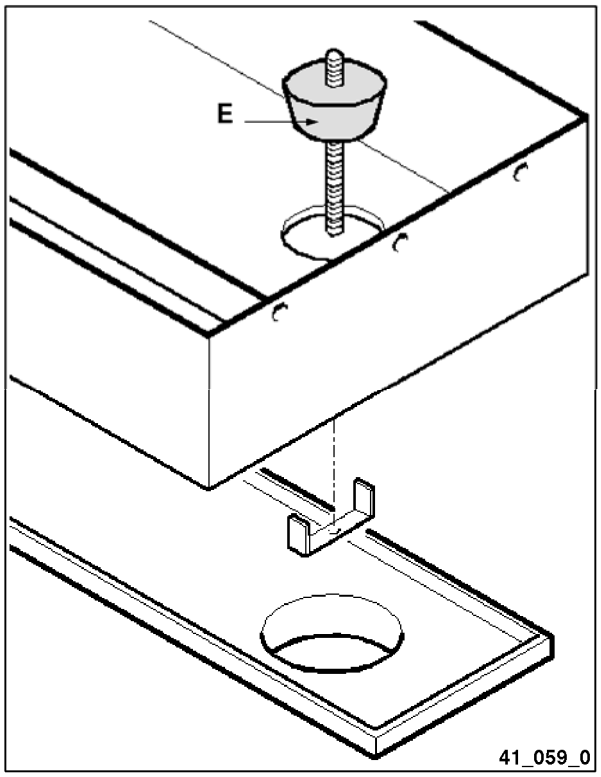
- Fit the control unit under the bar feeder.
- Connect pipes (A) of the hydraulic oil system.
- Connect the lubricating oil delivery pipe (B).



- Adjust the lubricating oil return pipe (C), operating the relevant ring (D).
- Connect the electric socket (X5) (F).



In case of transport, displacements or further installations of the bar feeder, a plug (E) is supplied, to be introduced into the oil collecting tank to prevent the lubricating oil from leaking while handling.



FIRST STARTING-UP OF THE HYDRAULIC OIL PUMP

An appropriate start of the pump is of the utmost importance, since the correct lubrication of the internal parts of the pump depends on this phase.

- Start the pulse-operated electric motor in order to allow for the priming and the lubrication of the pump parts.
- Check that the direction of rotation is correct with respect to the indication shown on the motor grid and on the coupling flange of the pump.
- The priming of the pump is not only shown on the pressure gauge mounted on the delivery pipe, but also by the change in the noise of the pump, as it becomes more silent when it has been successfully primed.

4.6 ELECTRIC CONNECTION

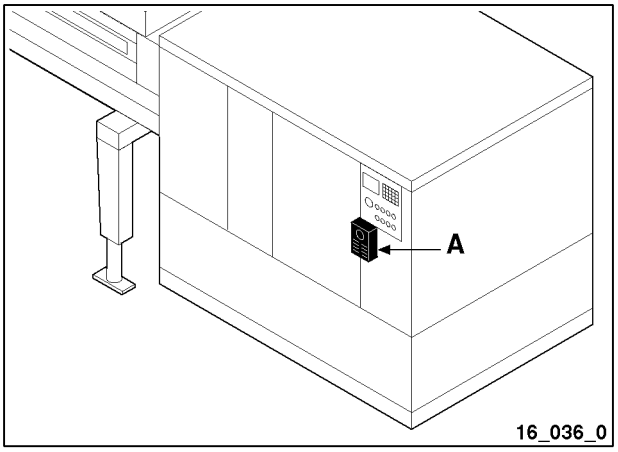
DANGER - WARNING:

this type of operation should only be entrusted to skilled technical staff to comply with the applicable standards and statutory regulations in force.

The feeder is normally provided with a multiple plug to plug into the special lathe outlet; refer to the "Wiring diagram" if necessary.

4.7 ADDITIONAL PUSH-BUTTON PANEL - INSTALLATION

Install the additional push-button panel (A) nearby the lathe push-button panel.

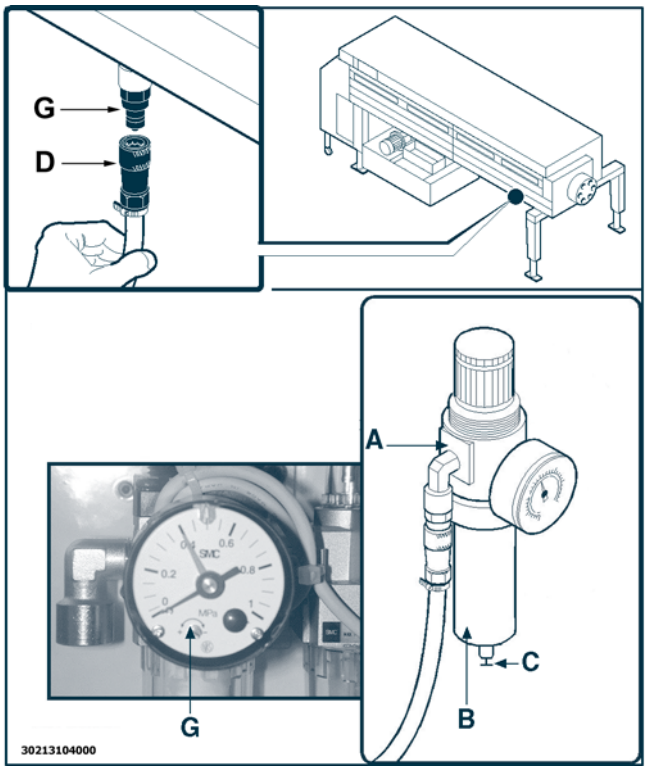


INFORMATION

Some equipment do not require the installation of the additional push-button panel since its functions are integrated in the lathe push-button panel.

4.8 PNEUMATIC CONNECTION

- Connect pipe (D) of the pneumatic system to the quick coupling (G).



FILTER A

- Make sure that cup (B) is not full of condensate. If need be, bleed the condensate by valve (C).Make sure that cup (B) is not full of condensate. If need be, bleed the condensate by valve (C).

PRESSURE SWITCH

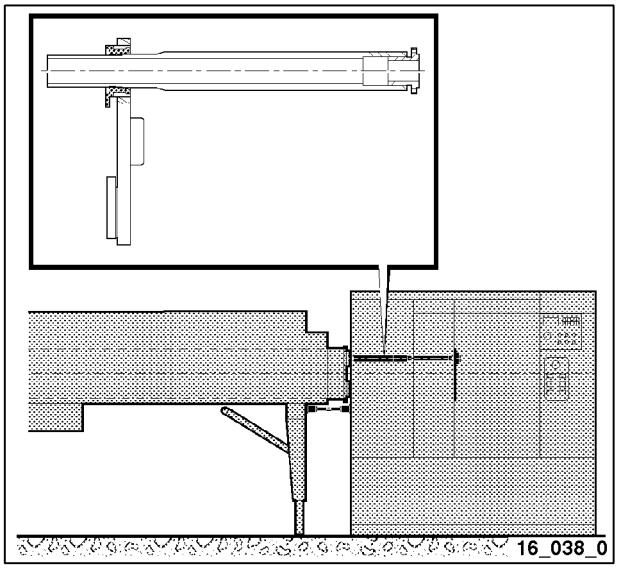
- The filter is equipped with a control pressure switch, set to a pressure of 4.5 bar.
- To regulate the pressure switch proceed as follows:
  - remove the pressure gauge protecting glass;
  - turn the adjusting screw (G) anticlockwise (+) to increase pressure or clockwise (-) to lower it;
  - after this operation, replace the pressure gauge protecting glass.

CAUTION:

should the pressure switch needle point a Pressure=0 , do not absolutely turn the adjusting screw (H) clockwise (-) , for this will cause pressure switch breakage.

4.9 LATHE MODIFICATIONS

The lathe requires some adjustments obtained by fitting special sleeves manufactured by IEMCA.

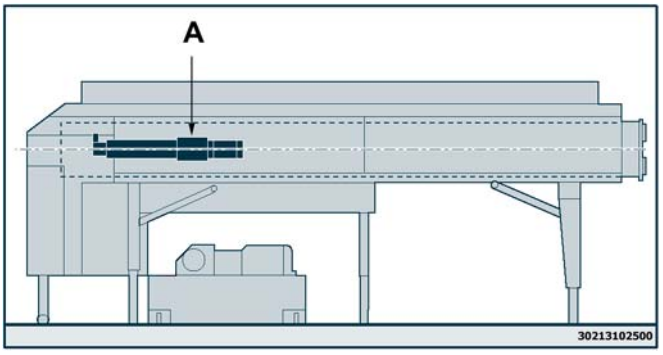


INFORMATION

Figure shows a general example; for more details, apply to IEMCA service department.

4.10 ALIGNMENT - FINAL CHECK

When the installation is over, make sure clamp device (A) axis is aligned with the guide channel axis.
Keep to the following procedure: move the clamp device to the "bar insertion into collet" position and close the sprockets by pressing key F3.
Sprockets must close without interfering with the bar pusher inserted into the clamp device.
In case of misalignment, please apply to IEMCA technical assistance department.

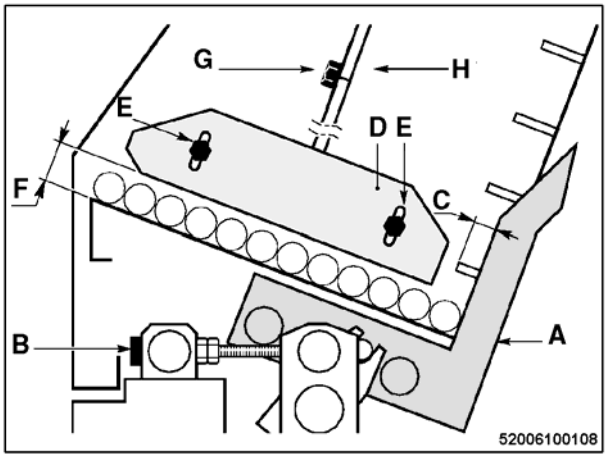


INDEX

5.1 SIR 52 P RACK MAGAZINE - ADJUSTMENT

5.1.1 Bar selection - Adjustment

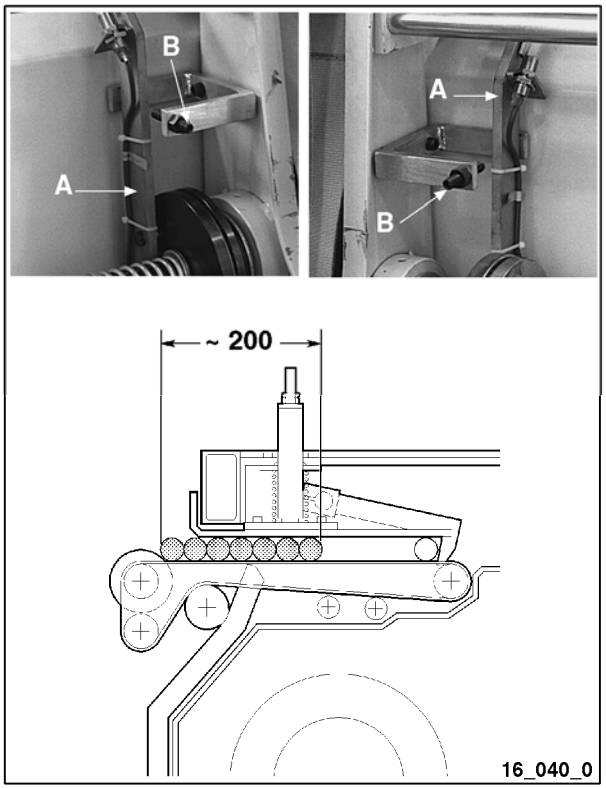
Turn the adjustment screw (B)to adjust the position of the limit stop (A) according to the bar diameter.
The adjustment value (C) should be about 1 mm less than the diameter of the bar.
For bar diameters 15 to 25 mm, install guide channel(D) and fix it with the screws (E); value (F) corresponds to the bar diameter plus 1 mm.
For bar diameters 11 to 15 mm, it is recommended to install guide channel (D) though not strictly necessary.
For bar diameters over 15 mm, loosen screw (G) and remove guide channel (D).
Both guide channel (D) and support (H) are supplied with the bar feeder.



5.2 SIR 52 F BUNDLE MAGAZINE - ADJUSTMENT

5.2.1 Bars drop - Quantity adjustment

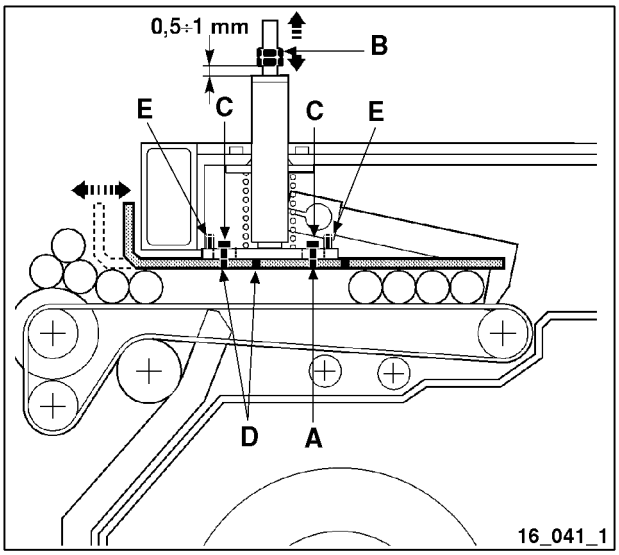
Adjust levers stop point (A) by operating screws (B). The bars quantity shall be checked during the first selection cycles, keeping into account that bars must be arranged along a part of the belts plane of approx. 200 mm.



5.2.2 Pressure foot - Adjustment

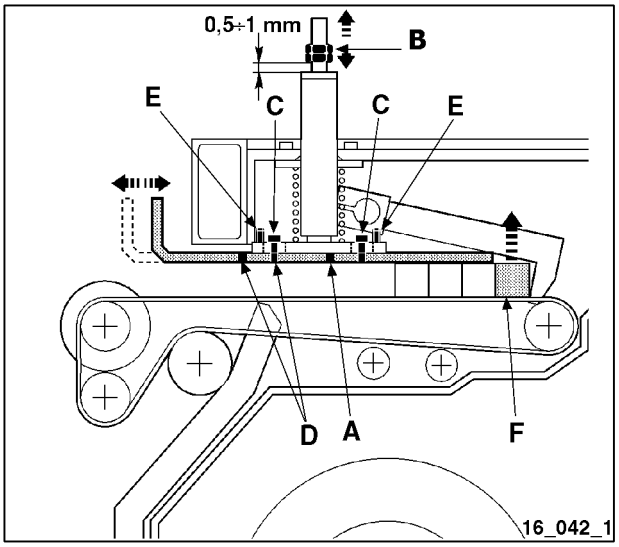
Hexagonal and round bars

Regulate the pressure foot (A) height so that the nut (B) stays at a distance of 0,5÷1 mm from the limit stop when there are some bars under the foot.
Adjustment is carried out operating nuts (B)
Horizontally adjust the pressure foot position, in order to cover completely the bars in the selection area, thus allowing a certain number of bars to dwell whenever the stock tube lifts and unloads bars.
Use screws (C) holes and/or the double holing (D) to carry out the adjustment.
Should it be necessary, operate screws (E) so that the pressure foot plane is parallel to the belt plane.



Square bars

Regulate the pressure foot (A) height so that the nut (B) stays at a distance of 0,5÷1 mm from the limit stop when there are some bars under the foot.
Carry out the adjustment operating nuts (B).
The foot position must allow the first bar (F) to lift; as far as adjustment is concerned, use screws (C) holes and/or the double holing (D).
Whenever necessary, operate screws (E) so that the pressure foot surface is parallel to the belts surface.



5.2.3 Separation push-rods - Adjustment

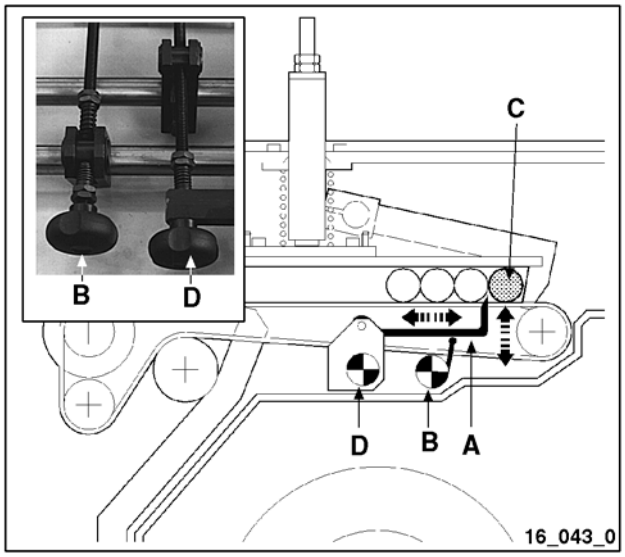
Round and hexagonal bars

HEIGHT ADJUSTMENT

Adjust the push-rod (A) height by operating the knob (B) so that the first bar (C) remains in its position once the belts return.

DEPTH ADJUSTMENT

Adjust the push-rod (A) depth by operating knob (D) so that it is positioned between the first bar (C) and the following bar.Check the adjustments by pressing key F18.



Square bars

HEIGHT ADJUSTMENT

Adjust the push-rod (A) height by operating the knob (B) so that the first bar (C) is lifted just as much to be held when belts reverse the direction.

DEPTH ADJUSTMENT

Adjust the push-rod (A) depth by operating knob (D) so that it is positioned in the centre of the bar section.

Check the adjustments by pressing key F18 .

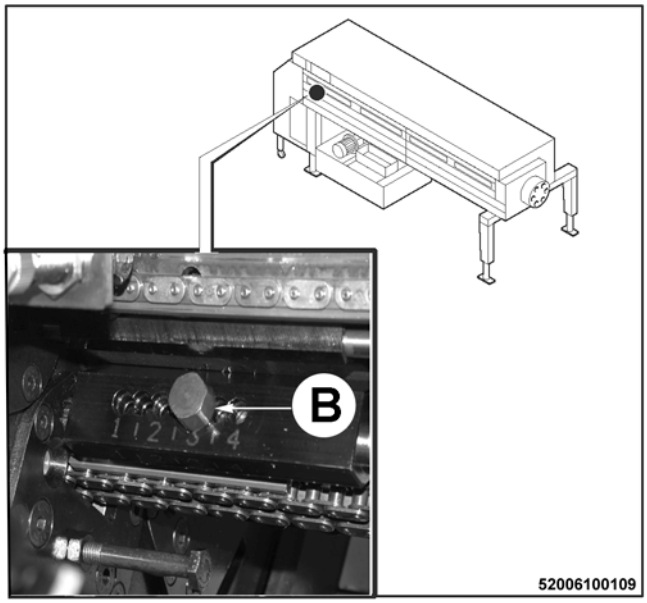
5.3 GUIDE CHANNELS - ADJUSTMENT

DANGER - WARNING:

the following procedures must be carried out or authorized by a responsible and expert operator, who owns the selector key to carry out this procedure.

5.3.1 Standard Working Mode

- Turn selector switch to position and open the guard.
- Open the sprockets by pressing the F3 key .
- Adjust the diameter of the guide channel selecting one of the four settings as follows (fig. 10):
  - loosen pin (B);
  - screw pin (B)down into one of the positioning holes, 1,2,3 or 4;
  - make sure the pin secured correctly.
- Close sprockets by pressing F3 key.



INFORMATION

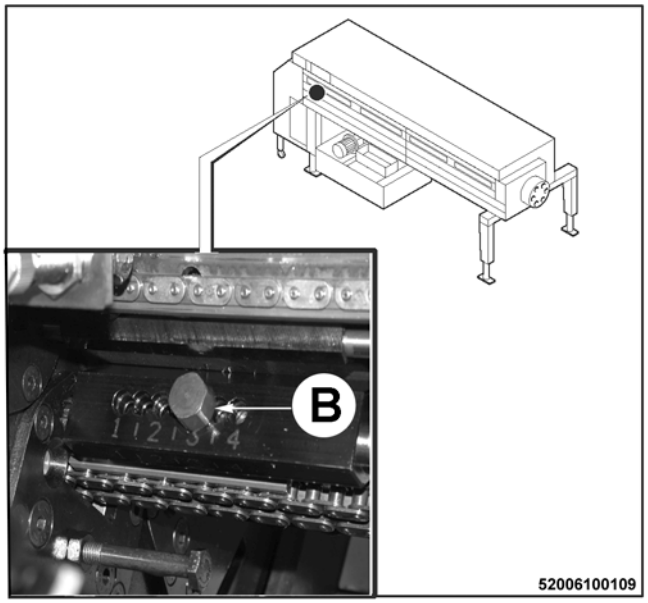
Diameters not included in the table "RECOMMENDED ROUND BAR Ø" may cause vibrations and failures to the bar feeder.

It may therefore be necessary to reduce bar rotation speed.

For further information regarding work diameter, contact IEMCA Customer Service.

5.3.2 Working mode with staggered sprockets

If round bars are used, in order to improve bar guiding, all sprockets can be made to have the same outside diameter as the barstock.
This working mode should only be used when strictly necessary, as it will cause an early wear of the guide channels.

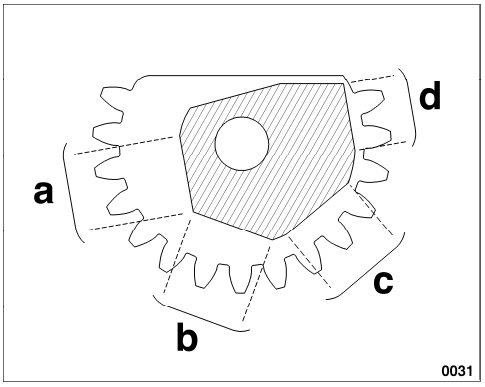


DANGER - WARNING:
failure to comply with the procedure described below may cause serious damage to the bar feeder.

INFORMATION
This work mode is not used only when position 4 is selected.

- Turn the selector switch to position and open the guard.
- Open the sprockets by pressing the button .
- Regulate the diameter of the guide channel selecting one of the following three working positions in the following way (fig. 12):
  - loosen pin (B);
  - screw pin (B)down into one of the positioning holes, 1,2,3 or 4 or into a midposition;
  - make sure the pin secured correctly.

Set the guide channel adjustment position to a diameter immediately inferior to the diameter that would normally be selected when working in "STANDARD WORKING MODE".

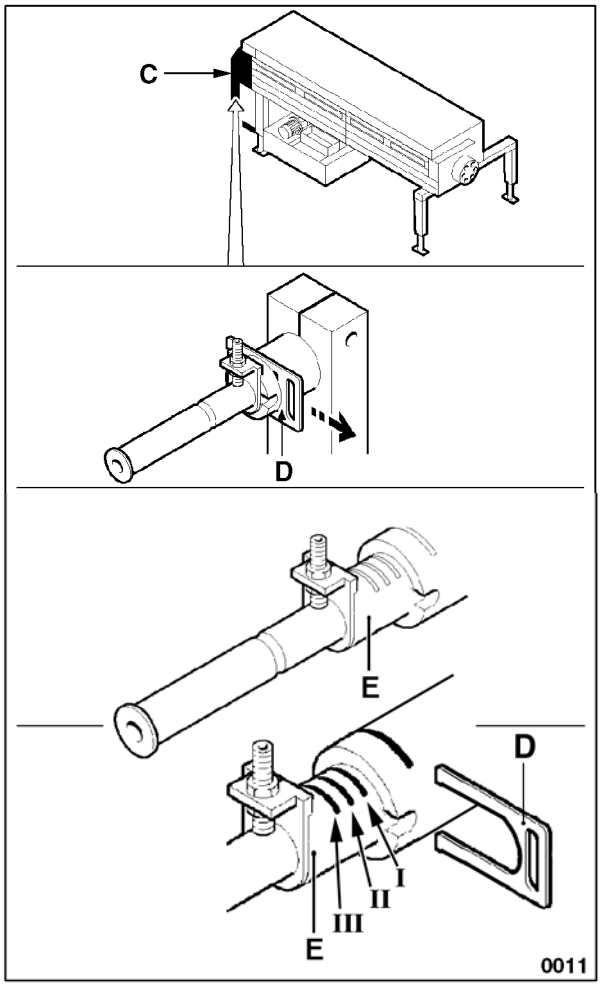


EXAMPLE (with SPROCKET Ø 19 (d) - Ø 33 (c) - Ø 43 (b) - Ø 53 (a)), to load ø22 bars with a ø32 bar-pusher:

- If working in "Standard working mode" the sprocket guide must be set to position "c" (or in the ø33 guide channel, see fig. 0031), setting pin (B) in position 2 (see fig. 52006100109).
- In "Staggered Sprockets Working Mode" the guide channel must be set to position "d" (or in the ø19 guide channel, see fig. 0031), setting pin (B) in position 1 (see fig. 52006100109).

OPERATIONS REQUIRED TO SET UP "STAGGERED SPROCKETS WORKING MODE"

- Set parameter 18 "Guide working mode (0-1)" to mode 1; see the "Keyboard Instruction Manual".
- Set the guide channel opening cylinder stroke as follows:
  - open rear guard (C);
  - remove fork (D) and move nose (E) axially;
  - insert the fork in the slot corresponding to the required mode according to the scheme shown in the table;



Guide channel Configuration *		Position of pin B	Slot for Fork D	Setting for staggered channel
57	53	4	--	a
46	43	3	IV	b
33	33	2	III	c
19	19	1	II	d

- Close the sprockets by pressing the F3 button.

(*)The configuration of the guide channel must be carried out according to the bar feeder tooling and to the lathe type.

INFORMATION:

If shaped bars (i.e. hexagonal or square bars) are loaded, revolving speed should be reduced in order to prevent premature wear and tear of the sprockets.

INFORMATION:

Please contact IEMCA Sales or Service Department if you need a special configuration of guide channel - bar pusher and bar.

INFORMATION

If shaped bars (hexagonal, square bars etc.) are to be machined, make sure that the guide diameter is larger than the diameter circumscribed on the profile, in order to prevent bar scraping against the sprocket edges.

INFORMATION:

In standard working mode parameter 18 "Guide working mode (0-1)" (see the "Keyboard Instruction Manual") must be set to mode 0; fork D can be positioned in any of the slots.

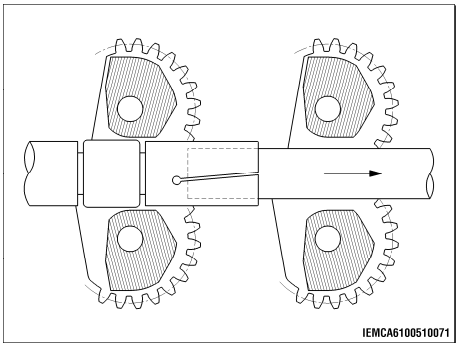
INFORMATION:

When working in "staggered channel" mode, only 3 settings shown in the table are selectable notwithstanding the 4 available guide channels for the smallest channel "d" cannot be staggered to a smaller channel.

5.3.3 Working mode with standard and staggered sprockets

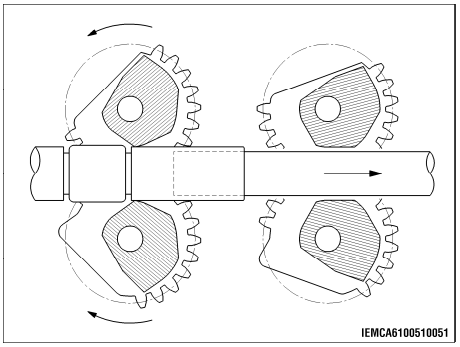
Standard working mode

The two pairs of sprockets have the same rotation and do not move while the bar pusher is moving.



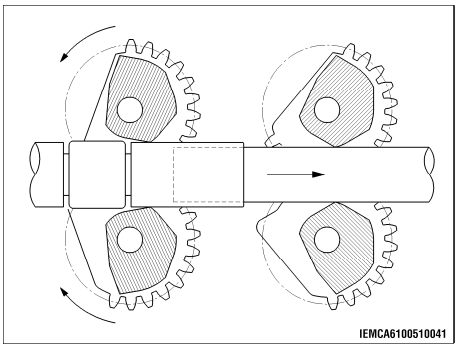
Ideal staggered channels mode

The selected channel is immediately inferior to the diameter of the bar pusher ; the bar pusher opens the passage while moving forward by causing the sprockets to rotate and be set to the next guide channel the diameter of which is larger than the selected channel.
The bar diameter larger (Picture 051) or even slightly larger (Fig.041) than the diameter of the selected channel. .



EXAMPLE (SPROCKET Ø19(d) - Ø33 (c) - Ø43 (b) - Ø53 (a)), to machine ø36 bars using a ø42 bar-pusher:

- In "Staggered Sprockets Working Mode" the guide channel must be set to an intermediate position between "c" and "d" (that is to say that the sprocket edges create a channel of approximately Ø36, see fig.0031), setting pin (B) to position 1• (see fig.52006100109).



CAUTION:

In staggered sprockets mode, do not use collets with slots that could cause accelerated wear of the sprockets IEMCA 600P. type collets.

Table 1. Standard working mode

COMPARATIVE TABLE OF MACHINING DIAMETERS (mm) FOR STANDARD OPERATION MODE									
MODEL	PIN POSITION	C Max Ø	Ø C	Ø B	Ø F	Ø A		POSITION OF THE FORK	PARAMETER 18 GUIDE CHANNEL OPERATION MODE
			Guide channel Ø	Bar pusher Ø	Engagement Ø on Rotating Tip Collet	Round bar Ø (*) RECOMMENDED			
						MIN	MAX		
SIR 52 P/F	1	53	19	18	11 G6	10	15	/	0
	2		33	32	20 G6	15	28	/	0
	3		43	42	20 G6	25	38	/	0
	4		53	52	20 G6	35	48	/	0

(*) Values of the diameter circumscribing the bar, which may be attained with IEMCA steel collets and SCHLENKER-type coupling (Table 1 summarising IEMCA collets for round bars). For shaped bars, the values must be checked according to the selected collet (Tables 2-3 summarising the collet type UNILOCK).

A Bar diameter
B Bar-pusher diameter or rotating tip
C Guide channel
F Collet engagement on rotating tip

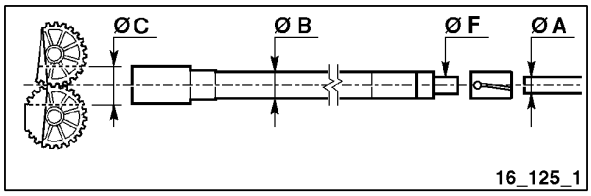


Table 2. Working mode with staggered sprockets

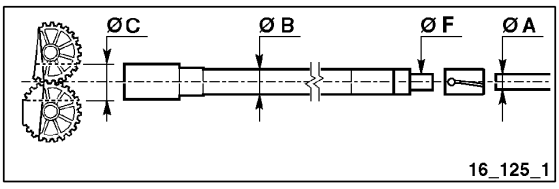
COMPARATIVE TABLE OF MACHINING DIAMETERS (mm) FOR STANDARD OPERATION MODE (GUIDE 19-33-43-53)									
MODEL	PIN POSITION	C Max Ø	Ø C	Ø B	Ø F	Ø A		POSITION OF THE FORK	PARAMETER 18 GUIDE CHANNEL OPERATION MODE
			Guide channel Ø	Bar pusher Ø	Engagement Ø on Rotating Tip Collet	Round bar Ø (*) RECOMMENDED			
						MIN	MAX		
SIR52 P/F	1 Tra 1 e 2	52	19 19-33	18	15 G6	15	16	II	1
	2 Tra 2 e 3		33 33-43	32	20 G6	16	29	III	1
	3 Tra 3 e 4		43 43-53	42	20 G6	30	38	IV	1
	4		53	52	20 G6	35	48	-	0

Table 2. Working mode with staggered sprockets

COMPARATIVE TABLE OF MACHINING DIAMETERS (mm) FOR STANDARD OPERATION MODE (GUIDE 19-33-43-57)									
MODEL	PIN POSITION	C Max Ø	Ø C	Ø B	Ø F	Ø A		POSITION OF THE FORK	PARAMETER 18 GUIDE CHANNEL OPERATION MODE
			Guide channel Ø	Bar pusher Ø	Engagement Ø on Rotating Tip Collet	Round bar Ø (*) RECOMMENDED			
						MIN	MAX		
SIR 52 P/F	1 Tra 1 e 2	57	19 19-33	18	15 G6	15	16	II	1
	2 Tra 2 e 3		33 33-46	32	20 G6	16	29	III	1
	3 Tra 3 e 4		46 46-53	45	20 G6	30	42	IV	1
	4		57	56	20 G6	42	52	-	0

(*) For shaped bars, values must be checked according to the selected collet (Tables 2-3 summarising the IEMCA 600P collet type).

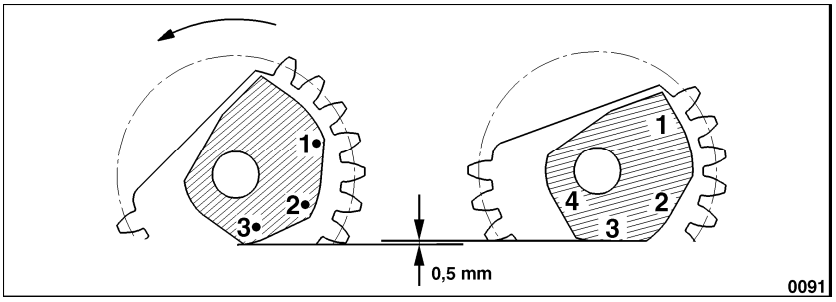
A Bar diameter
B Bar-pusher diameter or rotating tip
C Guide channel
F Collet engagement on rotating tip
Values shown in the table are based on two conditions:



1. According to the instructions of the collet manufacturer, the outer side of the collet must be at least 1 mm thick.
2. Sprockets are on their intermediate position (edges in contact with the bar) forming thus a channel the diameter of which is approximately 1 mm smaller than the guide channel diameter resulting from sprocket standard rotation.

1• = 19/33
2• = 33/43(46)
3• = 43/53(57)

1 = 19
2 = 33
3 = 43(46)
4 = 53(57)

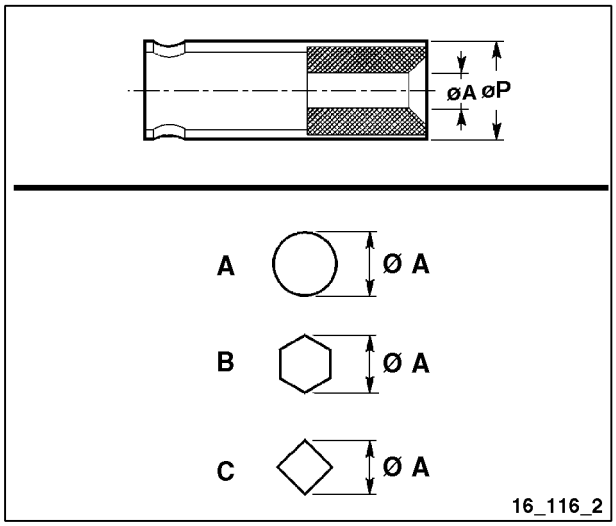


5.4 BAR-PUSHER - PRELIMINARY OPERATIONS AND FITTING

5.4.1 Collets - Selection and Preliminary operations

A Round bars: see enclosed tables.
B Hexagonal bars: use a drill with a diameter 1 mm approx. less than the sharp edges diameter (see enclosed tables).
C Square bars: use a drill with a diameter 1.5 mm approx. less than the sharp edges diameter (see enclosed tables).

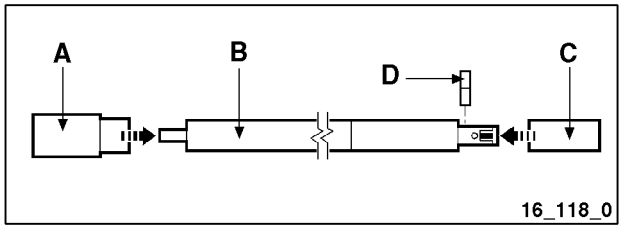
Check the introduction force into collet by using a bar remnant. The force value must be 40÷60 kg; in case of exceeding value, shorten the rear polyurethane length of 5 mm at a time.



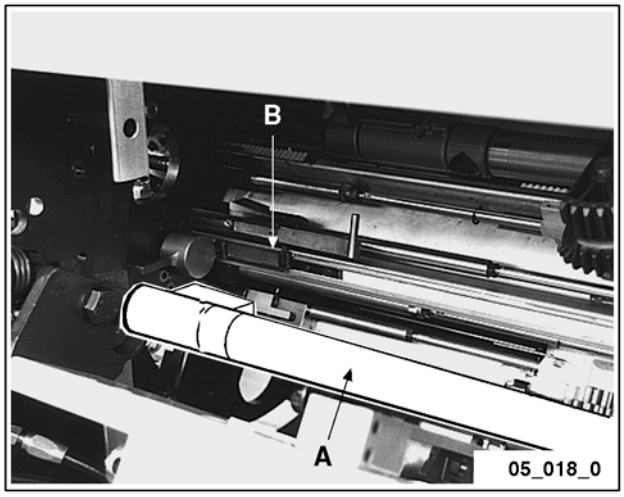
5.4.2 Bar-pusher - Assembly

SIR 52 P/F - Ø 18÷52

- Introduce slightly clutch unit (A) into rod (B) seat, turn up to obtain a small yielding and complete the insertion.
- Insert collet (C) into rod (B) seat, insert pin (D) until the clutch is engaged.



5.4.3 Bar-pusher- Guide tube fitting



DANGER - WARNING:

the following procedure has to be carried out by the responsible skilled technician, who also owns the key of the selector switch allowing this operation to be done.

Bring selector switch to position and open the guard.

Bar feeder with bar loading in the 6th station

- Open sprockets by pressing key F1.
- Fit the bar-pusher (A) of suitable diameter into seat (B) of the feeding carriage.
- Close sprockets by pressing key F1.
- Carry out said operation in the other guide tubes.

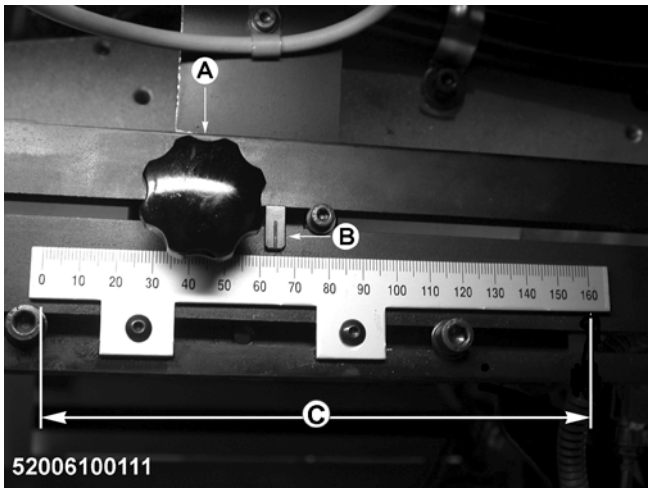
Bar feeder with bar loading in the 1st station

- Introduce bar pusher (A) into the clamps arm housing.
- Press the key F7 IN to lock the bar-pusher carriage.
- Open sprockets by pressing key F2.
- Press the key F1 in order to rotate the clamp arm towards the drum.
- Close sprockets by pressing key F1.
- Press the key F2 in order to release the bar-pusher locking.
- Press the key F12 >> in order to feed the bar-pusher of 150/200 mm.
- Press the key F8 OUT to rotate the clamp arm outside the drum.
- Carry out said operation in the other guide tubes.

5.5 BARSTOCK LENGTH - ADJUSTMENT

To determine the remnant length, adjust the end-of-bar device in the following way.

-Loosen the knob (A)on the sensor mounting.
-Use the position indicator (B) to shift the sensor position up to the value corresponding to the length of the workpiece plus the width of the cutting tool.
-Tighten the knob (A).



CAUTION:

To avoid damages to the structures, check block (B) position whenever changing the lathe collet or the bar pusher diameter.

INFORMATION:

The max. length allowed for workpiece + width of the cutting tool is 160 mm, corresponding to position "C". Please contact IEMCA Sales or Service Department in case a longer length is required.

5.5.1 Remnant lenght - Adjustment for the "second feed

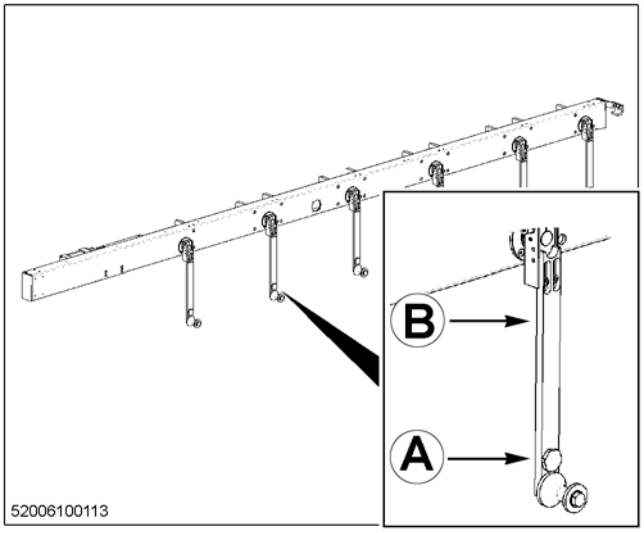
If the "second feed" function is enabled, adjust the lower bar end device which is located in the default second feed position (according to the lathe the bar feeder is added to).
Follow the steps under paragraph 5.5.

5.6 Loading bar diameter 15 to 30 mm

If the diameter of the bars to be loaded is between 15 and 30 mm, tighten the screw (a) on the lever (B).

PRECAUTION WARNING:

Before loading bars over 30 mm diameter, the screw (A) must be removed.



5.7 WORKING PRESSURES - ADJUSTMENTS

Table 2.Working pressures (bar) table

Bar diameter (mm)	A Dynaminc thrust	B Clamps grip	C Static thrust	D Introduction force
20	40	55	5	27
30	50	60	5	29
40	60	65	5	31
52	70	70	5	33

INFORMATION

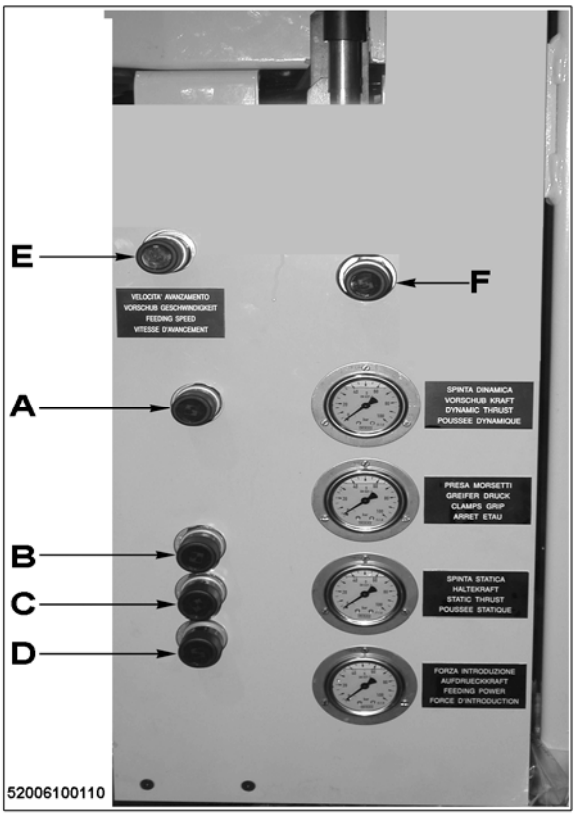
Values in the table are indicative only and they apply to round steel bars. Values may change according to the material machined, to the bar profile and to lather specifications (collet opening time, barstock length, etc.).

5.7.1 Dynamic thrust (A)

Table 3.Dynamic thrust (A)

Dynamic thrust pressure (bar)	Theoretical Thrust of the Bar pusher (N)
80	1250
70	1210
60	1140
50	1000
45	900
40	810
35	750
30	700

The dynamic thrust is the force through which the bar-pusher carriage feeds the bar.
It works on the feeding station.
To adjust it, operate knot (A).



5.7.2 Clamps grip (B)

The clamps grip is the force through which clamps hold the bar during the introduction phase into collet.
To carry out adjustment, operate knot (B).

5.7.3 Static thrust (C)

The static thrust is the force through which the bar-pusher continuously press against bars.
It operates in every station, with the exception of the loading stations.
To carry out adjustments, operate knob (C).

INFORMATION

Usually, the static thrust must remain at a value of 5 bar, therefore it does not require any adjustment.

5.7.4 Clamps introduction force (D)

The force of introduction is the force through which the bar is introduced into the bar-pusher collet and the bar remnant is extracted.
To carry out adjustment, operate knob (D).

5.7.5 Feeding speed (E)

The feeding speed is the speed at which the bar feeds at each lathe opening.

CAUTION:

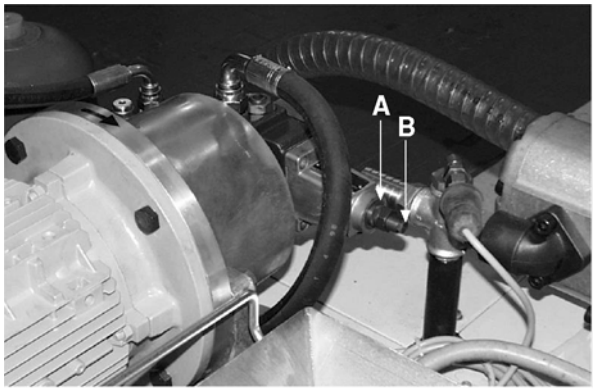
A too high feeding speed may cause damage to lathe equipment.

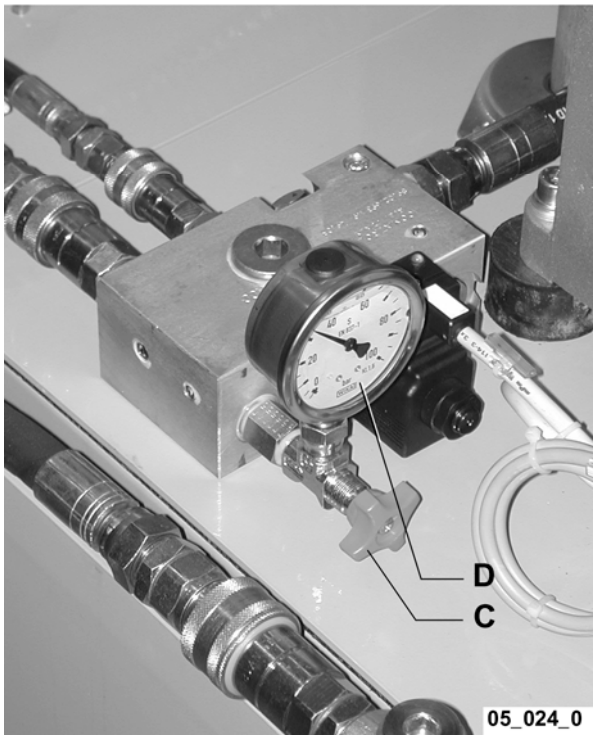
A too low feeding speed may cause the collet to close before the complete feed of bar.

To carry out adjustment, operate knob (E).

5.7.6 Best working pressure

The value of the optimal operating pressure of the pumps must be adjusted at 70 bars with hot oil (at about 50° C).
To adjust it, loosen the lock nut (A) (fig. 24) and tighten or loosen the screw (B).
To check that the value has been reached, open cock (C) and read the value on the pressure gauge (D).





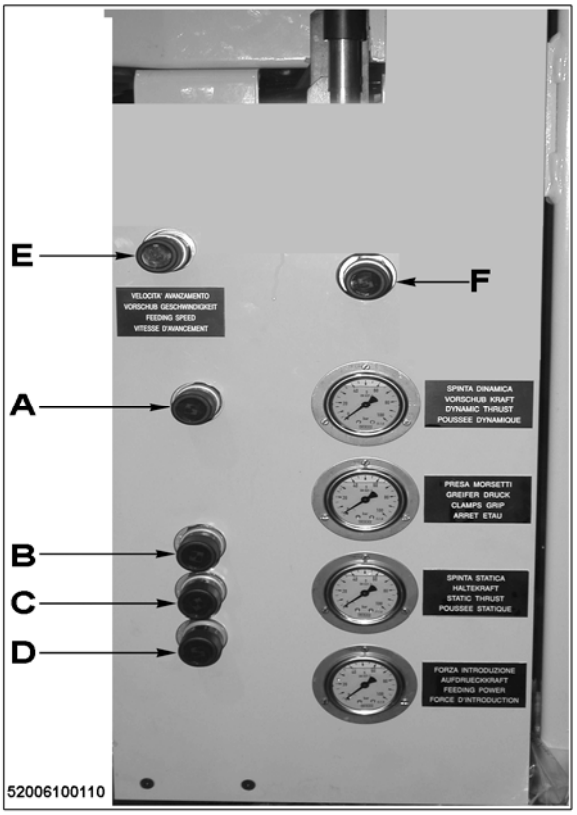
CAUTION:

in order to prevent the pressure gauge from undergoing sudden pressure changes, keep cock (C) closed.

5.8 OPERATING PRESSURE FOR THE "SECOND FEED" - ADJUSTMENTS

If the bar feeder is equipped with a "second feed" function, then you must adjust the pressure of each of the knobs as described below, bearing in mind its function.

A DYNAMIC THRUST: takes place in the first feeding channel, see paragraph 5.7.1.
B Clamp connection: see paragraph 5.7.2.
C DYNAMIC THRUST: takes place in the second feeding channel, see paragraph 5.7.1.
D CLAMP FEEDING POWER: see paragraph 5.7.4.
E BAR FEEDING SPEED: takes place in the first feeding channel, see paragraph 5.7.5.
F BAR FEEDING SPEED: takes place in the second feeding channel, see paragraph 5.7.5.

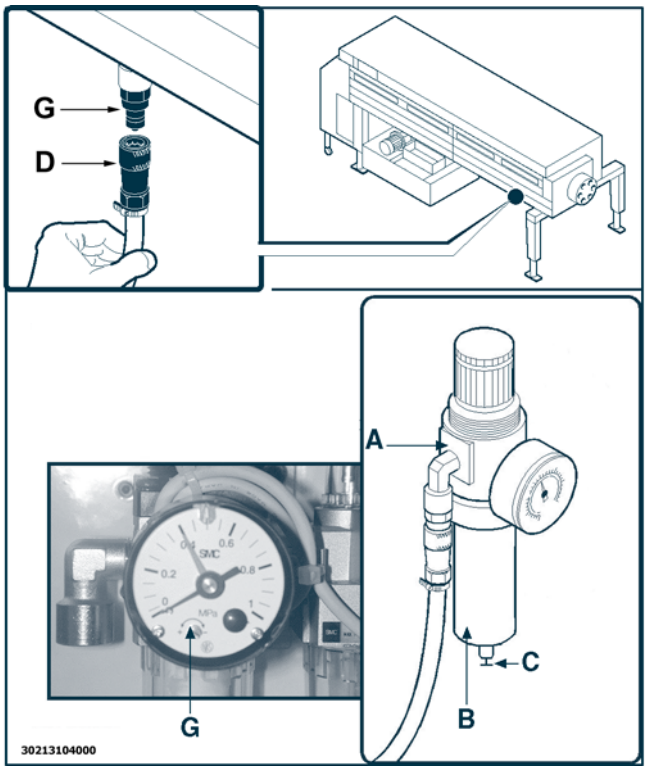


5.9 AIR FILTER - ADJUSTMENTS

PRESSURE SWITCH

- The lubricator is equipped with a control pressure switch, set to 4.5 bar.

  - remove the pressure gauge protecting glass;
  - turn the adjusting screw (G) anticlockwise (+) to increase pressure or turn it clockwise (-) to reduce it;
  - after this operation, replace the pressure gauge protecting glass.



CAUTION:

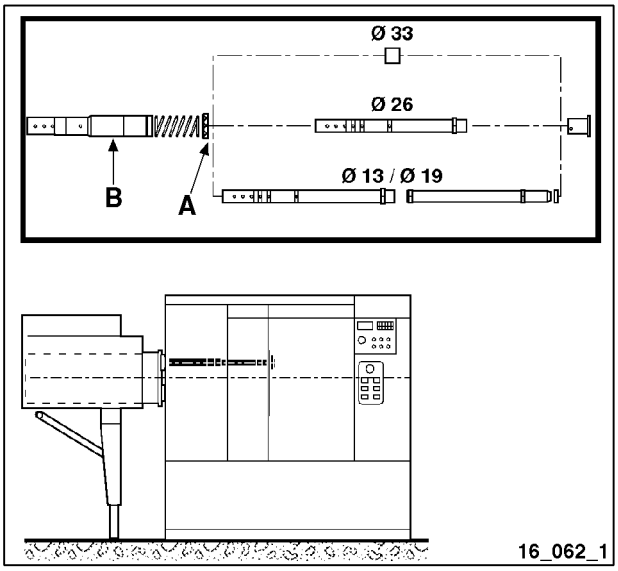
should the pressure switch needle indicate Pressure=0 , never turn the adjusting screw (H) clockwise (-) , for this will cause pressure switch to break.

5.10 SPECIAL REDUCTION PARTS

According to the diameter of the guide tube, it is necessary to install suitable special reduction parts.

- Open the rear cover and pull the feeding drum backward.
- Pull the nose (B) ring nut (A) backward and remove it.
- Add the special parts and repeat these operations in inverted order.

Fig. 27 shows a general example, since each lathe brand is supplied with its own special reduction parts.
For further details, apply to IEMCA service department.



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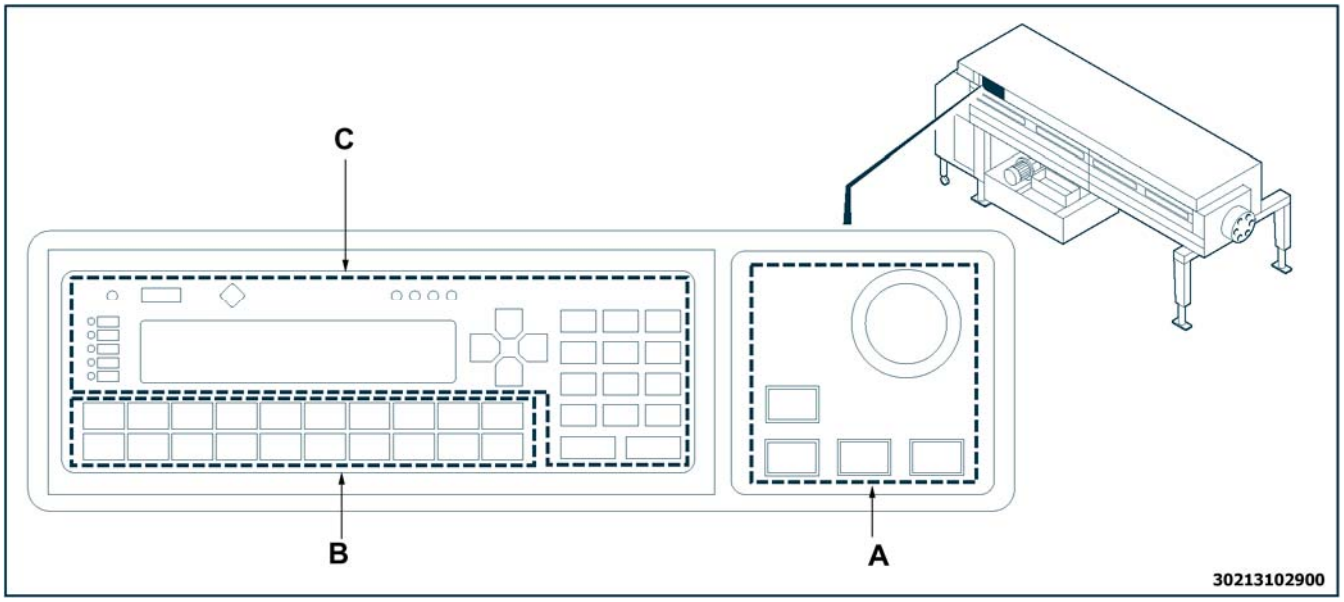
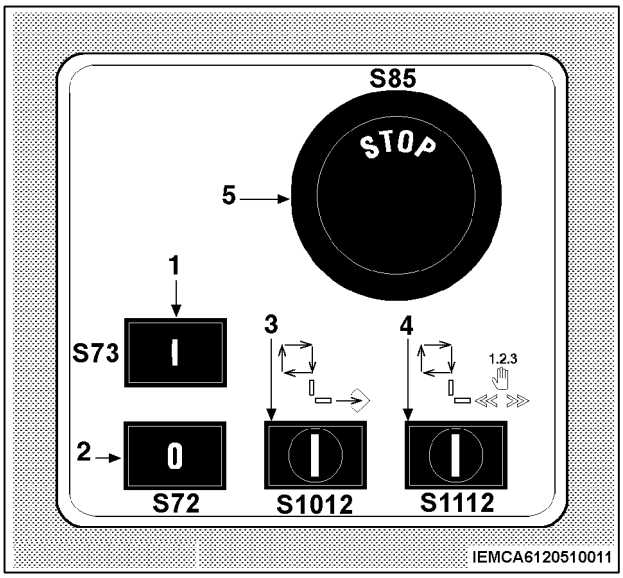
6.1 PUSH BUTTON PANEL - CONTROL DESCRIPTION



A Main controls.
B Controls for manual operation.
C Display controls and LEDs.



MAIN CONTROLS

1 Green lighted push-button; it starts the feeder.

2 Red push-button; it stops the feeder.

3 Key-operated two-position selector

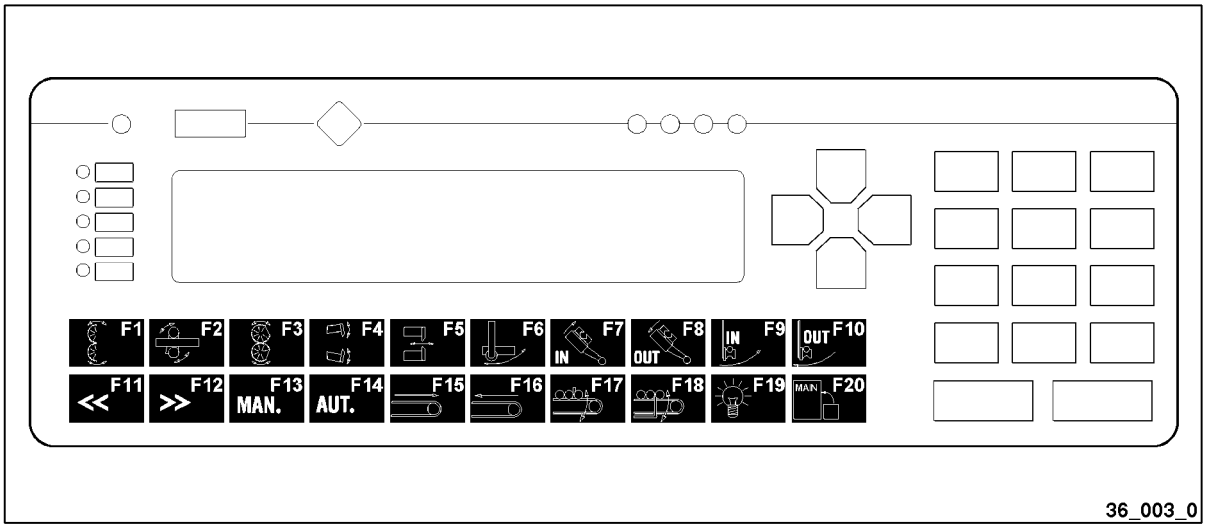
- Position : the push-button panel is enabled for the "message display" mode.
- Position : push-button panel enabled to data entering mode.

4 Key-operated two-position selector

- Position : bar feeder enabled to automatic or manual operation.
- Position : only controls F1 F2 F3 << F11 >> F12 enabled, with open guards as well.

5 Emergency push-button; it stops the feeder. The feeder can be restarted only after the push-button has been manually released.

PROGRAMMING AND MANUAL FUNCTIONS CONTROLS



F1 Key to open / close guide channels only in the area of bar pusher completely backwards.
Press it to control operation, press it again to control return.

F2 Key to open / close bar pusher locking.
Press it to control operation, press it again to control return.

F3 Key to open / close guide channels.
Press it to control operation, press it again to control return.

F4 Key to open / close clamps.
Press it to control operation, press it again to control return.

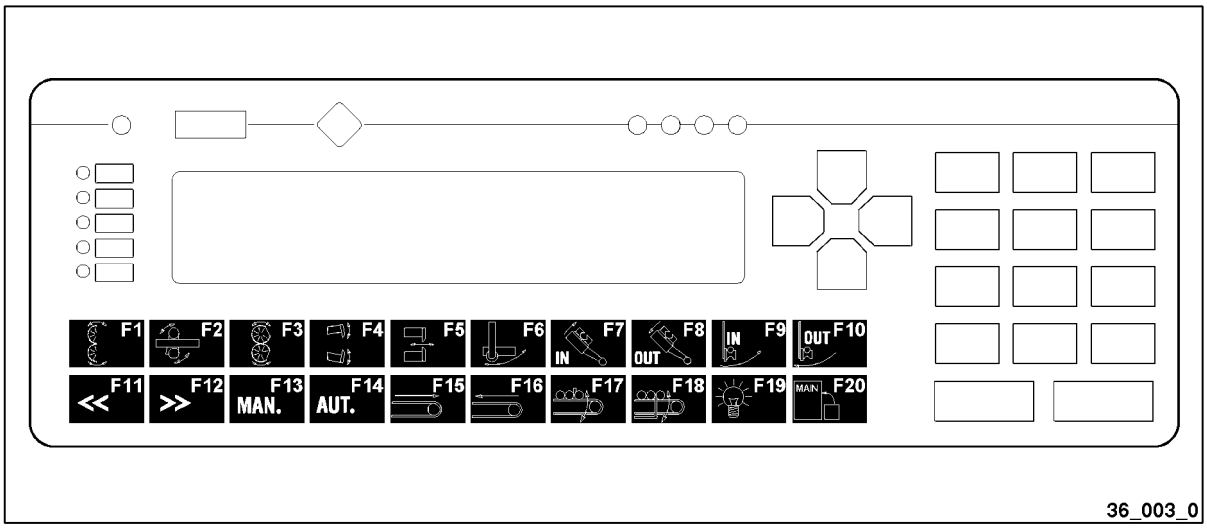
F5 Key for bar insertion / extraction.
Press it to control operation, press it again to control return.

F6 Key for bar holder lever rotation upwards / downwards.
Press it to control operation, press it again to control return.

F7 Key for clamp arm rotation towards drum.
It controls the device in only one direction. Press push-button till position is reached. If push-button is released in advance, the device comes back to starting position.

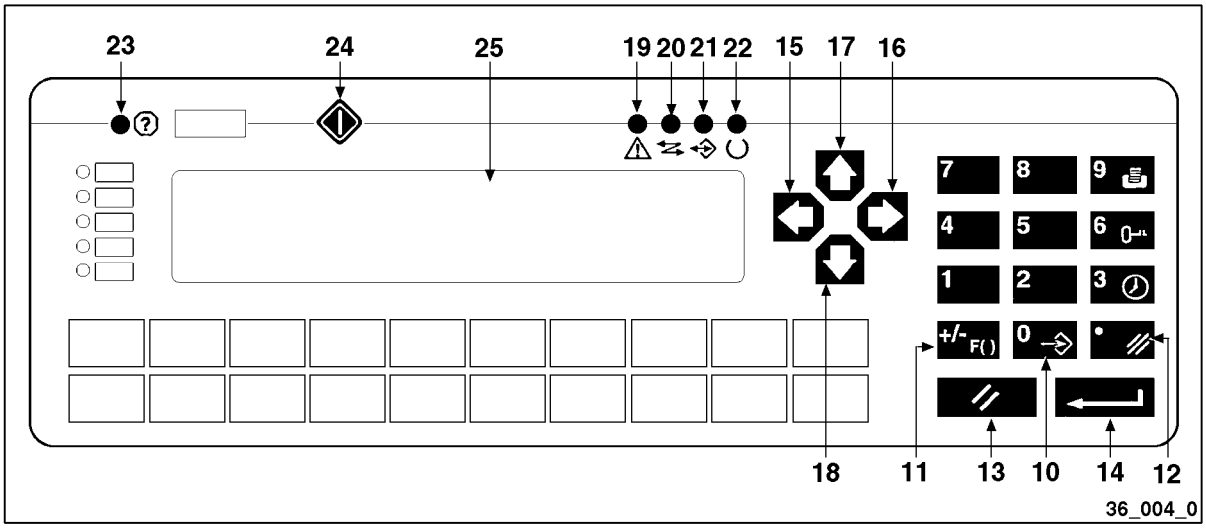
F8 Key for clamp arm rotation outside drum.
It controls the device in only one direction.

F9 Key for lever arm rotation towards drum.
It controls the device in only one direction. Press push-button till position is reached. If push-button is released in advance, the device comes back to starting position.



F10 Key for lever arm rotation outside drum.
It controls the device in only one direction.
F11 Key for manual bar pusher movement backwards at low speed.
F12 Key for manual bar pusher movement forwards at average speed.
F13 Key to select bar feeder manual operation.
F14 Key to select bar feeder automatic operation.
F15 Key for bar feeding on selection belts.
SIR 52 F only.
F16 Key for bar return on selection belts.
SIR 52 F only.
F17 Key for lever movement upwards / downwards.
Press it to control operation, press it again to control return.
SIR 52 F only.
F18 Key for selection push-rod movement upwards / downwards.
Press it to control operation, press it again to control return.
SIR 52 F only.
F19 Key to switch on / off inner lighting lamp.
Push it to control switching on, push it again to control switching off.
F20 Key to recall "MAIN MENU".

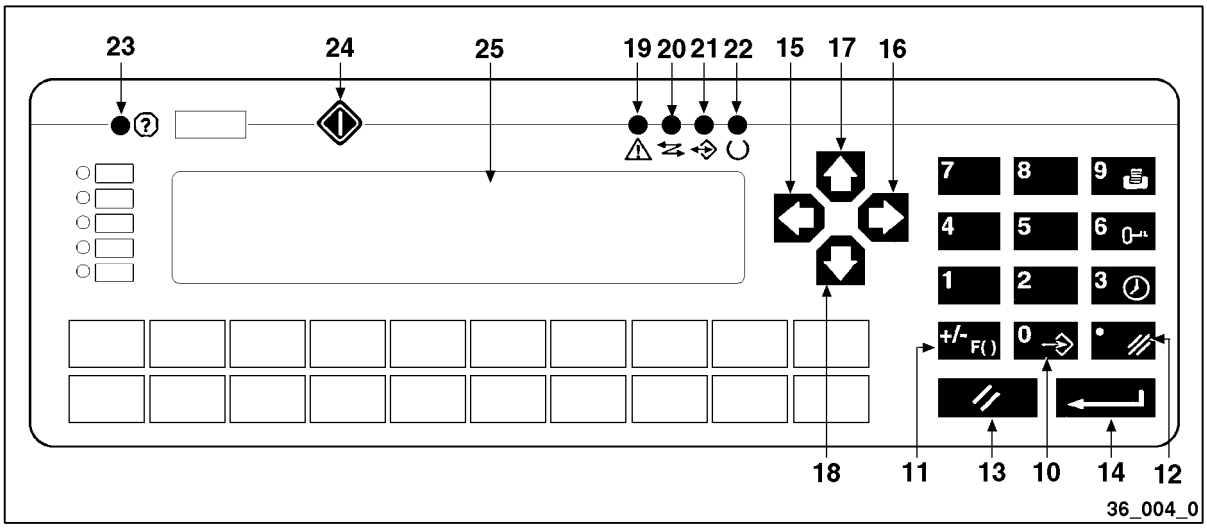
DISPLAY CONTROLS AND LEDS



1 Key for numerical value 1.
2 Key for numerical value 2.
3 Key for numerical value 3 and to access the date and hour programming mode.
4 Key for numerical value 4.
5 Key for numerical value 5.
6 Key for numerical value 6 and to access protected parameter entering mode.
7 Key for numerical value 7.
8 Key for numerical value 8.
9 Key for numerical value 9.
10 Key for numerical value 0 or to recall selection cursor.
11 Key for "minus" or "plus" sign.
12 Key for "comma" sign.
13 Key for "CLEAR" function:

- to stop selection function,
- to return to the value which had been displayed before the non-confirmed modification,
- to return to displayed screen after date and time programming.

14 Key for "ENTER" function to confirm entered data.
15 Key to recall the previous parameter or to move the selection cursor left.
16 Key to recall the next parameter or to move the selection cursor right.
17 Key to scroll page upwards or to move selection cursor upwards or to increase by one the value in the date and hour programming mode.
18 Key to scroll page downwards or to move selection cursor downwards or to decrease by one the value in the date and hour programming mode.
19 Red LED:
OFF mode - indicates that there is no signal on the display;
ON mode - indicates that there is a signal on the display.
20 Green LED: BLINK mode - signals that the display does not interact with the PLC correctly;
ON mode - signals that the display interacts with the PLC correctly.



21 LED not enabled.
22 Green LED:
OFF mode - signals that the display is not active;
ON mode - signals that the display is active.
23 Green LED:
OFF mode - signals that no key is pressed;
ON mode - signals that any key is pressed.
Red LED:
status BLINK - indicates that the keyboard battery needs to be replaced (refer to Chapter 9 for instructions on how to replace it);
ON state - indicates serious problems in the keyboard.
24 Key not enabled.
25 Display.

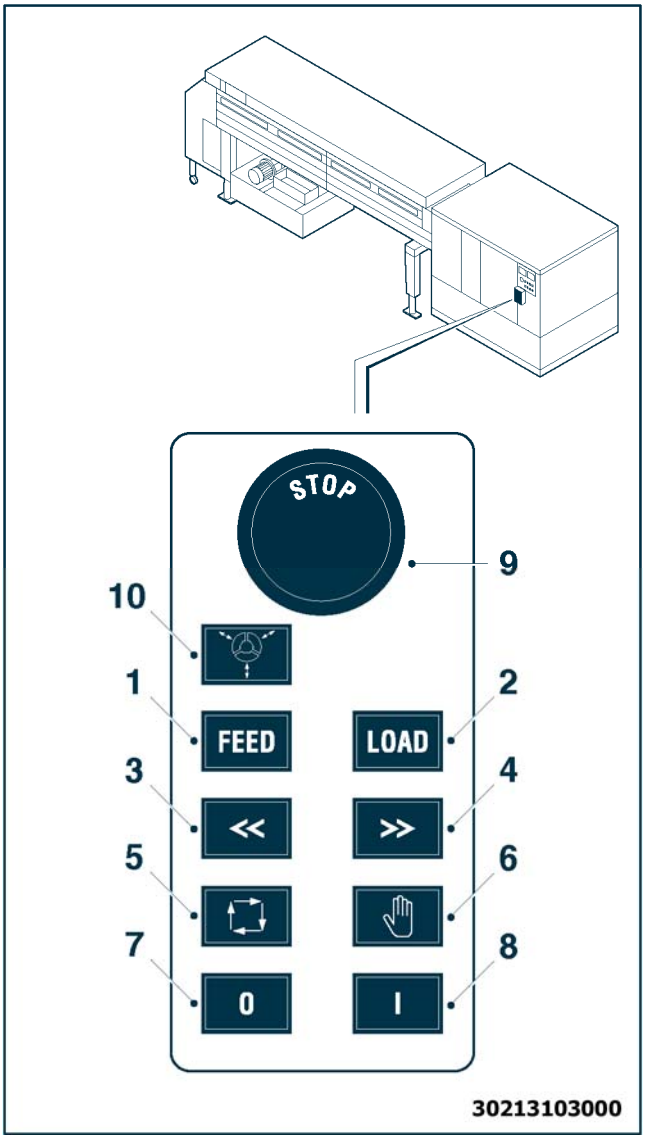
INFORMATION

To obtain all the instructions on the programming of the bar feeder refer to the "Push-Button Panel Instruction Manual".

6.2 ADDITIONAL PUSH-BUTTON PANEL - CONTROL DESCRIPTION

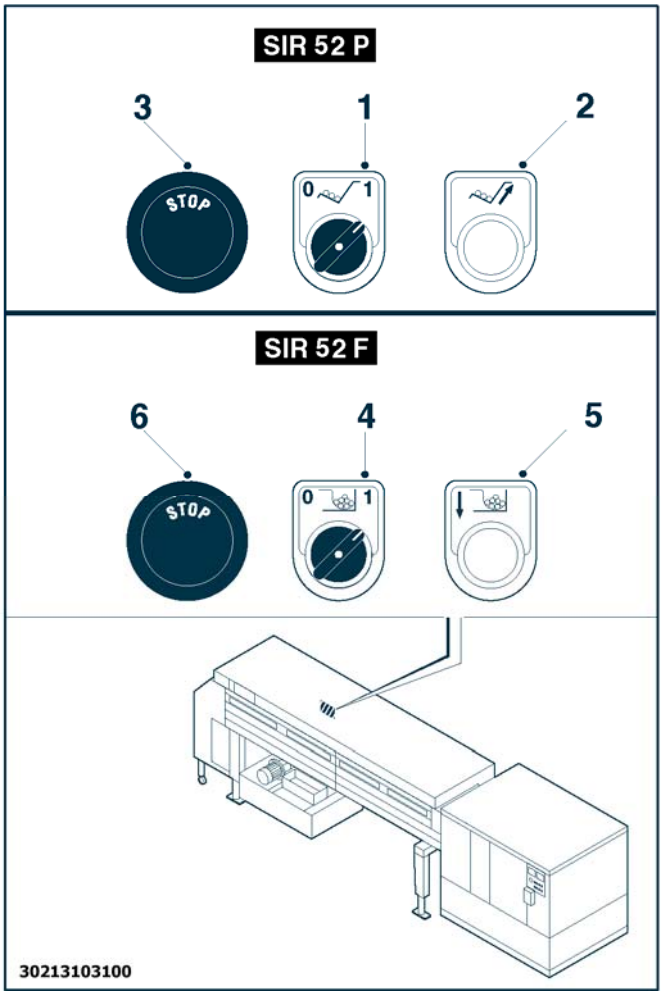
INFORMATION

Some bar feeder models are not supplied with the additional push-button panel, since its functions are integrated in the lathe functions.



1 Push-button with luminous pilot light (red)
It activates and desactivates the bar feeding.
on: the bar feeding is desactivated;
off: the bar feeding is activated.
2 Push-button with luminous pilot light (red)
It activates and desactivates the bar loading.
on: the bar is not loaded in the drum. The lathe machines all bars in the drum then stops;
off: bars are loaded in the drum.
3 Push-button enabling the "Slow backwards" manual bar-pusher motion.
4 Push-button enabling the "Slow forwards" manual bar-pusher motion.
5 Luminous pilot light push-button (white)
It activates and desactivates the bar feeder automatic function
on: the automatic function is enabled;
off: the automatic function is disabled.
6 Luminous pilot light push-button (white)
It activates and desactivates the bar feeder manual function
on: the manual function is activated;
off: the manual function is desactivated.
7 Red push-button; it stops the feeder.
8 Green lighted push-button; it starts the feeder.
9 Emergency push-button; it stops the feeder. The feeder can be restarted only after the push-button has been manually released.
10 Bar loading lathe collet open/close push-button.

6.3 MAGAZINE PUSH-BUTTON PANEL - CONTROL DESCRIPTION



SIR 52 P

1 MAGAZINE CONTROL SELECTOR (2 positions)
POSITION 0: the magazine is pre-set for the manual bars loading;
POSITION 1:the magazine is pre-set for the bar feeder automatic function.

2 LUMINOUS PILOT LIGHT (orange)
When it blinks means that the magazine is carrying out the loading cycle.

3 EMERGENCY PUSH-BUTTON; it stops the feeder. The feeder can be restarted only after the push-button has been manually released.

SIR 52 F

4 MAGAZINE COMMAND SWITCH (2-position)
POSITION 0: the magazine is pre-set for the manual lowering of belts in order to carry out the loading;
POSITION 1: the magazine is pre-set for the bar feeder automatic function.

5 MANUAL LOWERING OF THE MAGAZINE BELTS PUSH-BUTTON
BY PRESSING IT: the belts lower. By keeping the push-button pressed, the belts completely unwind until they disappear into their seats.
BY RELEASING IT: the belts stop.

6 EMERGENCY PUSH-BUTTON; it stops the feeder. The feeder can be restarted only after the push-button has been manually released.

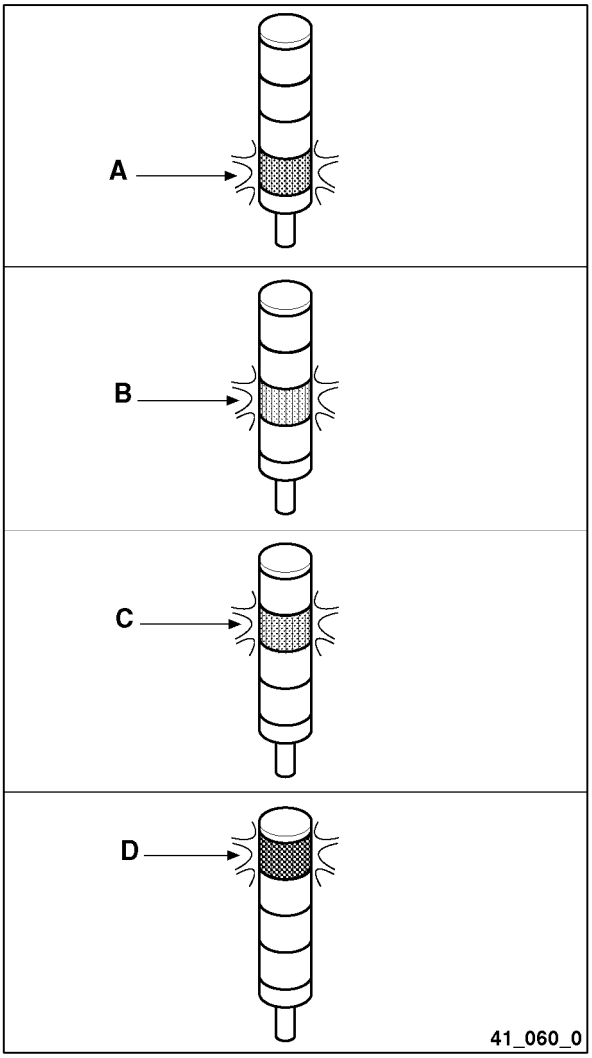
6.4 LUMINOUS INDICATOR - SIGNAL DESCRIPTION

A RED LIGHT;
signals that the bar feeder is not operating, or that it is in the manual mode.

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

C BLUE LIGHT;
signals that the bar feeder is carrying out the bar change.

D ORANGE LIGHT;
it indicates that magazine safety guards are open (Master 880 P) or removed (Master 880 F).



6.5 STARTING THE BAR FEEDER

There are different procedures to start the bar feeder, depending on the hydraulic oil temperature:
- cold start (paragraph 6.5.1);
- hot start (paragraph 6.5.2).

6.5.1 Cold start

Cold start occurs according to two different procedures.

ADVANCED AUTOMATIC START
Program the advanced automatic start following the procedures described in the "Push-button panel operation and instruction manual", paragraph "Operator's parameters - description and entering".

MANUAL START
- Make sure that all guards are closed and the emergency push-buttons are not pressed.
- Turn the main electric switch to "I".
- Start the lathe.
- Press push-button  to start the bar feeder, keeping it pressed for 15 seconds, until the green light of the luminous indicator temporarily switches on.
  This procedure allows valve (EV317) to close; it will remain closed for 45 minutes, thus allowing a faster hydraulic oil heating.

6.5.2 Hot start

- Make sure that all guards are closed and the emergency push-buttons are not pressed.
- Turn the main electric switch to "I".
- Start the lathe.
- Press push-button  to start the bar feeder.

6.6 BARS TO BE MACHINED - CHARACTERISTICS AND PREPARATION

CAUTION:

do not feed bars having different sizes than the manufacturer's prescribed sizes.

Table 1. Maximum bar length

Models	Version	Max. length (mm)	Min. length (mm) *
SIR 52 P SIR 52 F	33	3300	2500
	38	3800	3000
	43	4300	3000

INFORMATION:

(*) bars are to be loaded in the middle of the bundle magazine.

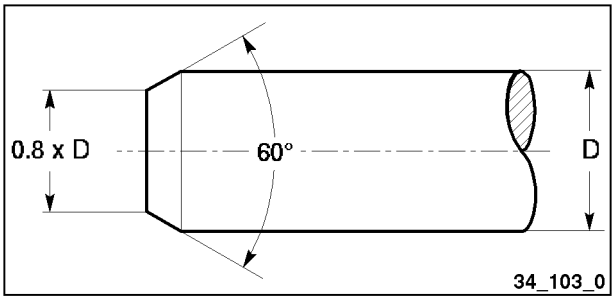
INFORMATION:

Bar must not present a straightness defect above 0.5 per 1000.

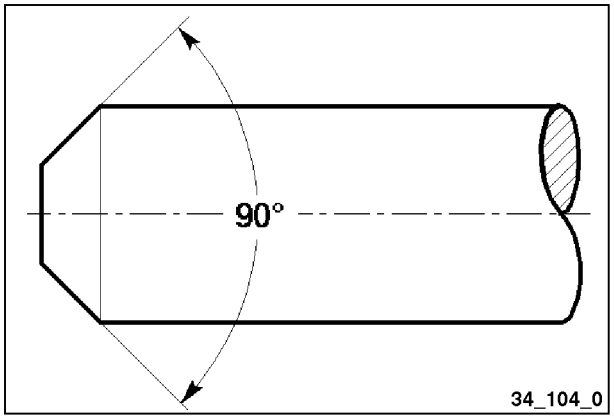
Please find herewith some advice to optimise the bar feeder performances.
Usually barstocks do not need any preliminary operations to be carried out on ends, nevertheless to obtain the best results when loading them, it is advisable to chamfer them.

SOLID BARS

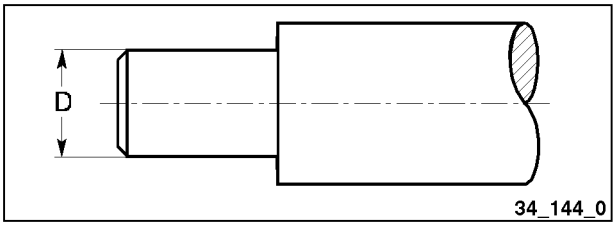
Check that there is not too much rag on bar head, which might hinder insertion in the lathe collet. Check that there is not too much rag on bar rear end, which might hinder insertion in the bar-pusher collet. In any case, to improve operation during this phase, we advise to chamfer the bar as shown in 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.

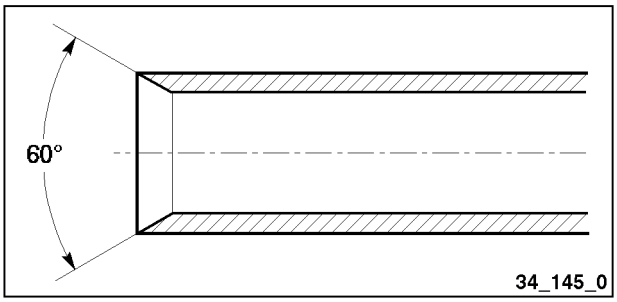


If bars have to be machined having a diameter equal to or only slightly smaller than the bar-pusher diameter, bar rear ends should be machine-turned; diameter "D" should be suitable for the collet size installed in the bar-pusher.



PIPES

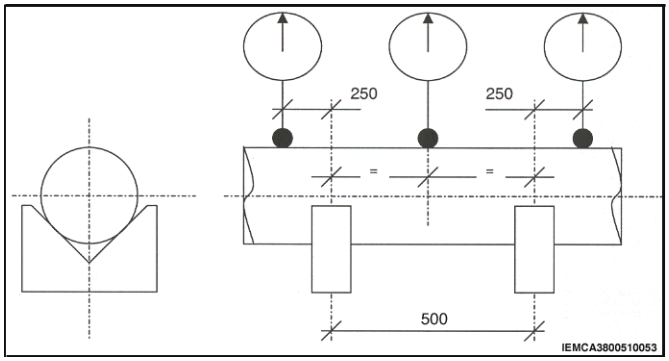
If pipes have to be machined, their rear ends should be chamfered as shown in the figure.



6.6.1 BAR STRAIGTHNESS - Measuration

The bar vibrations are partially caused by the condition of the bar itself: in case the bar is not perfectly straight, this 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 control 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 reading on the comparator) should be interpreted as follows:

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

In order to obtain a reliable value it is necessary to repeat 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 different values between prisms.

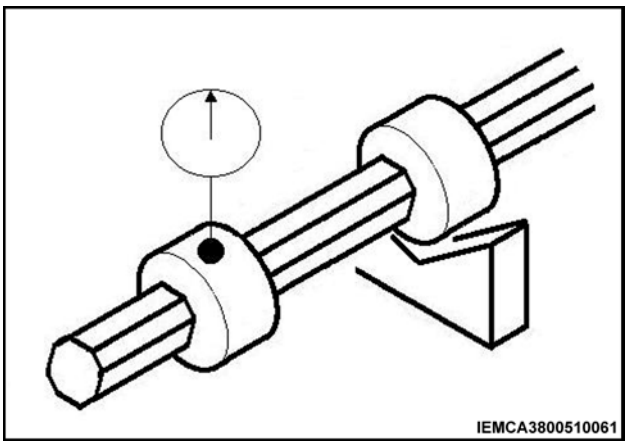
INFORMATION:

Obviously, bar straightness is proportional to the rigidity of the material and to the number of revolutions (RPM) the lathe is operated at. highly The lack of bar straightness highly influences the maximum number of revolutions reachable: the bigger the diameter the greater the influence. The data concerning bar straightness do not absolutely refer to local inflection and/or deformation that the bar shall not absolutely show. Instead, they refer to the bar uniform curvature.

INFORMATION:

For efficient operation of the feeder the use of rolled bar stock is not recommended.

Hexagonal, square and section bars



For non-round bars, insert some bushings on the bar to be controlled.
Position 2 bushings on the 2 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 the two V-supports.

INFORMATION:

The use of polygonal bars (hexagonal bars, square bars, etc.)is allowed but you should keep in mind that this will lead to:

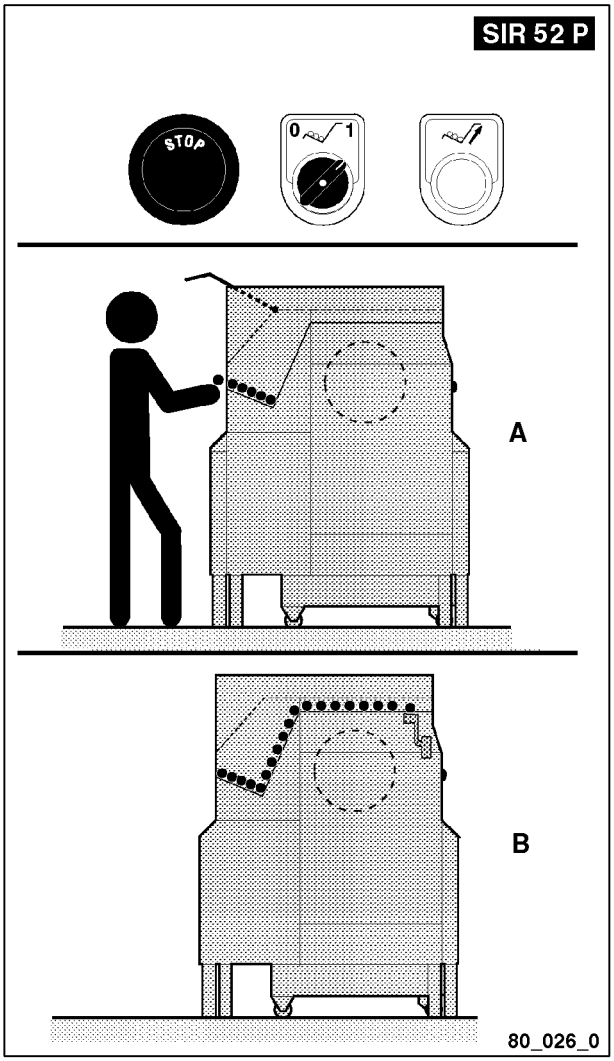
-excessive wear and tear on the guide channel (wear and tear due to the use of round bars is reasonable).

-bar rotation speed reduction (in comparison with round bars).

Excessive wear and tear on the guide channel is due to the shape of bars as well as to material straightness and stiffness.

6.7 BARSTOCKS - LOADING

In accordance with the two different models, loading occurs as follows.



SIR 52 P

1 Start the bar feeder

2 The selector  must be positioned on 0. The luminous pilot light  emits a persistent light, wait until it becomes flickering.

3 Open the case and manually load the magazine plane with bars up to its filling (A).

DANGER - WARNING:
Do not manually lift loads exceeding 15 kg.

4 Close the case.

5 Bars are drawn from the feed chain.

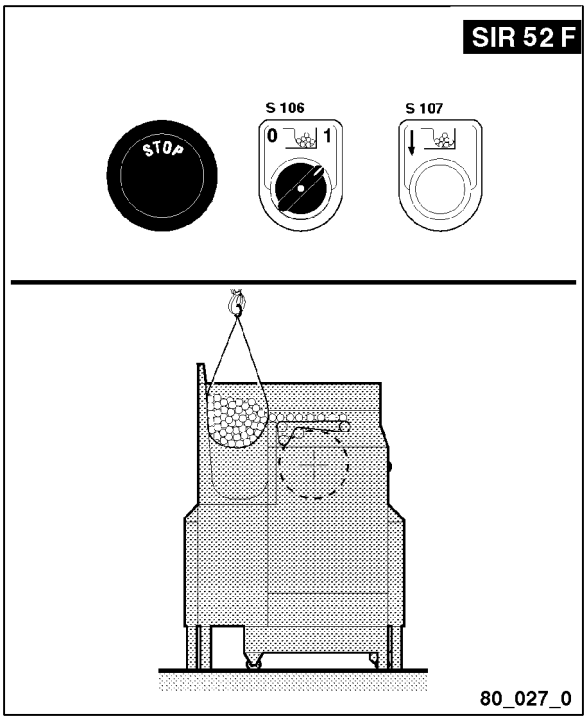
6 When the luminous pilot light emits a flickering light again, operations 3,4 and 5 have to be repeated.

7 Carry out the above mentioned operations up to the complete filling both of the magazine and feed chain (B).

8 When the selector  is positioned on 1, the luminous pilot light is off; hence, the magazine is ready to feed the drum.

During the setting up operations of drum or other device, the selector must be  ***positioned on 0; should the feeding chain be unloaded, it stops after approx. 35 sec.***

SIR 52 F



1 Start the bar feeder.

2 Position the selector  on 0 .

3 Press the  push-button to lower belts completely.

4 Feed the bars using a bridge crane or a lifting carriage.

INFORMATION

Bars are to be loaded in the middle of the bundle magazine.

CAUTION:

Do not load bars having sizes different from those suggested by the manufacturer.

DANGER - WARNING:

Make sure the lifting device has a suitable capacity.

5 Position the  selector on 1; the magazine is ready to feed the drum.

6.8 PROGRAMMING - PARAMETERS ENTRY

The entering of parameters is necessary to program the automatic cycle of the bar feeder, according to the working requirements and to the machine type.
For more detailed instructions, see the "Push-button panel operation and instruction manual".

6.9 WORKING DIAMETER CHANGE - OPERATIONS SEQUENCE

The operations for the machining diameter change have to be done on the basis of the previous machining and in relation to the following machining; see "COMPARATIVE TABLE OF THE WORKING DIAMETERS" (paragraph 5.3.).
If the stock guide tube diameter has to be replaced, you need to follow the procedure explained in paragraph 6.9.1; otherwise, follow the procedure explained in paragraph 6.9.2.

DANGER - WARNING:

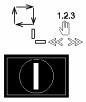
During the working diameter change operations, do not open the machine doors when it is running and do not manually turn the lathe spindles when drum guide is open.

6.9.1 Changing the machining diameter without the stock guide tube diameter change

1 Once all bars in the drum are ended, stop the lathe with the collet open.
2 Press the key  in order to move the bar-pusher back to its limit switch (backwards).
3 Desactivate the automatic carriage feeding through the  key or other control.
4 Press the  , key in order to actuate the rotation of one of the lathe spindles station and carry out these operations in order to release the spindles from the remaining bars.
5 Press push-button  to stop the bar feeder.
6 Open the rear hatch.
7 Release the drum locking lever by pressing it downwards and manually pull the drum up to its stop. (approx. 65 cm).
8 Remove the sleeves (§ 5.10.).
9 Remove the lathe collets and reassemble the new collets suitable to the profile of the new barstock.
10 Assemble the sleeves with the reductions supplied, if any.
11 Place the drum in working position, pushing it carefully and making sure there is no jamming.
12 Lock the drum by means of its relevant lever and close the rear hatch.
13 Position the magazine control selector on "0".
14 Remove from the magazine the remaining bars.
15 Prepare the new bars (§ 6.6.).
16 Feed the bars (§ 6.7.).
17 Adjust the magazine (§ 5.1. and 5.2.).
18 Press the push-button  to start the bar feeder.
19 Position the magazine control selector on "1".
20 Press the  key in order to feed the bar-pusher of 200/300 mm.
21 Press the  key in order to rotate the clamp arm towards the drum.
22 Press the  key to position the bar-pusher at its limit switch.
23 Press the  key to lock the bar-pusher carriage.
24 Press the  key to open the guides.
25 Press the  key to rotate the clamp arm outside the drum.
26 Press the  key to close clamps.
27 Press the  key to extract the bar remnant.
28 Press the  key to open clamps; the bar remnant thus released will drop.
29 Push the  button to bring the clamp unit into operating position.
30 Turn the  switch in  position.
31 Manually open the lateral case in the clamps area.
32 Press the  key in order to release the bar-pusher locking.

33 Remove the bar-pusher to be replaced and place the rear rotating unit into the new bar-pusher.
34 Assemble the suitable collet by means of a standard bar remnant previously introduced into the collet and position the new bar-pusher in the same housing of the previous bar-pusher.
35 Press the 

key to lock the bar-pusher carriage.
36 Adjust the guide channel at the desired diameter by using the "Standard Operation Mode" or the "Staggered Sprockets Operation Mode" (paragraph 5.3.).
37 Push the 

button to close the guides.
38 Close the lateral case.
39 Turn the 

switch in 

position.
40 Press the 

key to open guides.
41 Press the 

key to rotate the clamp arm towards the drum.
42 Press the 

key to close guides.
43 Press the 

key to open the bar-pusher locking.
44 Press the 

key to feed the bar-pusher; position the bar-pusher into the spindle and the bar remnant into the collet and its relevant carriage in the bar end area.
45 Press the 

key to rotate the clamp arm outside the drum.
46 Press the 

key.
47 Rotate the lathe spindle of any station whatsoever up to the OPEN COLLET position.
48 Press the 

key.
49 Repeat all the operations from number 21 up to number 43 in the same sequence to replace all the bar-pushers.
50 Press the 

key.

6.9.2 Change of the working diameter without changing the guide tube diameter

1 End all bars in the drum and stop the lathe with the collet open.
2 Press the 

key to move the bar-pusher back to its limit switch (backwards).
3 Desactivate the automatic carriage feeding through the 

key or other control.
4 Press the  key in order to actuate the rotation of one of the lathe spindles station and carry out these operations in order to release all spindles from the remaining bars.
5 Press push-button  to stop the bar feeder.
6 Open the rear hatch.
7 Unhook the drum lever by pressing it downwards and manually pull the drum up to the stop (approx. 65 cm).
8 Remove sleeves (§ 5.10.).
9 Disassemble the spindle collets and assemble the new collets suitable to the new bar profile.
10 Assemble the sleeves using the reductions supplied, if any.
11 Place the drum in working position, pushing it carefully and making sure there is no jamming.
12 Lock the drum with the suitable lever and close the rear hatch.
13 Position the magazine control selector on "0".
14 Remove all the remaining bars from the magazine.
15 Prepare the new barstocks (§ 6.6.).
16 Feed the barstocks (§ 6.7.).
17 Adjust the magazine (§ 5.1. and 5.2.).
18 Press the  key to start the bar feeder.
19 Position the magazine control selector on "1".
20 Press the 

key to feed the bar-pusher of 200/300 mm.
21 Press the 

key to rotate the clamp arm towards the drum.
22 Press the 

key to position the bar-pusher to the limit switch.
23 Press the 

key to lock the bar-pusher carriage.
24 Press the 

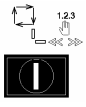
key to open guides.
25 Press the 

key to rotate the clamps bar outside the drum.
26 Press the 

key to close clamps.
27 Press the 

key to extract the bar remnant.
28 Press the 

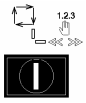
key to open clamps; bar remnant thus released will drop.
29 Push the 

button to bring the clamp unit into operating position.
30 Turn the  switch in 

position.
31 Manually open the lateral case in the clamps area.

32 Disassemble the collet and assemble the new collet with a standard bar remnant of the new bar introduced.

33 Close the lateral case.

34 Turn the  switch in  position.

35 Press the  key to rotate the clamp arm towards the drum.

36 Press the  key to close guides.

37 Press the  key to unlock the bar-pusher carriage.

38 Press the  key to feed the bar-pusher; place the bar-pusher inside the spindle and the bar remnant in the collet with the carriage in the bar end area.

39 Press the  key to rotate the clamp arm outside the drum.

40 Press the  key.

41 Rotate the lathe spindle of any station whatsoever up to the OPEN COLLET position.

42 Press the  key.

43 Repeat all the operations from No. 21 to No. 38 up to the complete replacement of all bar-pushers.

44 Press the  key.

6.10 BAR FEEDER STOP

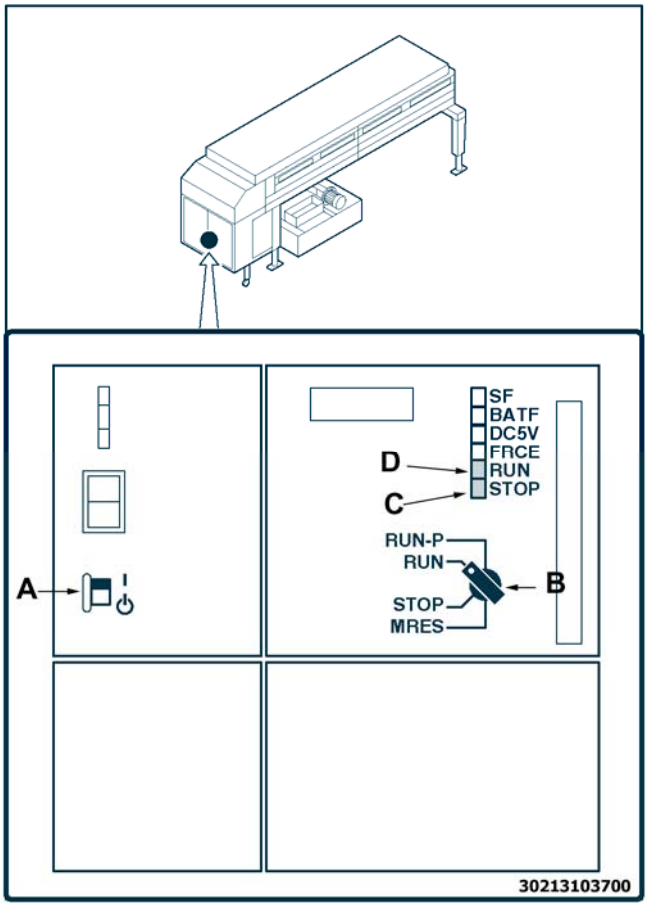
CAUTION:

Do not stop the bar feeder through the emergency push-button unless necessary.

- Finish the operations provided for by the working program.
- Stop the bar feeder by pressing the key  .
- Stop the lathe.
- Position the main switch on "0".

6.11 EEPROM LOADING PROCEDURE

In case of programme deletion or eeprom replacement, the programme needs to be loaded again by adopting the following procedure.



INFORMATION

The procedure is appropriate for 1AE04 version CPUs and the subsequent versions (example: 1AE05, 1AE06, etc.).

- Power the bar feeder.
- Disconnect the CPU by turning selector A to position (fig. 10).
- Position selector (B) on RUN-P.
- Power the CPU by turning selector A to position . Wait until the STOP (C) light starts flashing.
- Position selector (B) on MRES, and keep it in that position until the STOP (C) warning light stops flashing and remains constantly on.
- Turn selector (B) to position RUN. If the procedure has been followed correctly, the RUN (D) warning light should flash for a while and then remain constantly on, and the programme should be loaded.

CAUTION:

After loading the programme, the parameters are to be reset; call the IEMCA Service Department.

6.11.1 Cold start

Cold start occurs according to two different procedures.

ADVANCED AUTOMATIC START

Program the advanced automatic start following the procedures described in the "Push-button panel operation and instruction manual", paragraph "Operator's parameters - description and entering".

MANUAL START

- Make sure that all guards are closed and the emergency push-buttons are not pressed.

- Turn the main electric switch to "I".
- Start the lathe.
- Press push-button  to start the bar feeder, keeping it pressed for 15 seconds, until the green light of the luminous indicator temporarily switches on.
  This procedure allows valve (EV317) to close; it will remain closed for 45 minutes, thus allowing a faster hydraulic oil heating.

INDEX

7.1 MAINTENANCE - GENERAL INSTRUCTIONS

Regular cleaning and maintenance are critical to ensure smooth operation and longer machine service life.
It is recommended to regularly and effectively clean the machine, its accessories and work area, which also increases operator's safety.
Do not use petrol or other detergents which might spoil painting, transparent parts, cable sheaths, etc.
To protect the bar feeder when you expect not to use it for long periods of time, disconnect it from mains voltage and from compressed air supply and cover it with a suitable protective sheet.

DANGER - WARNING:
Oxidation may cause damages either to the metallic parts or to electric equipment.

Any protective cover must not be completely sealed at the base and must be provided with air inlet holes, to prevent the humidity inside the cover from condensing due to an air circulation deficiency.
Said condensation might oxidise the metallic parts and damage the electric equipment.

7.2 MAINTENANCE - SCHEDULED MAINTENANCE TABLE

Table 1.Scheduled maintenance

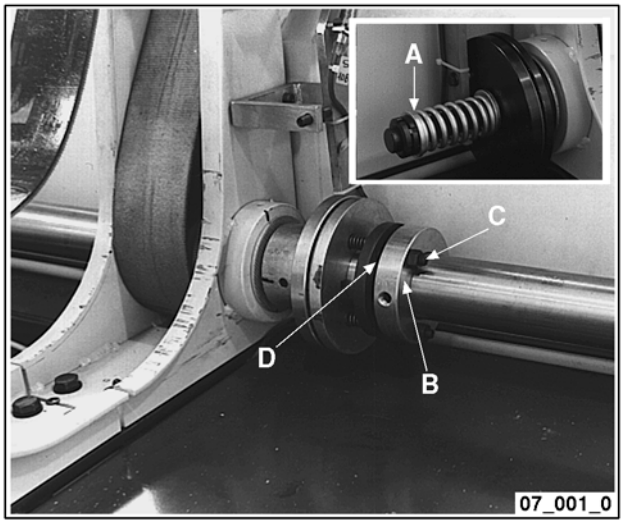
			HOURS FREQUENCY			
BAR FEEDER MODEL	**BAR FEEDER SECTION**	**OPERATIONS TO BE CARRIED OUT**	**50**	**200**	**1250**	**2500**
SIR 52 F	Bundle	Check the lifting belts wear		•		
		Adjust the bar stop clutch.			•	
	Bars translation	Tighten the translation belts.			•	
		Check the translation belts wear.				• (*)
		Lubricate pins bushings.			•	
SIR 52 P	Bars lifting and translation	Check and adjust the torque limiter whenever necessary.				•
		Check and tighten the bar lifting chain whenever necessary.		•		
		Check and tighten the bar translation chain whenever necessary.			•	
		Check and tighten the motor chain whenever necessary.			•	
SIR 52 P SIR 52 F	Bar loading	Check and whenever necessary replace the bar loading levers rollers.				•
	Carriage feeding	Tighten the belt.		•		
	Guides	Check and replace sprockets whenever necessary.			•	
		Verificare la scorrevolezza tra i rocchetti e le cremagliere		•		
	Clamps device	Check and sharpen clamps whenever necessary.			•	
	Lubricating system	Check the oil level.	•			
		Clean the oil filter.			•	
		Check the delivery pipes.				•
		Change the hydraulic oil.	once a year			
	Hydraulic system	Check the oil level.		•		
		Clean the oil filter.			•	
		Check the oil pipes.				•
		Change the hydraulic oil.	once a year			
	Keyboard	Replace the battery	once a year			
	PLC	Replace the battery	once a year			

(*) Should the standard belts wear excessively due to oil, chipping or sharp bars, it is advisable to assemble polyurethane belts supplied upon request.

7.2.1 SIR 52 F Bar stop clutch - Adjustment

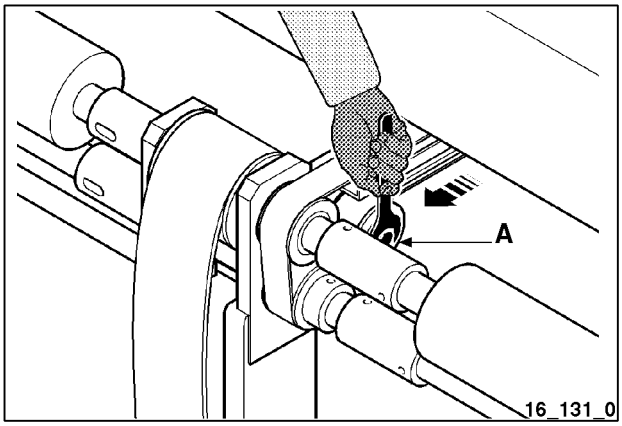
Should the bar stop clutch fail to work properly, adjust it as follows.

Left clutch	Tighten ring nut (A) tightening it by means of the counternut.
Right clutch	Loosen the three nuts (B). Equally tighten the three screws (C) so that disk (D) may progress in parallel with the counter disk. Tighten the three nuts (B).



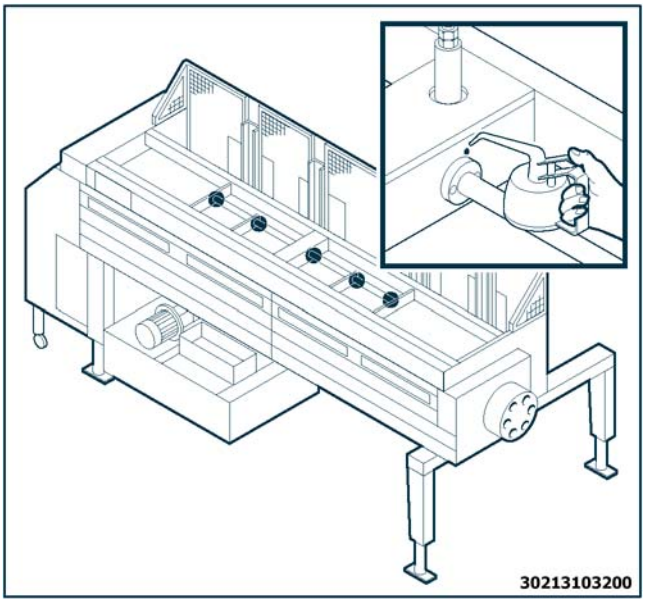
7.2.2 SIR 52 F translation belts - Tightening

- Loosen screw (A) (fig. 2).
- Tighten the belt by manually pressing the pulley.
- Tighten screw (A).
- Repeat the operation to tighten the other belts whenever necessary.



7.2.3 SIR 52 F Pins bushings - Lubrication

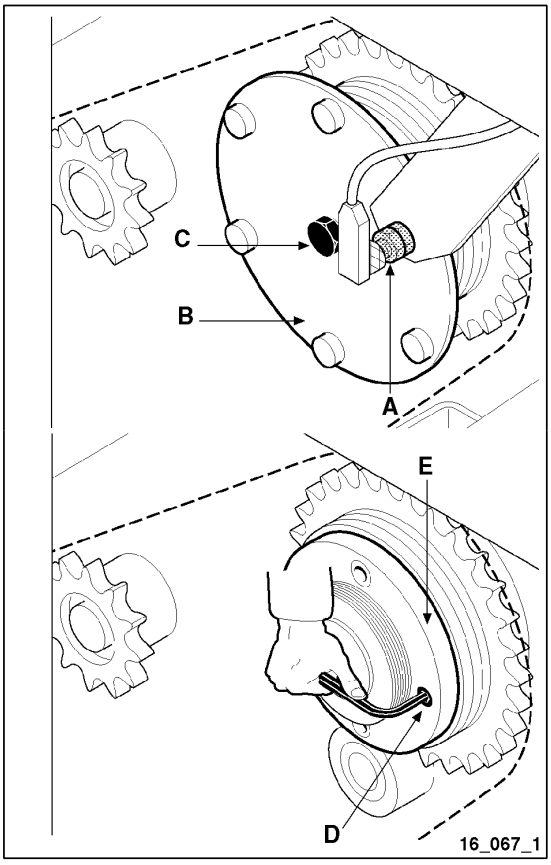
Lubricate the pins bushings (see areas displayed in bold type, fig. 3).



7.2.4 SIR 52 P torque limiter - Adjustment

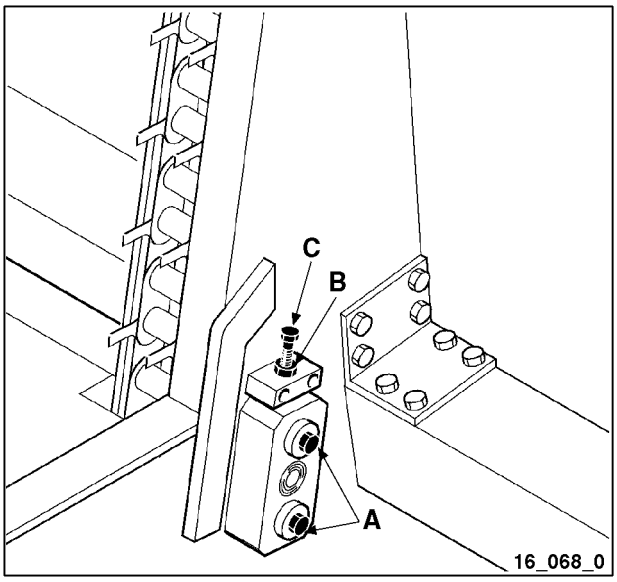
The bar lifting device is equipped with a torque limiter which actuates should the device fail to work properly. To adjust it:

- The magazine must be completely loaded (paragraph 6.7.) with barstock of the max. diameter.
- Loosen the nuts of sensor (A) in order to remove it from disk (B) (fig. 4).
- Disassemble the disk by loosening screw (C).
- Loosen screw (D).
- Completely loosen ring nut (E). When the bar feeder is started, the torque limiter slides.
- Stop the bar feeder and tighten ring nut (E) step by step, making attempts up to the bar lifting device is restored.
- Tighten screw (D).
- Reassemble the disk and the sensor.



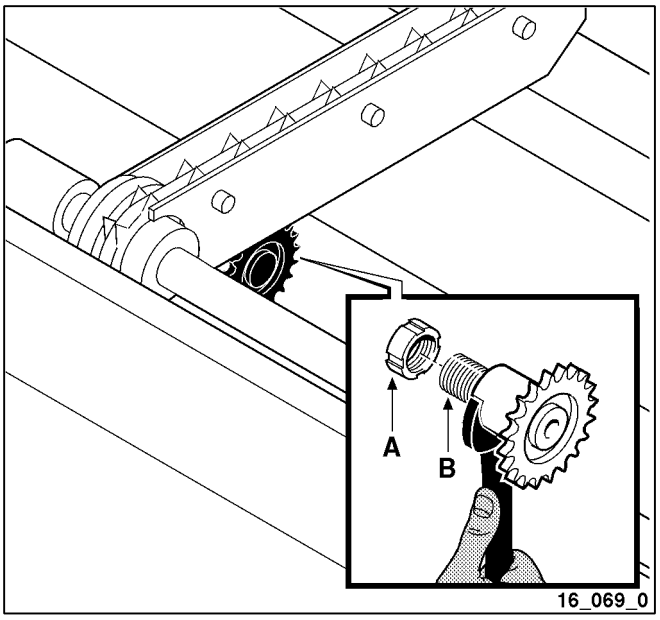
7.2.5 SIR 52 P bar lifting chain - Tightening

- Loosen screws (A) (fig. 5) and nut (B).
- Tighten screw (C).
- Tighten screws (A) and nut (B).
- Whenever necessary, repeat the operation to tighten the other chains.



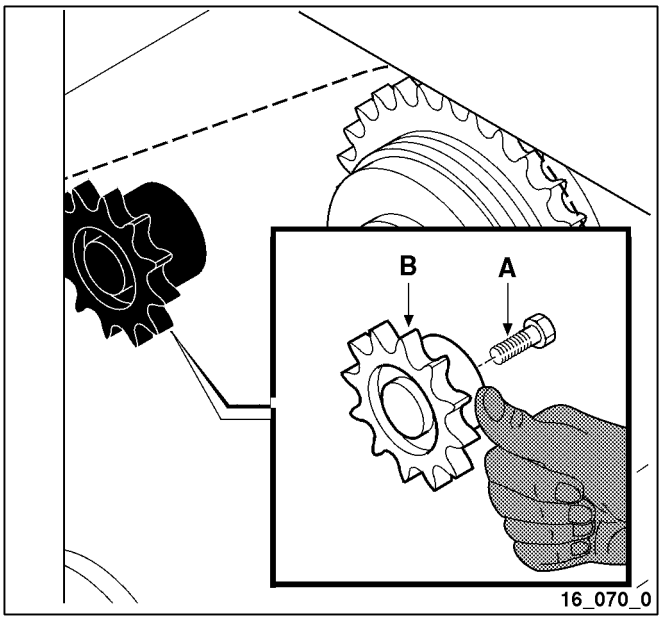
7.2.6 SIR 52 P bar translation chain - Tightening

- Loosen ring nut (A) (fig. 6).
- Turn the pinion eccentric pin (B).
- Tighten ring nut (A).
- Whenever necessary, repeat the operation in order to tighten all other chains.



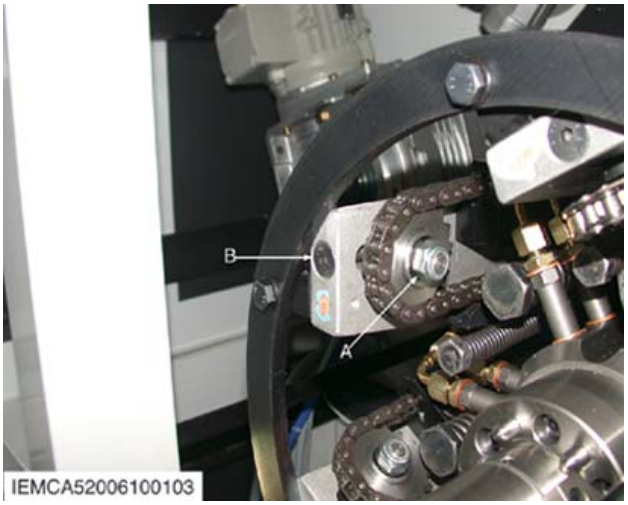
7.2.7 SIR 52 P motor chain - Tightening

- Loosen screw (A) (fig. 7).
- Tighten the chain by pressing manually pinion (B).
- Tighten screw (A).



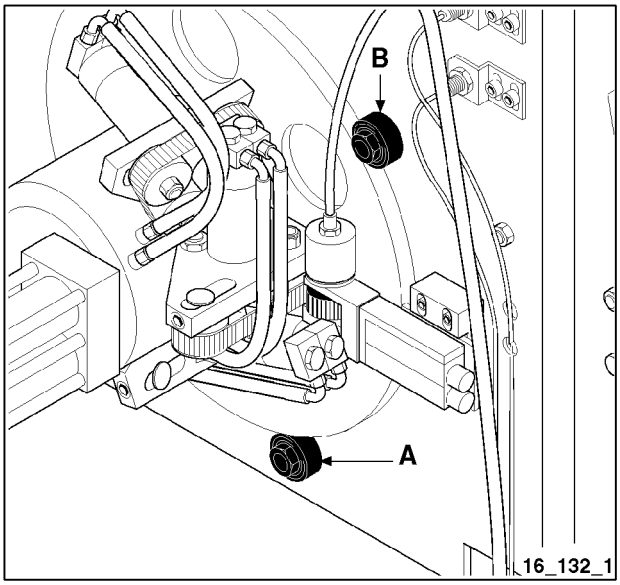
7.2.8 Chain feeding belt - Tightening

- Loosen the nut (A).
- Screw the screw (B) to tighten the chain using a torque wrench; tighten to C= 5 N/m (about 0,5 Kg/m).
- Tighten nut (A.)
- Whenever necessary, repeat the operation to tighten the other chains.



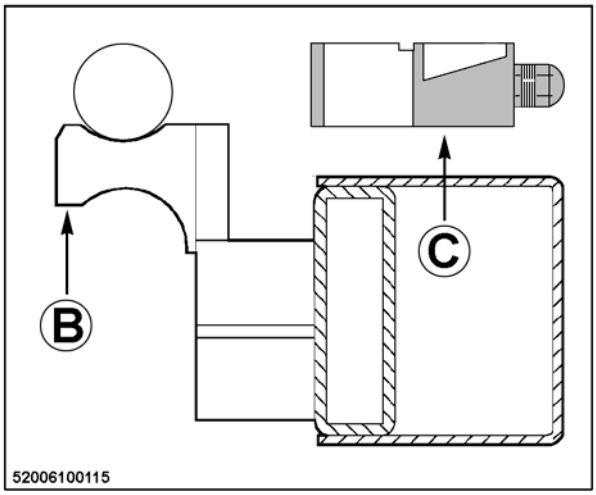
7.2.9 Feeding drum - Bearings end play adjustment

The feeding drum rotates on bearings (A) and (B) (fig. 9) placed both in the front and rear area of the bar feeder.
Adjust the end play operating bearings (B), which are supplied with eccentric pin.
End play must be of 0.15÷0.25 mm.
Bearings (A) are not equipped with eccentric pin.



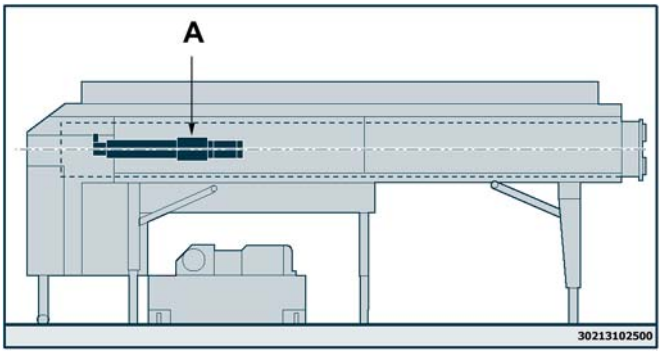
7.2.10 Loading levers - Adjustment

BAR FEEDER LEVERS IN PICK-UP POSITION:
Adjust the levers (B) as shown in picture "52006100115" and make sure the capacitive sensor LED lights up.



7.2.11 Clamps device and bar-pusher locking - Alignment check

Check the clamps device (A) axis (fig. 11) is aligned with the guide tube axis.
Keep to the following procedure: move the clamp device to the "bar insertion into collet" position and close the sprockets by pressing key F3.
Sprockets must close without interfering with the bar pusher inserted into the clamp device.
In case of misalignment, please apply to IEMCA technical assistance department.



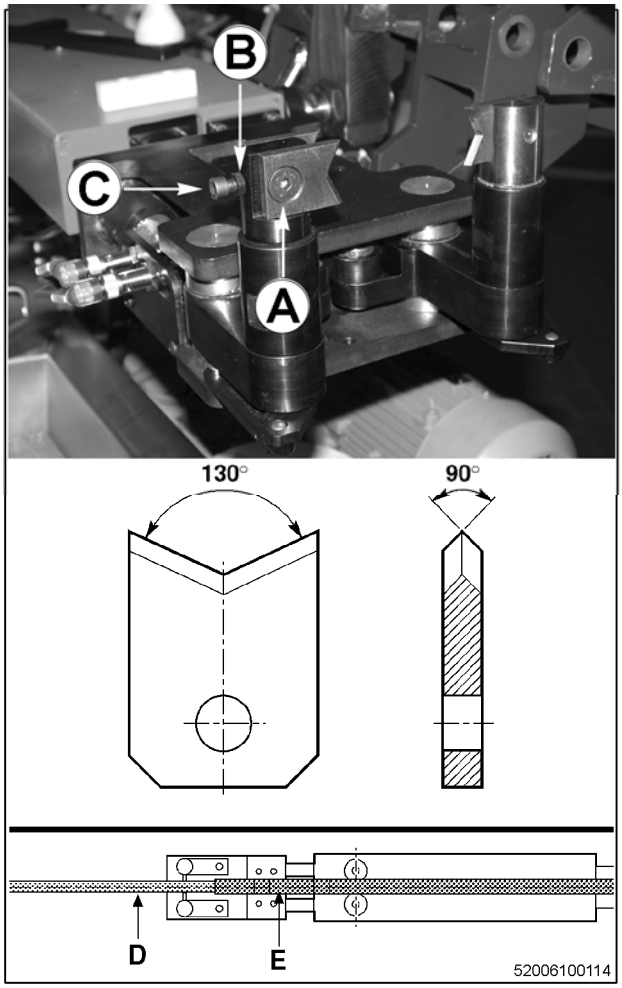
7.2.12 Hydraulic joint - Check

In case of troubles to the rotating joint (A) (fig. 12) apply to IEMCA technical assistance department.

7.2.13 Clamps - Sharpening and adjustment

Sharpening

- Untighten screws (A).
- Remove and sharpen clamps according to the sharp edges.
- Reassemble clamps.
- Tighten screws (A).



INFORMATION

If only a single clamp is sharpened, check and centre the other clamps whenever necessary.

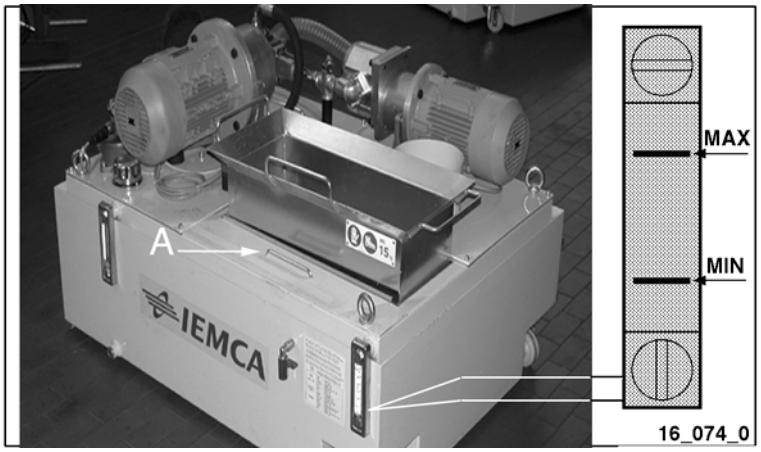
Centring adjustment

Adjust the lower clamp position so that, once the clamps are closed, the bar (D) axis is aligned with the bar-pusher axis (E).
To adjust it:

- Loosen screw (A).
- Loosen nut (B).
- Tighten or untighten screw (C).
- Tighten nut (B).
- Tighten screw (A).

7.2.14 Lubricating oil - Level check

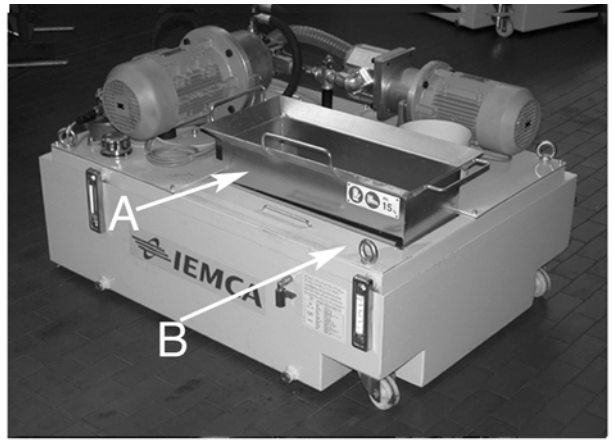
- The oil level must be between the minimum level MIN. and maximum level MAX.
- To top up oil, remove cover (A) and fill with lubricating oil type:
  class (C) CKB 100.

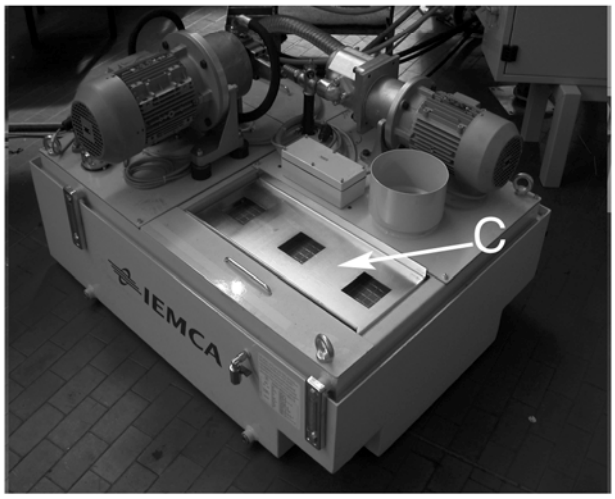


7.2.15 Lubricating oil - Filters cleaning

Filter under the box

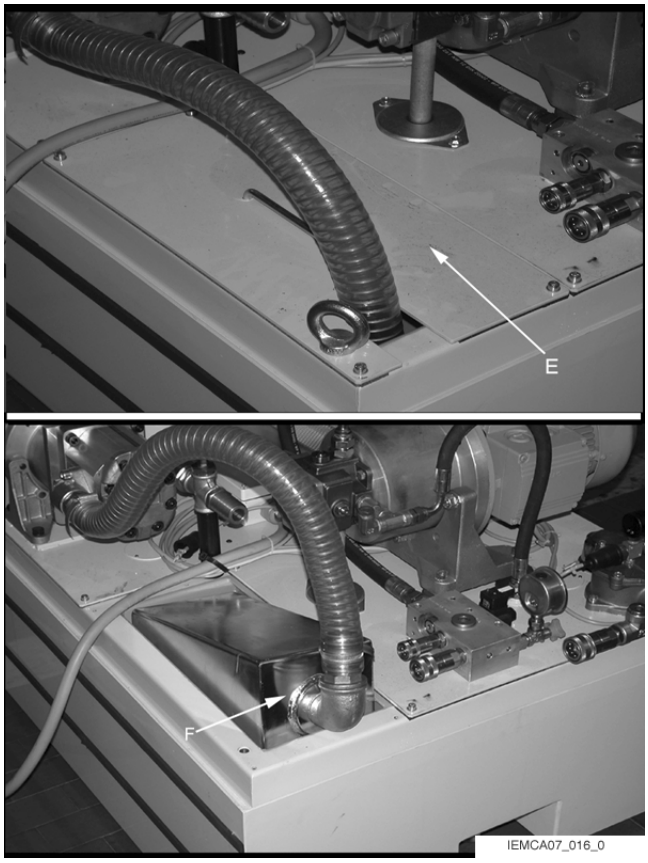
- Remove box (A) and cover (B).
- Remove frame (C).
- Remove filter (D) and clean it by means of compressed air.





Suction filter

- Disconnect the drive unit, see paragraph 4.5.1
- Remove cover (E).
- Lift box (F) and clean its filter by means of compressed air.



7.2.16 Lubricating oil - Change

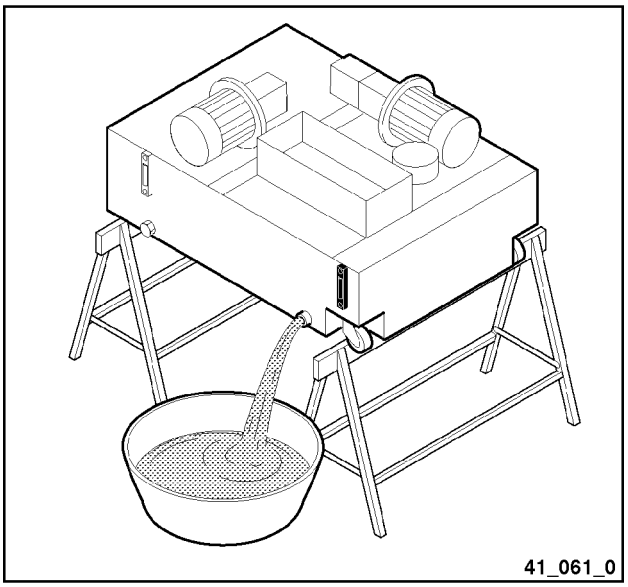
Replacement can be carried out by using an auxiliary pump or by means of the drain plug.

Replacement with an auxiliary pump

- Remove box (A) and cover (B).
- Remove frame (C).
- Remove filter (D).
- Empty the tank by using an auxiliary pump.
- Clean the tank bottom.
- Fill it up with lubricating oil: type class (C) CKB 100. Quantity: 170 l.

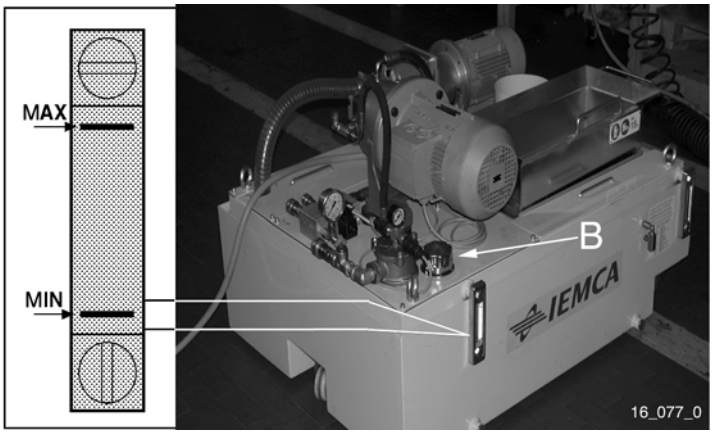
Replacement by means of the drain plug

- Disconnect the drive unit, see paragraph 4.5.1.
- Uplift the drive unit (see paragraph 4.2.) and place it on two stands.
- Unscrew the drain plug and let the oil be drained out.
- Remove box (A) and cover (B).
- Remove frame (C).
- Remove filter (D).
- Clean the tank bottom.
- Fill it up with lubricating oil: type class (C) CKB 100. Quantity: 170 l.



7.2.17 Hydraulic oil - Level check

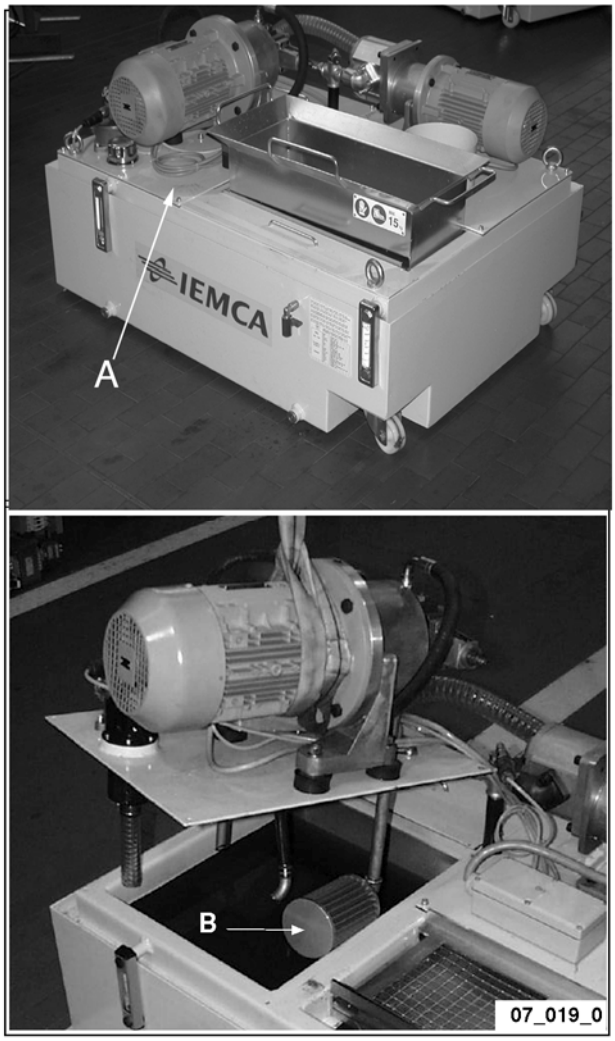
- The level oil must be between the minimum level MIN. and the maximum level MAX.
- To top it up, whenever necessary, remove cap (B) and fill with hydraulic oil: type class (C) HG 32.



7.2.18 Hydraulic oil - Filter maintenance

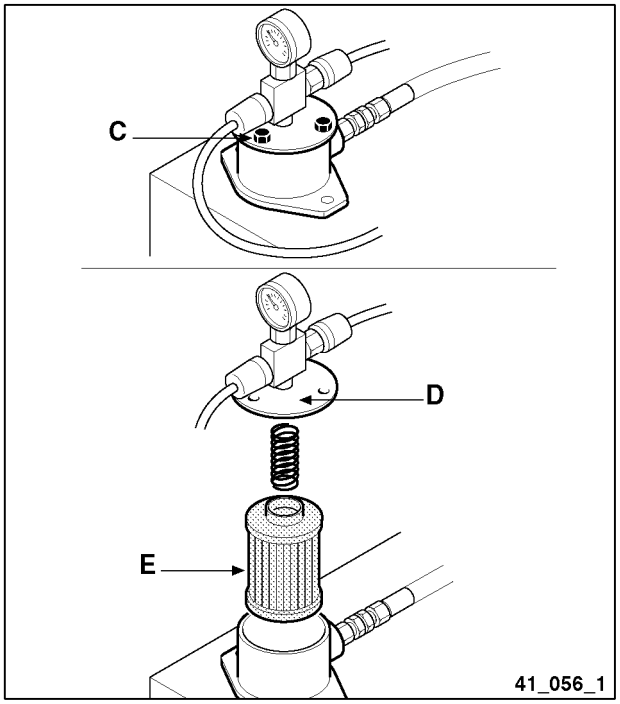
SUCTION FILTER

- Disconnect the drive unit, see paragraph 4.5.1.
- Loosen the screw of lid (A).
- Uplift the pump unit by the help of the appropriate lifting equipment.
- Disassemble filter (B) and clean it with compressed air.

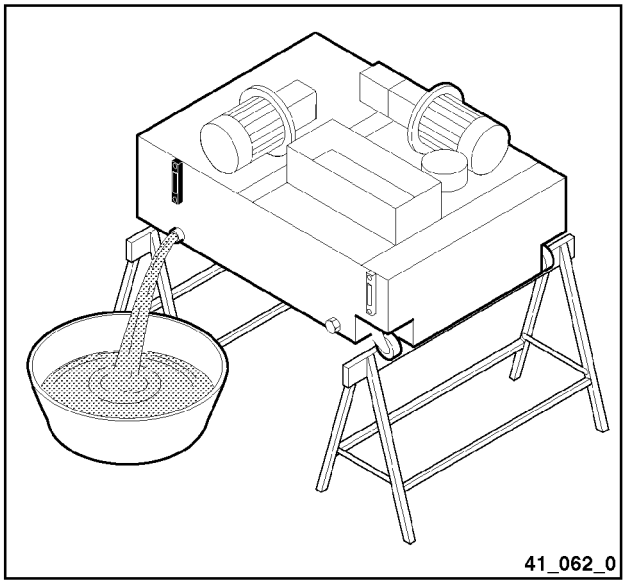


DRAIN FILTER

- Loosen screws (C) and lift cover (D).
- Extract filter (E), check its condition and replace, if necessary.



7.2.19 Hydraulic oil - Change



Replacement can be carried out by using an auxiliary pump or by means of the drain plug.

REPLACEMENT WITH AN AUXILIARY PUMP
- Disconnect the drive unit, see paragraph 4.5.1.
- Loosen the screw of lid (A).
- Uplift the pump unit by the help of the appropriate lifting equipment.
- Empty the tank by using an auxiliary pump.
- Clean the tank bottom.
- To top it up, fill with hydraulic oil: type class (C) HG 32. Quantity: 80 l.

REPLACEMENT BY MEANS OF THE DRAIN PLUG
- Disconnect the drive unit, see paragraph 4.5.1.
- Uplift the drive unit (see paragraph 4.2.) and place it on two stands.
- Unscrew the drain plug and let the oil be drained out.
- Loosen the screw of lid (A).
- Uplift the pump unit by the help of the appropriate lifting equipment.
- Clean the tank bottom.
- To top it up, fill with hydraulic oil: type class (C) HG 32. Quantity: 80 l

7.2.20 Air filter unit - Check

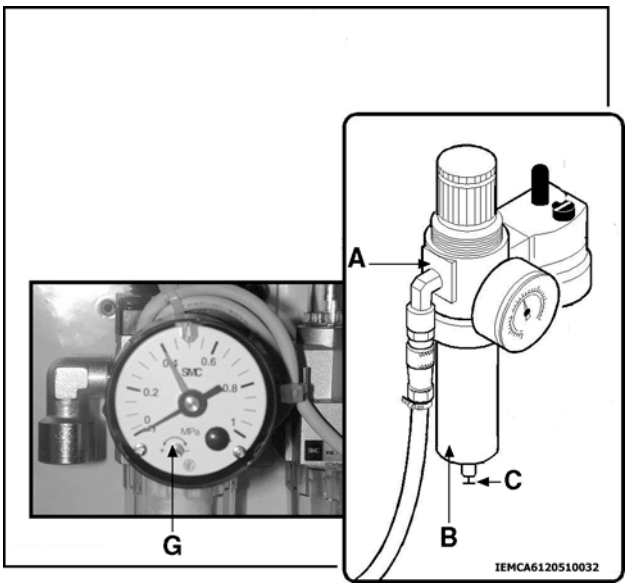
FILTER A

- Make sure that cup (B) is not full of condensate. If need be, bleed the condensate by valve (C).Make sure that cup (B) is not full of condensate. If need be, bleed the condensate by valve (C).

PRESSURE SWITCH

- The lubricator is equipped with a control pressure switch, set to a pressure of 4.5 bar.

  - remove the pressure gauge protecting glass;
  - turn the adjusting screw (G) anticlockwise (+) to increase pressure or clockwise (-) to lower it;
  - after this operation, replace the pressure gauge protecting glass.



CAUTION:

should the pressure switch needle point a Pressure=0 , do not absolutely turn the adjusting screw (H) clockwise (-) , for this will cause pressure switch breakage.

7.3 LUBRICATING/HYDRAULIC OIL - COMPARATIVE TABLE

Table 2.Lubricating oil

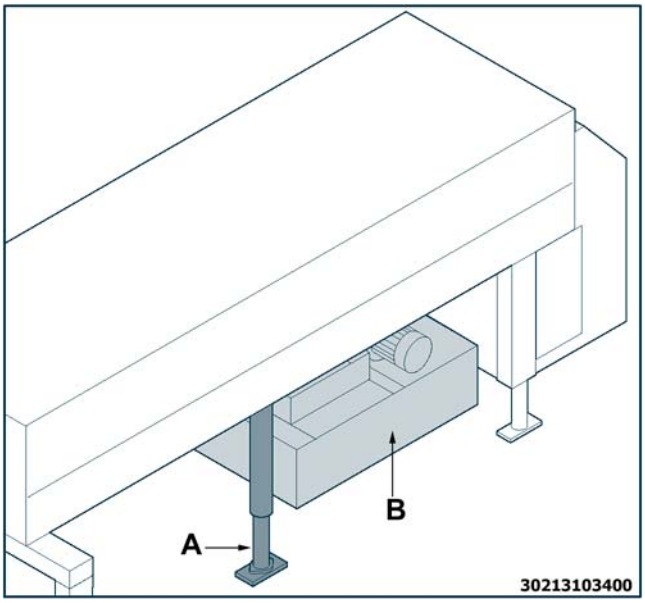
ISO/UNI DESIGNATION	BRAND	DENOMINATION
CLASS C CKB 100	Agip	Acer 100
	Api	Api Cis 100
	BP	Energol CS 100
	Castrol	Magna 100
	Chevron	Circulating Oil 100
	Elf	Movixa 100
	Esso	Nuto 100
	Fina	Solna 100
	IP	IP Hermea 100
	Klüber	Crucolan 100
	Mobil	Vectra Oil Heavy
	Olio FIAT	Daphne LPN 100
	Roloil	Arm V 100
	Shell	Vitrea 100 Tellus C 100
	Tamoil	Industrial Oil 100
	Texaco	Omnis 100
	Total	Cortis 100
		Azolla ZS 100
	Q8	Verdi 100

Table 3.Hydraulic oil

ISO/UNI DESIGNATION	BRAND	DENOMINATION
CLASS C HG 32	Agip	Exidia 32
	Api	Api Cis EP-32
	BP	Energol GHL 32
	Castrol	Magna GC 32
	Chevron	HWS 280 32 cSt
	Elf	Hygliss 32
	Esso	Febis K 32
	Fina	Hydran 32
	IP	Bantia HG 32
	Klüber	Lamora 32
	Mobil	Mobil Vacuoline 1405
	Olio FIAT	Daphne Husoli 32 HG/I
	Roloil	LI-EP 32
	Shell	Tonna TX 32
	Tamoil	Tamway oil 32
	Total	Drosera MS 32
	Texaco	Way lubricant 32

7.4 PREPARING THE BAR FEEDER FOR MAINTENANCE TO THE LATHE

For easy maintenance of the lathe, it is possible to remove some parts of the bar feeder and to use the device to slide the feeding drum.



Removing the middle leg (A) - SIR 52 F (fig. 23);
See paragraph 4.4.5.

CAUTION:

The central foot removal and following installation must be done when the magazine is empty.

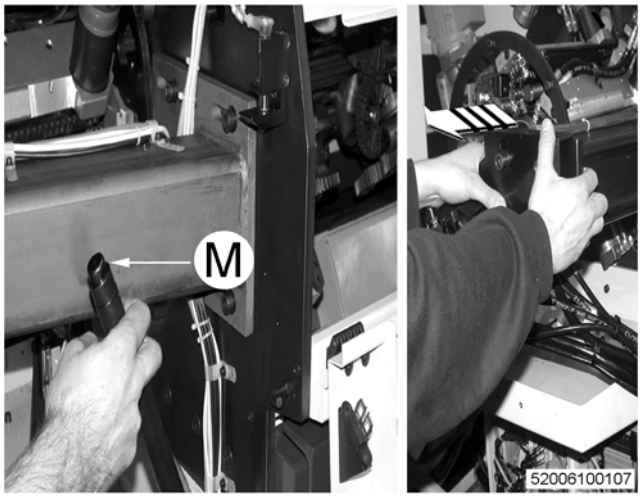
Removing the hydraulic drive unit (B) (fig. 23); see paragraph 4.5.

How to use the Sliding Feeding Drum

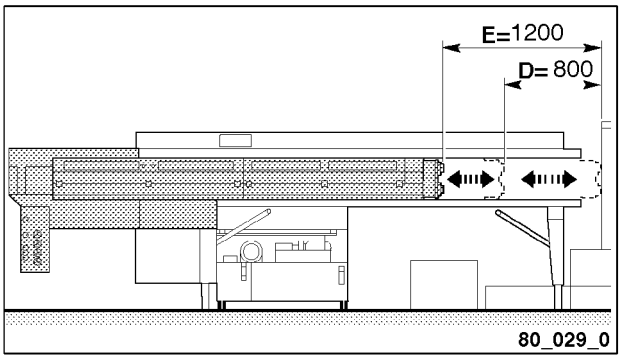
CAUTION:

Function to be undertaken with great care, making sure that the bar feeder is stable.

Open the rear cover, lower the lever (M) and move the feeding drum backwards.



The (D) stroke is standard, stroke (E) is oversized and must be used in those installations which require a larger working area (fig. 25).



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8.1 GENERAL PROBLEMS

ERROR	CAUSE	CURE
BAR FEEDER DOES NOT START	Open cases.	Close the cases.
	The feeding drum is out of position.	Position the feeding drum properly.
	Air missing.	Check the air system.
	Emergency devices activated.	Disable the emergency devices.
	Motors thermal switches blown.	Reset the overload relay by means of the relevant push-buttons.
THE BAR FEEDER DOES NOT WORK IN THE AUTOMATIC MODE	Levers are in a loading phase.	Read for any possible defects on the DISPLAY and provide the required conditions for the bar feeder to be started automatically
	Clamp arm on the guides.	
	Clamps are closed.	
	Guides are open.	

8.2 BAR MAGAZINE - FAILURES

ERROR	CAUSE	CURE
SIR 52 P THE BARS ARE NOT UPLIFTED BY THE CHAINS	The torque limiter slides.	Calibrate the torque limiter.
SIR 52 F BAR LIFTING IS OUT OF BALANCE	One of the belts is loosened or torn.	One of the belts is loosened or torn.
BARS ARE NOT SELECTED	The control cylinders do not work.	Check both the cylinders operation and the pneumatic system.
	The bar detection sensors are not excited.	Make sure that the bar detection signalling levers are exciting the sensors.
	Failure of the selector lifted cam.	Replace the cam.

8.3 DEVICE INTRODUCING BARS INTO GUIDES - PROBLEMS

ERROR	CAUSE	CURE
BAR DROPS OUTSIDE THE LOWERING ROLLERS	Levers stop in a lower position because they are misaligned	Adjust the loading levers
	Torn rollers	Replace the control levers rollers
ARMS DO NOT LOWER	The cylinder does not work	Check the operation of the levers control cylinder.
	Levers are jammed in a high position.	Check there are no crosswise bars or folded levers
ARMS DO NOT INTRODUCE BARS	The lateral cylinders do not work.	Check the operation of the bar introducing cylinder.
	Levers are misaligned and interfere with the guiding sprockets.	Position the levers in the loading cycle.
CLOSED SPROCKETS PREVENTING THE BAR FEEDING	Jammed sprockets	Clean and check sprockets, making s

8.4 CLAMPS DEVICE - PROBLEMS

ERROR	CAUSE	CURE
CLAMPS DO NOT TIGHTEN THE BAR	The cylinder does not work	Check the hydraulic system operation.
	Failure of a tightening clamp	Replace the broken clamp.
	Low pressure	Adjust pressure, see paragraph 5.7.2..
THE BAR-PUSHER IS NOT HELD	The holding pneumatic cylinder is jammed.	Release the cylinder as well as the holding levers
	Failure of the holding rollers	Replace the broken roller
BAR-PUSHER AND CARRIAGE DO NOT ENTER THE GUIDE	The clamps unit is misaligned as to the guide axis.	Align the unit (apply to IEMCA technical assistance department
THE CLAMP ARM IS BLOCKED IN AN INTERMEDIARY POSITION	The clamp arm is blocked in an intermediary position	At the same time push the button and the button , the bar feeder will go into gear and the clamp arm will rotate towards the drum. Loosen the release knob for the nonreturn valve of the clamp arm (this can be found near the valve unit), in order to manually operate the clamp unit lifting and lowering. Bring the clamp unit in a position where sensor S3 can be read, then tighten the valve release knob and restart the

8.5 GUIDES - PROBLEMS

ERROR	CAUSE	CURE
Sprockets jam	Racks and sprocket supports are dirty.	Clean the concerned parts.
Sprockets close in the wrong guide	Chips or dirtiness in the spring and in the sprockets control rack.	Clean the concerned parts.
Sprocket open during the bar rotation	Failure of the locking spring.	Replace the spring. Make sure the sprockets closing phase occurs correctly.
Bar vibrates excessively thus causing side skids	Sprockets are out of phase Sprockets are not closed.	Clean the sprockets closing unit and make sure the closing phase occurs correctly.

8.6 HYDRAULIC SYSTEM - PROBLEMS

ERROR	CAUSE	CURE
NOISY PUMPS	Insufficient or non-existent pump suction.	Clean the suction filter; make sure no throttling or damage occured in the suction line.
	Pump sucks air from the suction line.	Tighten the suction line unions.
	Pump sucks air because the tank oil level is too low.	Top up the oil
	The working pressure is too high.	Decrease the working pressure
	Wrong type of oil.	Change it with a recommended oil
	The pump is worn out.	Repair or replace the pump
SYSTEM PRESSURE MISSING	Oil level is too low	Top up oil
	Insufficient or non-existent pump suction.	Clean the suction filter; make sure no throttling or damage occured in the suction line.
	Pump sucks air from the suction line	Tighten the suction line unions
	Wrong type of oil	Change it with a recommended oil
	Failure of the pump.	Repair the pump
AIR IN THE SYSTEM AND/OR FOAM IN THE OIL	Oil level is too low	Top up oil.
	Leakage in the suction line.	Tighten the unions.
	Excessive resistance in the suction line.	Clean the filter
	Wrong type of oil.	Change it with a recommended oil

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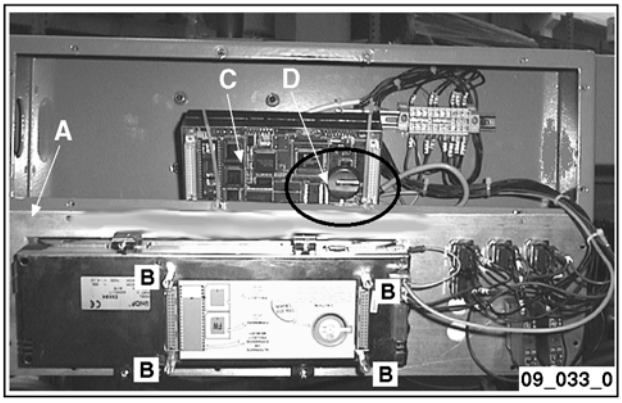
.1 KEYBOARD BATTERY - REPLACEMENT

The battery should be replaced every year or, in any case, when the battery warning light 23[sir_tasto 23] sends a red flashing signal.



INFORMATION

If the battery is not replaced, the date and time will disappear from the display.

- Cut off the bar feeder supply.
- Unscrew the key-board's panel (A).
- With a screwdriver, unscrew (but not completely) the 4 angle screws (B) of the double back box (C). Remove the double back box by keeping it parallel to the surface to which it was fastened.
- Remove the battery (D) from its compartment.Insert the new battery (type: lithium 3-volt CR 2430)

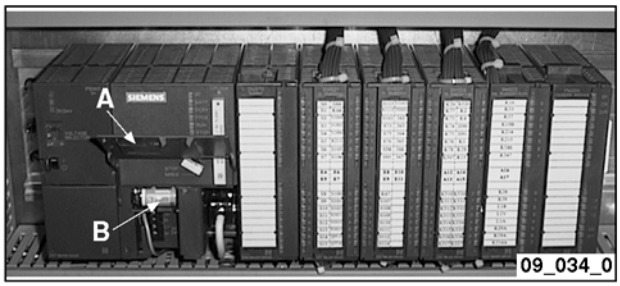
DANGER - WARNING:

Battery explosion danger if inserted with reversed polarity.

- Fix the double housing (C) to the panel again and tighten the 4 screws (B).
- Connect the bar feeder and check that the battery charge is signalled.

9.2 PLC BATTERY - REPLACEMENT

Replace the battery every year.



INFORMATION

If the battery is not replaced, the "PLC/CNC software" data will be deleted.

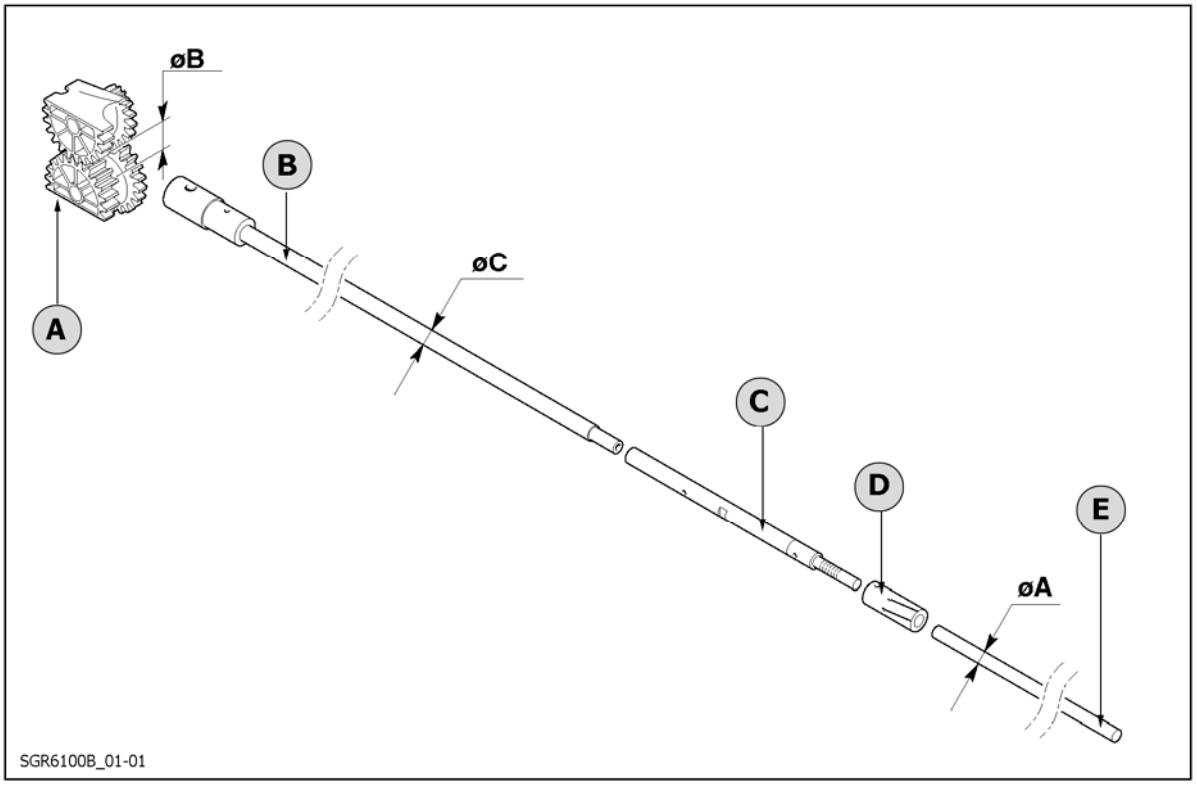
INFORMATION

When replacing the battery, make sure that the bar feeder is live. Warning: if the battery is replaced with the bar feeder off, I.E. with PLC not live, the bar feeder parameters will be cleared from the PLC memory and will have to be immediately restored.

- Open the cubicle.
- Uplift the small door (A) and remove battery (B) from its housing by disconnecting the socket.
- Fit the new battery (type: lithium 3.6-volt 1/2 AA): be careful to fit the connector correctly.
- Close door (A).

10.1 GUIDE CHANNELS AND BAR PUSHER - TABLE

The choice of guide channels and bar pusher must be made according to the diameter of the barstock. The bar feeder is usually supplied with a bar pusher whose diameter is equal to the maximum bar passage of the lathe. In certain cases, to be able to work in the best possible conditions, it may also be necessary to use a bar pusher with smaller diameter.



A Guide channel
B Bar pusher
C Revolving tip
D Collet
E Bar

CAUTION:

the field of application of collets for machining specific bar diameters in the different guide channels are indicated in the table. When this diameter is lower than the diameter of the guidechannel, there can be vibrations or working problems in the barloader. It is useful to consider the possibility to reduce the speed rotation of the bar or to change the diameter of the guide channel to optimize the application. Therefore, in order to optimise operation, the bar rotation speed should be reduced or the guide channel diameter should be changed.

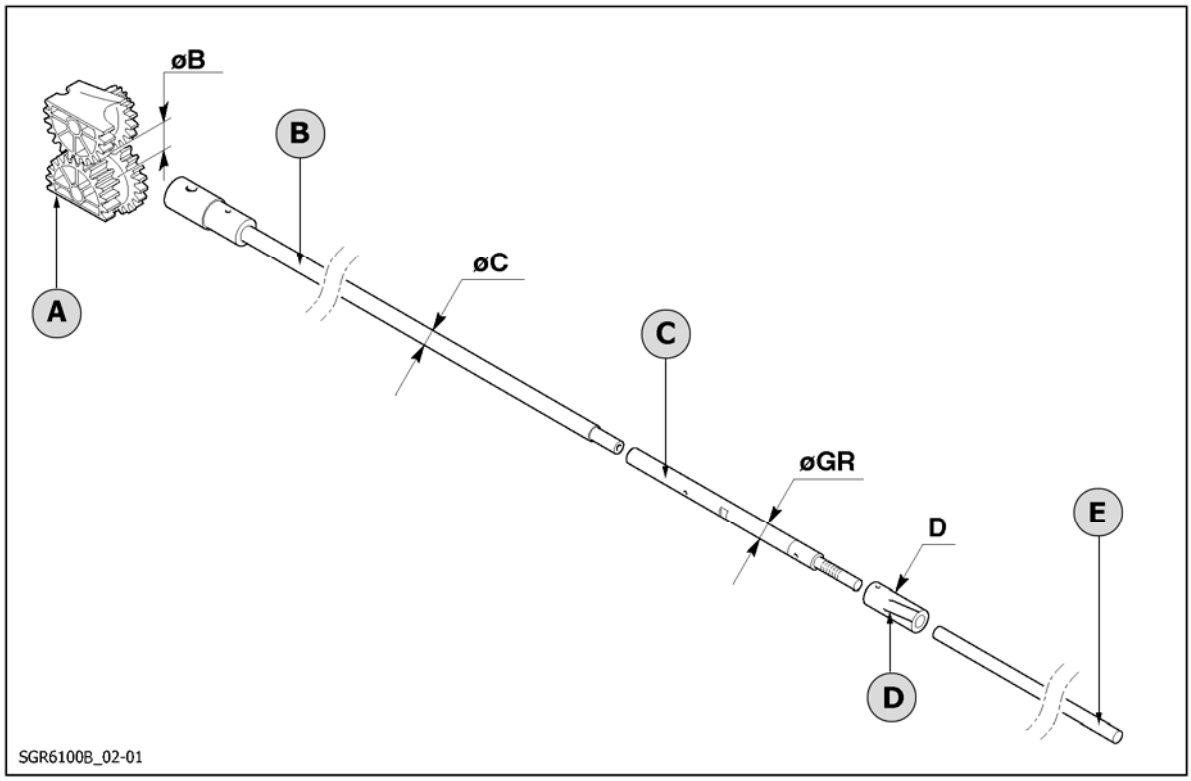
Diameters Comparative table during the standard working mode.

Bar diameter – **øA** (mm)		Maximum tube diameter (*)– **øA** (mm)	Guide channel diameter – **øB** (mm)	Bar pusher diameter– **øC** (mm)
Min	Max			
10	15	18	**19**	18
15	28	32	**33**	32
25	38	42	**43**	42
25	40	45	**46**	45
35	48	52	**53**	52
35	50	55	**57**	56

(*) Also valid for prepared bars and normal barstock with front ejection of bar remnant.

10.2 REVOLVING TIP - TABLE

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

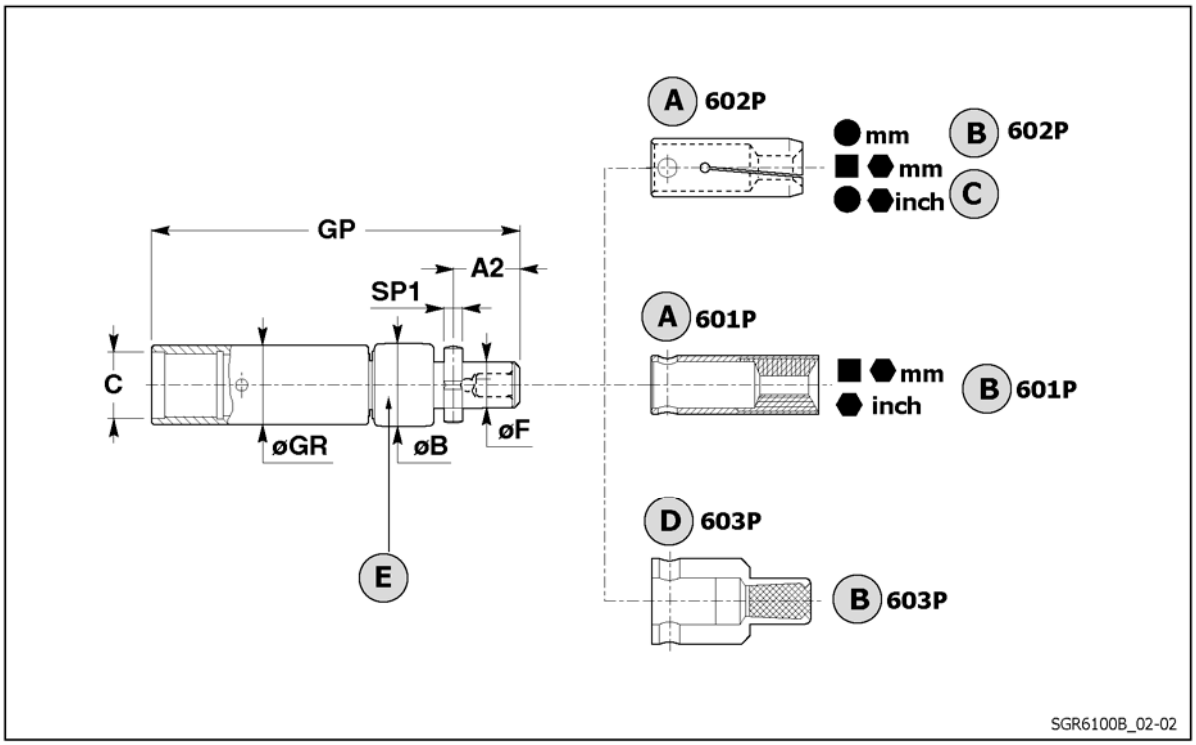


A Guide channel
B Bar pusher
C Revolving tip
D Collet
E Bar

Guide channel diameter **øB** (mm)	Bar pusher diameter **øC** (mm)	Collet version – **D** (type of coupling)	Revolving tip diameter **øGR** (mm)	Revolving tip code	See section
19	18	With pin (SCHL)	18	D60151801	
33	32	With pin (SCHL)	32	D60153201	
43	42	With pin (SCHL)	42	D60154201	
46	45	With pin (SCHL)	45	D60154501	
53	52	With pin (SCHL)	52	D60155201	
57	56	With pin (SCHL)	56	D60155601	

10.3 Revolving Tips øGR 18÷56 - Table

- **For collet with pin coupling (SCHL)**



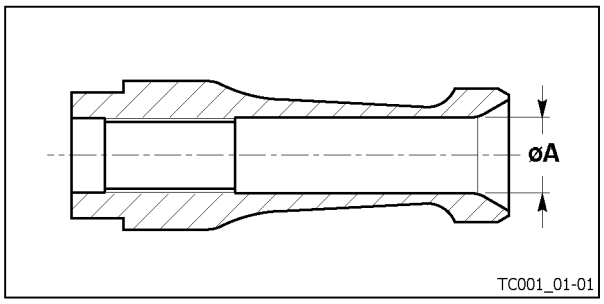
A Collet
B See section
C See section 001 than 602P
D Collet for tube
E Revolving tip

øGR (mm)	Revolving tip code	**øF** (mm)	**øB** (mm)	**GP** (mm)	**C** (mm)	**A2** (mm)	**SP1** (mm)
18	D60151801	11	18.5	127	M15x1 sx	18.5	6
32	D60153201	20	32.5	169.5	M28x1 sx	37.5	8
42	D60154201	20	42.5	169.5	M30x1 sx	37.5	8
45	D60154501	20	45.5	169.5	M30x1 sx	37.5	8
52	D60155201	20	52.5	215.5	M45x1 sx	31	8
56	D60155601	20	56.5	215.5	M50x1.5 sx	31	8

11.1 CONVERSION TABLES 001

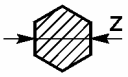
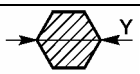
HEXAGONAL BARS (unit of measurement “millimetres”) - Table

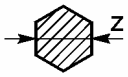
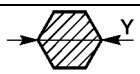
Before selecting the steel collet, define the internal diameter øA by consulting the table below.



Z	Y=Zx1,154	ØA
mm	mm	mm
1.5	1.73	1.7
2	2.31	2.2
2.5	2.89	2.8
3	3.48	3.25
3.5	4.04	3.8
4	4.61	4.5
4.5	5.19	5
5	5.77	5.5
5.5	6.35	6.2
6	6.92	6.8
6.5	7.50	7.3
7	8.08	7.8
7.5	8.66	8.5
8	9.23	9
9	10.39	10.2
10	11.54	11.3
11	12.70	12.5
12	13.85	13.5
13	15.02	14.8
14	16.16	16
15	17.32	17.2
16	18.47	18.3
17	19.62	19.5
18	20.78	20.6
19	21.93	21.8
20	23.09	22.8
21	24.24	24
22	25.40	25.2

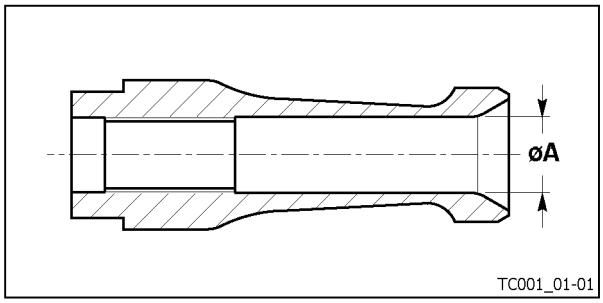
Z	Y=Zx1,154	ØA
mm	mm	mm
28	32.33	32
29	33.48	33.2
30	34.64	34.5
31	35.79	35.5
32	36.95	36.8
33	38.10	37.8
34	39.25	39
35	40.41	40.2
36	41.56	41.3
38	43.87	43.5
39	45.03	44.8
40	46.18	46
41	47.34	47
42	48.49	48.2
43	49.65	49.5
44	50.80	50.5
45	51.96	51.8
46	53.11	52.8
48	55.42	55
50	57.73	57.5
52	60.04	59.5
55	63.50	63
57	65.78	65.25
60	69.24	68.75
62	71.55	71
65	75	74.5
67	77.3	76.75
70	80.78	80.25

	 Y=Zx1,154	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=Zx1,154	ØA
mm	mm	mm
72	83.08	82.5
75	86.55	86
80	92.32	91.75
85	98.1	97.5

SQUARE BARS (unit of measurement “millimetres”) - Table

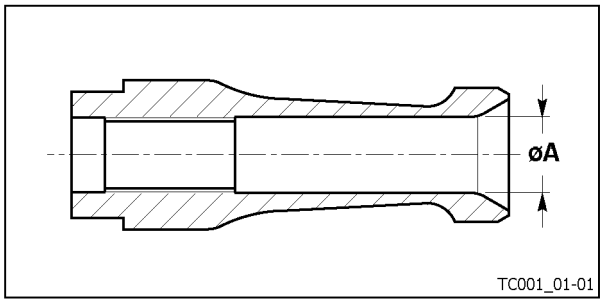
Before selecting the steel collet, define the internal diameter øA by consulting the table below.



Z	Y	ØA	Z	Y	ØA
	Y=Zx1,414			Y=Zx1,414	
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

HEXAGONAL BARS (unit of measurement “inches”) - Table

Before selecting the steel collet, define the internal diameter øA by consulting the table below.

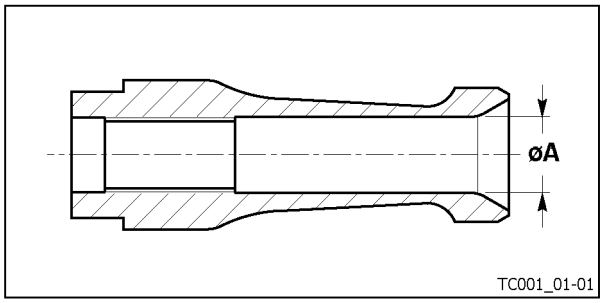


	ØA	
inches	mm	inches
1/8	3.5	9/64
3/16	5.25	13/64
1/4	7	9/32
5/16	8.75	11/32
3/8	10.75	27/64
7/16	12.5	31/64
1/2	14.25	9/16
9/16	16.25	41/64
5/8	18	45/64
11/16	19.75	25/32
3/4	21.75	55/64
13/16	23.5	59/64
7/8	25.25	63/64
15/16	27.25	1”5/64
1”	29	1”9/64
1”1/16	30.75	1”13/64
1”1/8	32.5	1”9/32
1”3/16	34.25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

	ØA	
inches	mm	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

ROUND BARS (unit of measurement “inches”) - Table

Before selecting the steel collet, define the internal diameter øA by consulting the table below.



inches	ØA mm
1/32	0.8
3/64	1.2
1/16	1.6
5/64	2
3/32	2.4
7/64	2.8
1/8	3.2
9/64	3.6
5/32	4
11/64	4.4
3/16	4.8
13/64	5.2
7/32	5.6
15/64	6
1/4	6.4
17/64	6.8
9/32	7.2
19/64	7.6
5/16	8
21/64	8.4
11/32	8.8
23/64	9.1
3/8	9.6
25/64	10
13/32	10.4
27/64	10.8
7/16	11.25
29/64	11.5
15/32	12
31/64	12.5
1/2	12.75
33/64	13.25

inches	ØA mm
17/32	13.5
35/64	14
9/16	14.25
37/64	14.75
19/32	15
39/64	15.5
5/8	16
41/64	16.25
21/32	16.75
43/64	17
11/16	17.5
45/64	18
23/32	18.25
47/64	18.75
3/4	19
49/64	19.5
25/32	19.75
51/64	20.25
13/16	20.75
53/64	21
27/32	21.5
55/64	21.75
7/8	22.25
57/64	22.75
29/32	23
59/64	23.5
15/16	24
61/64	24.25
31/32	24.75
63/64	25
1	25.5
1”1/16	27

inches	ØA mm
1”1/8	28.5
1”3/16	30.25
1”1/4	31.75
1”5/16	33.25
1”3/8	35
1”7/16	36.25
1”1/2	38
1”9/16	39.75
1”5/8	41.25
1”11/16	43
1”3/4	44.5
1”13/16	46
1”7/8	47.75
1”15/16	49.25
2”	50.75
2”1/16	52.5
2”1/8	54
2”3/16	55.5
2”1/4	57.25
2”5/16	58.75
2”3/8	60.5
2”7/16	62
2”1/2	63.5
2”9/16	65
2”5/8	66.75
2”11/16	68.25
2”3/4	70
2”13/16	71.5
2”7/8	73
2”15/16	74.75
3”	76.25

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

11.2 COLLETS FOR BARS 602P

COLLETS FOR BARS - Table

CAUTION:

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

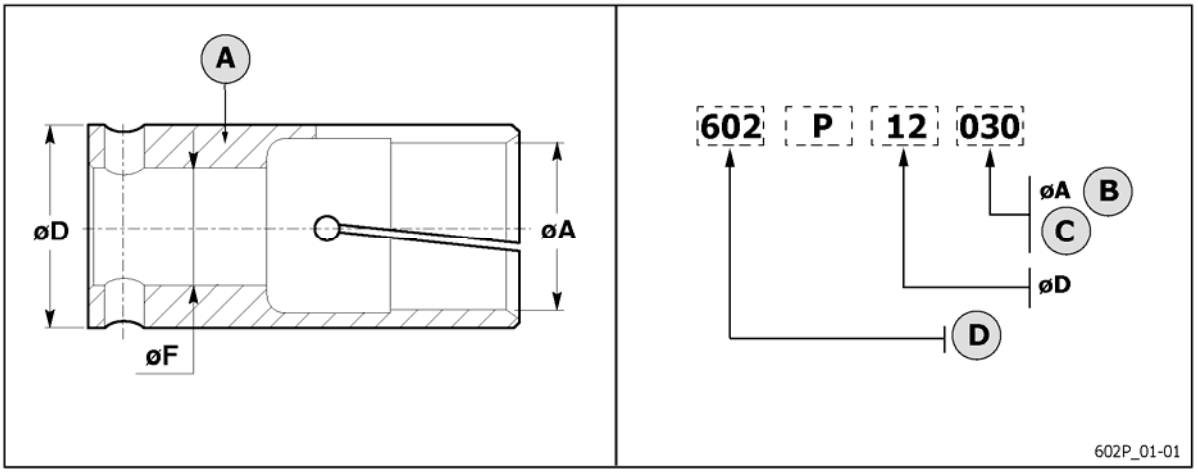
Note for consultation

The codes on the grey ground are indicating the "EMPLOYED SECTOR" to prefer.

Note for ordering

- Collets with codes in bold characters are available from stock.
- Please contact IEMCA service to use the collets with codes in Italics. The delivery times for this kind of collets are longer.

Code structure



A Collet
B Bar diameter
C Example:
3 mm = 030
3.5 mm = 035
12.5 mm = 125
12.75 mm = 127
D Family to which it belongs

øA		øF Ø7 G6	øF Ø8 G6	øF Ø11 G6	øF Ø20 G6	
mm	*inches*	**øD 10**	**øD 12**	**øD 15**	**øD 25**	
3		**602P10030**	**602P12030**			
3.1		**602P10031**	**602P12031**			
3.2	1/8”	**602P10032**	**602P12032**			
3.3		**602P10033**	**602P12033**			
3.4		**602P10034**	**602P12034**			
3.5		**602P10035**	**602P12035**			
3.6	9/64”	**602P10036**	**602P12036**			
3.7		**602P10037**	**602P12037**			
3.8		**602P10038**	**602P12038**			
3.9		**602P10039**	**602P12039**			
4	5/32”	**602P10040**	**602P12040**	*602P15040*		
4.1		**602P10041**	**602P12041**	*602P15041*		
4.2		**602P10042**	**602P12042**	*602P15042*		
4.3		**602P10043**	**602P12043**	*602P15043*	*602P25043*	
4.4	11/64”	**602P10044**	**602P12044**	*602P15044*		
4.5		**602P10045**	**602P12045**	*602P15045*		
4.6		**602P10046**	**602P12046**	*602P15046*		
4.7		**602P10047**	**602P12047**	*602P15047*		
4.8	3/16”	**602P10048**	**602P12048**	*602P15048*		
4.9		**602P10049**	**602P12049**	*602P15049*		
5		**602P10050**	**602P12050**	**602P15050**	*602P25050*	
5.1		**602P10051**	**602P12051**	**602P15051**		
5.2	13/64”	**602P10052**	**602P12052**	**602P15052**		

øA		øF Ø7 G6	øF Ø8 G6	øF Ø11 G6	øF Ø11 G6
mm	*inches*	**øD 10**	**øD 12**	**øD 15**	**øD 18**
5.3		**602P10053**	**602P12053**	**602P15053**	
5.4		**602P10054**	**602P12054**	**602P15054**	
5.5		**602P10055**	**602P12055**	**602P15055**	
5.6	7/32”	**602P10056**	**602P12056**	**602P15056**	
5.7		**602P10057**	**602P12057**	**602P15057**	
5.8		**602P10058**	**602P12058**	**602P15058**	
5.9		**602P10059**	**602P12059**	**602P15059**	
6	15/64”	**602P10060**	**602P12060**	**602P15060**	
6.1		**602P10061**	**602P12061**	**602P15061**	
6.2		**602P10062**	**602P12062**	**602P15062**	
6.3		**602P10063**	**602P12063**	**602P15063**	
6.4	1/4"	**602P10064**	**602P12064**	**602P15064**	
6.5		**602P10065**	**602P12065**	**602P15065**	
6.6		**602P10066**	**602P12066**	**602P15066**	
6.7		**602P10067**	**602P12067**	**602P15067**	
6.8	17/64”	**602P10068**	**602P12068**	**602P15068**	
6.9		**602P10069**	**602P12069**	**602P15069**	
7		**602P10070**	**602P12070**	**602P15070**	
7.1		**602P10071**	**602P12071**	**602P15071**	
7.2	9/32”	**602P10072**	**602P12072**	**602P15072**	
7.3		**602P10073**	**602P12073**	**602P15073**	
7.4		**602P10074**	**602P12074**	**602P15074**	
7.5		**602P10075**	**602P12075**	**602P15075**	
7.6	19/64”	**602P10076**	**602P12076**	**602P15076**	
7.7		**602P10077**	**602P12077**	**602P15077**	
7.8		**602P10078**	**602P12078**	**602P15078**	
7.9		**602P10079**	**602P12079**	**602P15079**	
8	5/16”	**602P10080**	**602P12080**	**602P15080**	**602P18080**
8.1			**602P12081**	**602P15081**	
8.2			**602P12082**	**602P15082**	
8.3			**602P12083**	**602P15083**	
8.4	21/64”		**602P12084**	**602P15084**	
8.5			**602P12085**	**602P15085**	
8.6			**602P12086**	**602P15086**	
8.7			**602P12087**	**602P15087**	
8.8	11/32”		**602P12088**	**602P15088**	
8.9			**602P12089**	**602P15089**	
9			**602P12090**	**602P15090**	**602P18090**
9.1	23/64”		**602P12091**	**602P15091**	**602P18091**
9.2			**602P12092**	**602P15092**	**602P18092**

øA		øF Ø14 G6	øF Ø20 G6	øF Ø20 G6
mm	*inches*	**øD 20**	**øD 25**	**øD 32**
5.3				
5.4				
5.5				
5.6	7/32”			
5.7				
5.8				
5.9				
6	15/64”	*602P20060*	*602P25060*	**602P32060**
6.1		*602P20061*	*602P25061*	
6.2		*602P20062*	*602P25062*	
6.3		*602P20063*	*602P25063*	
6.4	1/4"	*602P20064*	*602P25064*	
6.5		*602P20065*	*602P25065*	**602P32065**
6.6		*602P20066*	*602P25066*	
6.7		*602P20067*	*602P25067*	
6.8	17/64”	*602P20068*	*602P25068*	
6.9		*602P20069*	*602P25069*	
7		*602P20070*	*602P25070*	**602P32070**
7.1		*602P20071*	*602P25071*	
7.2	9/32”	*602P20072*	*602P25072*	
7.3		*602P20073*	*602P25073*	
7.4		*602P20074*	*602P25074*	
7.5		*602P20075*	*602P25075*	**602P32075**
7.6	19/64”	*602P20076*	*602P25076*	
7.7		*602P20077*	*602P25077*	
7.8		*602P20078*	*602P25078*	
7.9		*602P20079*	*602P25079*	
8	5/16”	**602P20080**	**602P25080**	**602P32080**
8.1		**602P20081**	**602P25081**	
8.2		**602P20082**	**602P25082**	
8.3		**602P20083**	**602P25083**	
8.4	21/64”	**602P20084**	**602P25084**	
8.5		**602P20085**	**602P25085**	**602P32085**
8.6		**602P20086**	**602P25086**	
8.7		**602P20087**	**602P25087**	
8.8	11/32”	**602P20088**	**602P25088**	
8.9		**602P20089**	**602P25089**	
9		**602P20090**	**602P25090**	**602P32090**
9.1	23/64”	**602P20091**	**602P25091**	
9.2		**602P20092**	**602P25092**	

øA		øF Ø8 G6	øF Ø11 G6	øF Ø11 G6	øF Ø11 G6
mm	*inches*	**øD 12**	**øD 15**	**øD 16**	**øD 18**
9.3		**602P12093**	**602P15093**		**602P18093**
9.4		**602P12094**	**602P15094**		**602P18094**
9.5		**602P12095**	**602P15095**		**602P18095**
9.6	3/8”	**602P12096**	**602P15096**		**602P18096**
9.7		**602P12097**	**602P15097**		**602P18097**
9.8		**602P12098**	**602P15098**		**602P18098**
9.9		**602P12099**	**602P15099**		**602P18099**
10	25/64”	**602P12100**	**602P15100**		**602P18100**
10.1			**602P15101**		**602P18101**
10.2			**602P15102**		**602P18102**
10.3			**602P15103**		**602P18103**
10.4	13/32”		**602P15104**		**602P18104**
10.5			**602P15105**		**602P18105**
10.6			**602P15106**		**602P18106**
10.7			**602P15107**		**602P18107**
10.8	27/64”		**602P15108**		**602P18108**
10.9			**602P15109**		**602P18109**
11			*602P15110*	**602P16110**	**602P18110**
11.1					**602P18111**
11.2					**602P18112**
11.25	7/16”		*602P15112*	**602P16112**	
11.3					**602P18113**
11.4					**602P18114**
11.5	29/64”		*602P15115*	**602P16115**	**602P18115**
11.6					**602P18116**
11.7					**602P18117**
11.75			*602P15117*	**602P16117**	
11.8					**602P18118**
11.9					**602P18119**
12	15/32”		*602P15120*	**602P16120**	
12.25			*602P15122*	**602P16122**	
12.5	31/64”		*602P15125*	**602P16125**	*602P18125*
12.75	1/2"		*602P15127*	**602P16127**	*602P18127*
13			*602P15130*	*602P16130*	**602P18130**
13.25	33/64”			*602P16132*	**602P18132**
13.5	17/32”			*602P16135*	**602P18135**
13.75				*602P16137*	**602P18137**

øA		øF Ø8 G6	øF Ø11 G6	øF Ø11 G6	øF Ø11 G6
mm	*inches*	**øD 12**	**øD 15**	**øD 16**	**øD 18**
14	35/64”			*602P16140*	**602P18140**
14.25	9/16”				**602P18142**
14.5					**602P18145**
14.75	37/64”				**602P18147**
15	19/32”				**602P18150**
15.25					**602P18152**
15.5	39/64”				**602P18155**
15.75					**602P18157**

øA		øF Ø14 G6	øF Ø14 G6	øF Ø20 G6	øF Ø20 G6
mm	*inches*	**øD 20**	**øD 23**	**øD 25**	**øD 32**
9.3		**602P20093**		**602P25093**	
9.4		**602P20094**		**602P25094**	
9.5		**602P20095**		**602P25095**	**602P32095**
9.6	3/8”	**602P20096**		**602P25096**	
9.7		**602P20097**		**602P25097**	
9.8		**602P20098**		**602P25098**	
9.9		**602P20099**		**602P25099**	
10	25/64”	**602P20100**		**602P25100**	**602P32100**
10.1		**602P20101**		**602P25101**	
10.2		**602P20102**		**602P25102**	
10.3		**602P20103**		**602P25103**	
10.4	13/32”	**602P20104**		**602P25104**	
10.5		**602P20105**		**602P25105**	**602P32105**
10.6		**602P20106**		**602P25106**	
10.7		**602P20107**		**602P25107**	
10.8	27/64”	**602P20108**		**602P25108**	
10.9		**602P20109**		**602P25109**	
11		**602P20110**		**602P25110**	**602P32110**
11.1					
11.2					
11.25	7/16”	**602P20112**		**602P25112**	
11.3					
11.4					
11.5	29/64”	**602P20115**		**602P25115**	**602P32115**
11.6					
11.7					
11.75		**602P20117**		**602P25117**	
11.8					
11.9					
12	15/32”	**602P20120**		**602P25120**	**602P32120**
12.25		**602P20122**		**602P25122**	
12.5	31/64”	**602P20125**		**602P25125**	**602P32125**
12.75	1/2"	**602P20127**		**602P25127**	
13		**602P20130**		**602P25130**	**602P32130**
13.25	33/64”	**602P20132**		**602P25132**	
13.5	17/32”	**602P20135**		**602P25135**	**602P32135**
13.75		**602P20137**		**602P25137**	

øA		øF Ø14 G6	øF Ø14 G6	øF Ø20 G6	øF Ø20 G6
mm	*inches*	**øD 20**	**øD 23**	**øD 25**	**øD 32**
14	35/64”	**602P20140**	*602P23140*	**602P25140**	**602P32140**
14.25	9/16”	**602P20142**	*602P23142*	**602P25142**	
14.5		**602P20145**	*602P23145*	**602P25145**	**602P32145**
14.75	37/64”	**602P20147**	*602P23147*	**602P25147**	
15	19/32”	**602P20150**	*602P23150*	**602P25150**	**602P32150**
15.25		**602P20152**	*602P23152*	**602P25152**	
15.5	39/64”	**602P20155**	*602P23155*	**602P25155**	**602P32155**
15.75		**602P20157**	*602P23157*	**602P25157**	

øA		øF Ø11 G6	øF Ø14 G6	øF Ø14 G6	øF Ø14 G6	øF Ø20 G6	øF Ø20 G6	øF Ø20 G6
mm	*inches*	**øD 18**	**øD 20**	**øD 21**	**øD 23**	**øD 25**	**øD 27**	**øD 32**
16	5/8”	**602P18160**	**602P20160**		*602P23160*	**602P25160**		**602P32160**
16.25	41/64”		**602P20162**		*602P23162*	**602P25162**		
16.5			*602P20165*	**602P21165**	**602P23165**	**602P25165**		**602P32165**
16.75	21/32”		*602P20167*	**602P21167**	**602P23167**	**602P25167**		
17	43/64”		*602P20170*	**602P21170**	**602P23170**	**602P25170**		**602P32170**
17.25			*602P20172*	**602P21172**	**602P23172**	**602P25172**		
17.5	11/16”		*602P20175*	**602P21175**	**602P23175**	**602P25175**		**602P32175**
17.75			*602P20177*	**602P21177**	**602P23177**	**602P25177**		
18	45/64”		*602P20180*	**602P21180**	**602P23180**	**602P25180**		**602P32180**
18.25	23/32”			**602P21182**	**602P23182**	**602P25182**		
18.5				**602P21185**	**602P23185**	**602P25185**		**602P32185**
18.75	47/64”			**602P21187**	**602P23187**	**602P25187**		
19	3/4"			**602P21190**	**602P23190**	**602P25190**		**602P32190**
19.25					**602P23192**	**602P25192**		
19.5	49/64”				**602P23195**	**602P25195**		**602P32195**
19.75	25/32”				**602P23197**	**602P25197**		
20					**602P23200**	**602P25200**		**602P32200**
20.25	51/64”				**602P23202**	**602P25202**		
20.5					**602P23205**	**602P25205**		**602P32205**
20.75	13/16”				**602P23207**	**602P25207**		
21	53/64”				**602P23210**	*602P25210*	**602P27210**	**602P32210**
21.25						*602P25212*	**602P27212**	
21.5	27/32”					*602P25215*	**602P27215**	**602P32215**
21.75	55/64”					*602P25217*	**602P27217**	

øA		øF Ø20 G6	øF Ø20 G6	øF Ø20 G6	øF Ø20 G6	øF Ø20 G6	øF Ø20 G6
mm	*inches*	**øD 25**	**øD 27**	**øD 29**	**øD 32**	**øD 35**	**øD 36**
22		*602P25220*	**602P27220**		**602P32220**		
22.25	7/8”	*602P25222*	**602P27222**				
22.5		*602P25225*	**602P27225**		**602P32225**		
22.75	57/64”	*602P25227*	**602P27227**	*602P29227*			
23	29/32”	*602P25230*	**602P27230**	*602P29230*	**602P32230**		
23.25			**602P27232**	*602P29232*			
23.5	59/64”		**602P27235**	*602P29235*	**602P32235**		
23.75			**602P27237**	*602P29237*			
24	15/16”		*602P27240*	**602P29240**	**602P32240**		
24.25	61/64”		*602P27242*	**602P29242**			
24.5			*602P27245*	**602P29245**			
24.75	31/32”		*602P27247*	**602P29247**			
25	63/64”		*602P27250*	**602P29250**	*602P32250*		
25.25			*602P27252*	**602P29252**	*602P32252*		
25.4			*602P27254*				
25.5	1”		*602P27255*	**602P29255**	*602P32255*		
25.75				**602P29257**	*602P32257*		
26				*602P29260*	**602P32260**		*602P36260*
26.25				*602P29262*	**602P32262**		*602P36262*
26.5				*602P29265*	**602P32265**		*602P36265*
26.75				*602P29267*	**602P32267**		*602P36267*
27	1” 1/16			*602P29270*	**602P32270**	*602P35270*	*602P36270*
27.25					**602P32272**	*602P35272*	*602P36272*
27.5					**602P32275**	*602P35275*	*602P36275*
27.75					**602P32277**	*602P35277*	*602P36277*
28					*602P32280*	**602P35280**	*602P36280*
28.25					*602P32282*	**602P35282**	*602P36282*
28.5	1” 1/8				*602P32285*	**602P35285**	*602P36285*
28.75					*602P32287*	**602P35287**	*602P36287*

øA		øF Ø20 G6	øF Ø20 G6	øF Ø20 G6	øF Ø20 G6	øF Ø20 G6	øF Ø20 G6	øF Ø20 G6
mm	*inches*	**øD 32**	**øD 34**	**øD 35**	**øD 36**	**øD 39**	**øD 42**	**øD 45**
29		*602P32290*		**602P35290**	*602P36290*			
29.25		*602P32292*		**602P35292**	*602P36292*			
29.5		*602P32295*		**602P35295**	*602P36295*			
29.75		*602P32297*		**602P35297**	*602P36297*			
30		*602P32300*		*602P35300*	**602P36300**			
30.25	1” 3/16			*602P35302*	**602P36302**			
30.5				*602P35305*	**602P36305**			
30.75				*602P35307*	**602P36307**			
31				*602P35310*	*602P36310*		**602P42310**	
31.25				*602P35312*	*602P36312*		**602P42312**	
31.5			*602P34315*	*602P35315*	*602P36315*		**602P42315**	
31.75	1” 1/4			*602P35317*	*602P36317*		**602P42317**	
32				*602P35320*	*602P36320*	**602P39320**	**602P42320**	
32.25					*602P36322*		**602P42322**	
32.5					*602P36325*		**602P42325**	
32.75					*602P36327*		**602P42327**	
33					*602P36330*		**602P42330**	*602P45330*
33.25	1” 5/16				*602P36332*		**602P42332**	*602P45332*
33.5					*602P36335*		**602P42335**	*602P45335*
33.75					*602P36337*		**602P42337**	*602P45337*
34					*602P36340*		**602P42340**	602P45340
34.25							**602P42342**	602P45342
34.5							**602P42345**	602P45345
34.75						**602P39350**	**602P42347**	602P45347
35	1” 3/8						**602P42350**	602P45350
35.25							**602P42352**	602P45352
35.5							**602P42355**	602P45355
35.75							**602P42357**	602P45375
36						**602P39360**	**602P42360**	602P45360
36.25	1” 7/16						**602P42362**	602P45362
36.5							**602P42365**	602P45365
36.75							**602P42367**	602P45367
37						**602P39370**	*602P42370*	**602P45370**
37.25							*602P42372*	**602P45372**
37.5							*602P42375*	**602P45375**
37.75							*602P42377*	**602P45377**

øA		øF Ø20 G6	øF Ø20 G6	øF Ø20 G6	SIR 52		
					øF Ø20 G6	øF Ø20 G6	
mm	*inches*	**øD 42**	**øD 45**	**øD 51**	**øD 52**	**øD 56**	
38		*602P42380*	**602P45380**				
38.25		*602P42382*	**602P45382**				
38.5		*602P42385*	**602P45385**				
38.75		*602P42387*	**602P45387**				
39		*602P42390*	**602P45390**				
39.25		*602P42392*	**602P45392**				
39.5		*602P42395*	**602P45395**				
39.75		*602P42397*	*602P45397*	**602P51397**			
40		*602P42400*	*602P45400*	**602P51400**			
40.25			*602P45402*	**602P51402**			
40.5			*602P45405*	**602P51405**			
40.75			*602P45407*	**602P51407**			
41			*602P45410*	**602P51410**			
41.25			*602P45412*	**602P51412**			
41.5			*602P45415*	**602P51415**			
41.75			*602P45417*	**602P51417**			
42			*602P45420*	**602P51420**			
42.25				**602P51422**			
42.5				**602P51425**			
42.75				**602P51427**			
43	1” 11/16			**602P51430**			
43.25				**602P51432**			
43.5				**602P51435**			
43.75				**602P51437**			
44				**602P51440**	**602P52440**		
44.25				**602P51442**			
44.5				**602P51445**	**602P52445**		
44.75				**602P51447**			
45				**602P51450**			
45.25				*602P51452*			
45.5				*602P51455*			
45.75				*602P51457*			
46				*602P51460*	**602P52460**		
46.25				*602P51462*			
46.5				*602P51465*			
46.75				*602P51467*			
47				*602P51470*	**602P52470**	**602P56470**	

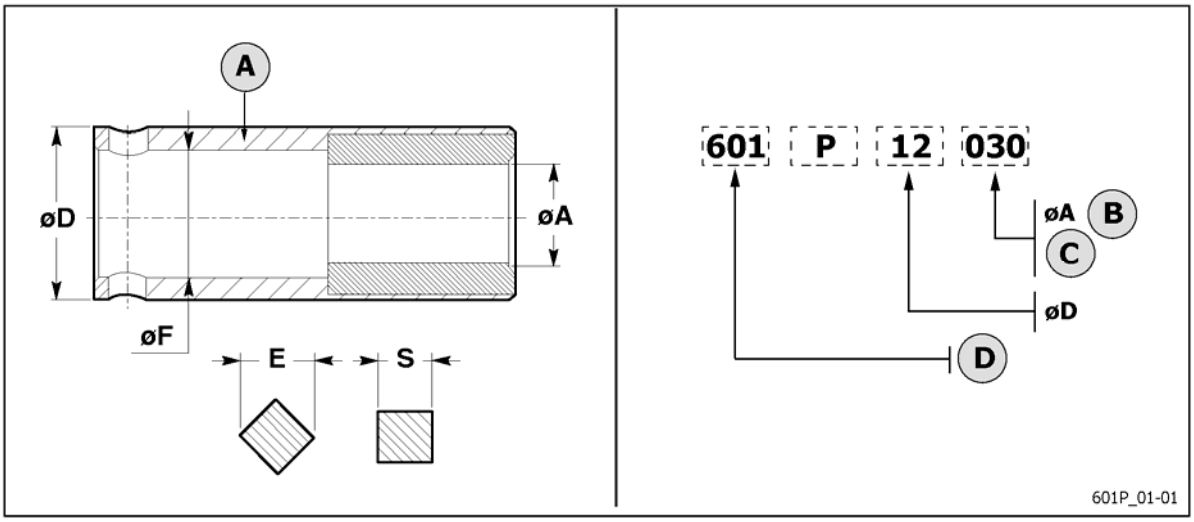
øA		øF Ø20 G6	øF Ø20 G6	øF Ø20 G6	SIR 52		
					øF Ø20 G6	øF Ø20 G6	
mm	*inches*	**øD 42**	**øD 45**	**øD 51**	**øD 52**	**øD 56**	
48					**602P52480**	**602P56480**	
49					**602P52490**	**602P56490**	
50						**602P56500**	
51						**602P56510**	
52						**602P56520**	

11.3 “UNILOCK” COLLETS FOR BARS 601P

“UNILOCK” COLLETS FOR SQUARE BARS - Table

INFORMATION:
for defining the internal diameter øA do not consult “001 - Conversion Tables” document, but directly consult the table below.

Code structure



A Collet
B Bar diameter
C Example:
3 mm = 030
3.5 mm = 035
12.5 mm = 125
12.75 mm = 127
D Family to which it belongs

S	**E** **E=Sx1.414**	**øA** +0.1 0	**øF** M5x0.5	**øF** Ø8 G6	**øF** Ø11 G6	**øF** Ø14 G6	**øF** Ø20 G6
mm	*mm*	*mm*	**øD 7.5**	**øD 12**	**øD 18**	**øD 21**	**øD 25**
3	4.24	3.8	**601P08038**				
4	5.65	5.1		**601P12051**			
5	7.07	6.6		**601P12066**			
6	8.48	8		**601P12080**	**601P18080**		
7	9.90	9.2			**601P18092**	**601P21092**	
8	11.31	10.3			**601P18103**	**601P21103**	
9	12.73	11.7			**601P18117**	**601P21117**	
10	14.14	13.1			**601P18131**	**601P21131**	**601P25131**
11	15.55	14.5				**601P21145**	**601P25145**
12	16.97	15				**601P21150**	**601P25150**

S	**E** **E=Sx1.414**	**øA** +0.1 0	**øF** M5x0.5	**øF** Ø8 G6	**øF** Ø11 G6	**øF** Ø14 G6
mm	*mm*	*mm*	**øD 25**	**øD 29**	**øD 32**	**øD 36**
13	18.38	17.4	**601P25174**			
14	19.80	18.8	**601P25188**			
15	21.21	20.2	**601P25202**			
16	22.62	21.6		**601P29216**		
17	24.04	23		**601P29230**		
18	25.45	24.5			**601P32245**	
19	26.87	25.9			**601P32259**	
20	28.28	27.3			**601P32273**	
21	29.69	28.7				**601P36287**
22	31.11	30.1				**601P36301**
23	32.52	31.5				**601P36315**

"UNILOCK" COLLETS FOR HEXAGONAL BARS - Table

INFORMATION:

for defining the internal diameter øA do not consult "001 - Conversion Tables" document, but directly consult the table below.

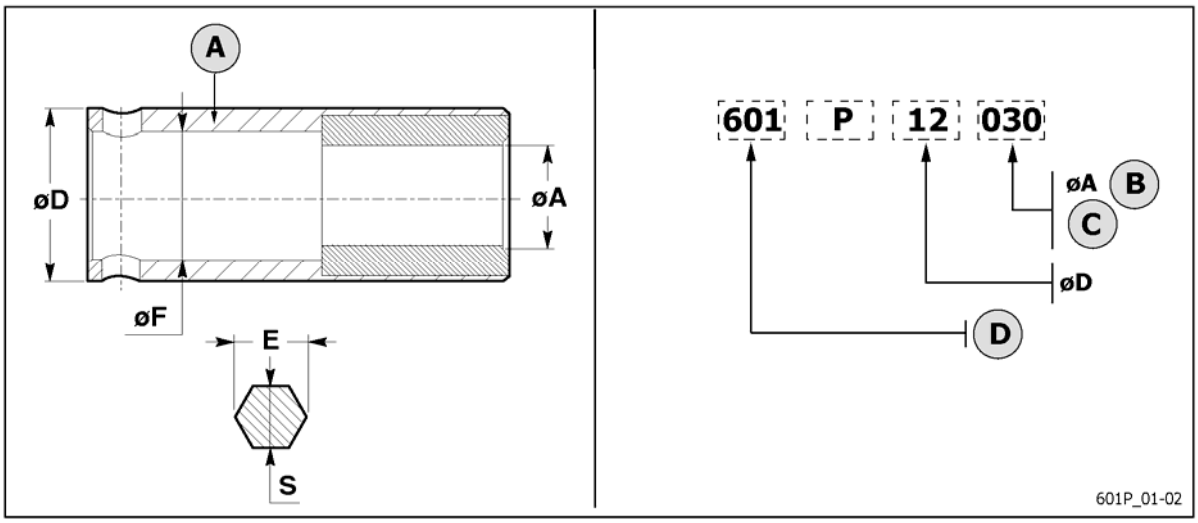
Note for consultation

The codes on the grey ground are indicating the "EMPLOYED SECTOR" to prefer.

Note for ordering

- Collets with codes in bold characters are available from stock.
- Please contact IEMCA service to use the collets with codes in Italics. The delivery times for this kind of collets are longer.

Code structure



A Collet
B Bar diameter
C Example:
3 mm = 030
3.5 mm = 035
12.5 mm = 125
12.75 mm = 127
D Family to which it belongs

S		E E=Sx1.154	øA +0.1 0	øF M5x0.5	øF Ø8 G6	øF Ø11 G6	øF Ø14 G6	øF Ø20 G6
mm	*inches*	*mm*	*mm*	**øD 7.5**	**øD 12**	**øD 18**	**øD 21**	**øD 25**
3		3.46	3.1	**601P08031**				
	1/8”	3.66	3.3	**601P08033**				
4		4.62	4.1	**601P08041**				
	3/16”	5.5	5		**601P12050**			
5		5.77	5.2		**601P12052**			
6		6.92	6.2		**601P12062**	***601P18062***		
	1/4"	7.33	6.6		**601P12066**	*601P18066*		
7		8.08	7.3		*601P12073*	**601P18073**		
	5/16”	9.16	8.3			**601P18083**	**601P21083**	
8		9.23	8.4			**601P18084**	**601P21084**	
8.5		9.82	9					**601P25090**
9		10.39	9.5			**601P18095**	**601P21095**	
	3/8”	10.99	10			**601P18100**	**601P21100**	
10		11.54	10.6			**601P18106**	**601P21106**	
10.5		12.13	11.1			**601P18111**		
11		12.7	11.7			**601P18117**	**601P21117**	
	7/16”	12.82	11.8			**601P18118**	**601P21118**	
12		13.85	12.8			**601P18128**	**601P21128**	**601P25128**
	1/2"	14.65	13.7			**601P18137**		
13		15.01	13.9			**601P18139**		

S		E E=Sx1.154	øA +0.1 0	øF 14 G6	øF 20 G6	øF 20 G6
mm	*inches*	*mm*	*mm*	**øD 21**	**øD 25**	**øD 29**
	1/2"	14.65	13.7	**601P21137**	**601P25137**	
13		15	14	**601P21140**	**601P25140**	
14		16.16	15.2	**601P21152**	**601P25152**	
	9/16"	16.49	15.5	**601P21155**	**601P25155**	
15		17.31	16.3	**601P21163**	**601P25163**	
	5/8"	18.32	17.3		**601P25173**	
16		18.46	17.5		**601P25175**	
17		19.62	18.6		**601P25186**	*601P29186*
	11/16"	20.15	19.2		**601P25192**	*601P29192*
18		20.77	19.8		**601P25198**	*601P29198*
19	3/4"	21.93	21		**601P25210**	**601P29210**
20		23.08	22.1			**601P29221**
	13/16"	23.81	22.8			**601P29228**
21		24.24	23.2			**601P29232**
22		25.39	24.4			**601P29244**
	7/8"	25.65	24.7			**601P29247**
23		26.54	25.5			
	15/16"	27.48	26.5			
24		27.7	26.7			
	31/32"	28.41	27.3			
25		28.85	27.9			
	1"	29.31	28.3			
26		30	29			
	1" 1/16	31.14	30.2			
28		32.31	31.3			
	1" 1/8	33	32			

S		E E=Sx1.154	øA +0.1 0	øF 20 G6	øF 20 G6	øF 20 G6
mm	*inches*	*mm*	*mm*	**øD 32**	**øD 36**	**øD 40**
	1/2"	14.65	13.7			
13		15	14			
14		16.16	15.2			
	9/16"	16.49	15.5			
15		17.31	16.3			
	5/8"	18.32	17.3			
16		18.46	17.5			
17		19.62	18.6			
	11/16"	20.15	19.2			
18		20.77	19.8			
19	3/4"	21.93	21			
20		23.08	22.1	*601P32221*		
	13/16"	23.81	22.8			
21		24.24	23.2	*601P32232*	*601P36232*	
22		25.39	24.4	**601P32244**	*601P36244*	
	7/8"	25.65	24.7	**601P32247**		
23		26.54	25.5	**601P32255**		
	15/16"	27.48	26.5	**601P32265**	*601P36265*	
24		27.7	26.7	**601P32267**	*601P36267*	
	31/32"	28.41	27.3	**601P32273**		
25		28.85	27.9	**601P32279**	**601P36279**	
	1"	29.31	28.3		**601P36283**	
26		30	29		**601P36290**	
	1" 1/16	31.14	30.2		**601P36302**	**601P40302**
28		32.31	31.3		**601P36313**	
	1" 1//8	33	32		**601P36320**	

11.4 COLLETS FOR TUBES 603P

COLLETS FOR TUBES - Table

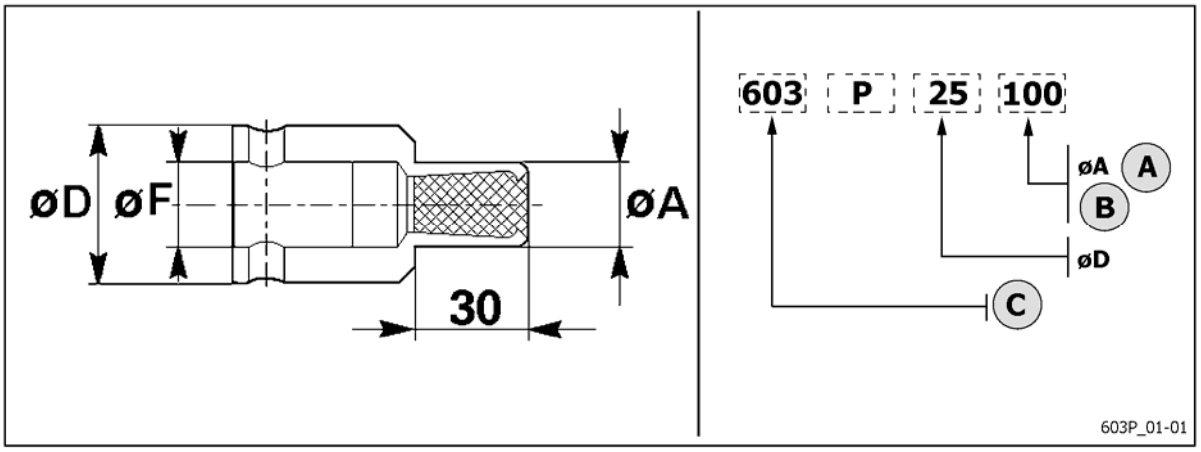
CAUTION:

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

INFORMATION:

The 603P collets..... fitted with a Schlenker coupling, allowing the assembly on the rotating unit, are designed with an oversized length. Therefore, the 1st feeding value of the bar pusher carriage shall be increased of 7,5 mm. with respect to the standard value.

Code structure



A Bar diameter
B Example:
5 mm = 060
10 mm = 100
12.5 mm = 125
C Family to which it belongs

øA		øF ø8 G6	øF ø11 G6	øF ø11 G6	øF ø14 G6	øF ø20 G6	øF ø20 G6	
mm	*inches*	**øD 12**	**øD 15**	**øD 18**	**øD 20**	**øD 25**	**øD 27**	
5		**603P12050**	**603P15050**					
5.5		**603P12055**	**603P15055**					
6	15/64”	**603P12060**	**603P15060**		**603P20060**			
6.5		**603P12065**	**603P15065**		**603P20065**			
7		**603P12070**	**603P15070**		**603P20070**			
7.5		**603P12075**	**603P15075**		**603P20075**			
8	5/16”	**603P12080**	**603P15080**		**603P20080**			
8.5		**603P12085**	**603P15085**		**603P20085**			
9		**603P12090**	**603P15090**		**603P20090**			
9.5		**603P12095**	**603P15095**		**603P20095**			
10	25/64”		**603P15100**	**603P18100**	**603P20100**	**603P25100**		
10.5			**603P15105**		**603P20105**	**603P25105**		
11			**603P15110**		**603P20110**	**603P25110**		

øA		øF ø8 G6	øF ø11 G6	øF ø14 G6	øF ø20 G6	øF ø20 G6	øF ø20 G6	øF ø20 G6
mm	*inches*	**øD 12**	**øD 15-16**	**øD 20**	**øD 25**	**øD 27**	**øD 32**	**øD 35**
11.5			**603P15115**	**603P20115**	**603P25115**			
12			**603P15120**	**603P20120**	**603P25120**			
12.5	31/64”		**603P15125**	**603P20125**	**603P25125**			
13			**603P15130**	**603P20130**	**603P25130**			
13.5			**603P16135**	**603P20135**	**603P25135**			
14			**603P16140**	**603P20140**	**603P25140**			
14.5				**603P20145**	**603P25145**			
15				**603P20150**	**603P25150**		**603P32150**	
15.5				**603P20155**	**603P25155**			
16	5/8”			**603P20160**	**603P25160**		**603P32160**	
16.5				**603P20165**	**603P25165**		**603P32165**	
17				**603P20170**	**603P25170**		**603P32170**	
17.5	11/16”			**603P20175**	**603P25175**		**603P32175**	
18	45/64”			**603P20180**	**603P25180**		**603P32180**	
18.5					**603P25185**		**603P32185**	
19	3/4”				**603P25190**		**603P32190**	
19.5					**603P25195**		**603P32195**	
20					**603P25200**		**603P32200**	
20.5					**603P25205**		**603P32205**	
21					**603P25210**		**603P32210**	
21.5					*603P25215*	**603P27215**	**603P32215**	
22					*603P25220*	**603P27220**	**603P32220**	
22.5					*603P25225*	**603P27225**	**603P32225**	

øA		øF ø20 G6	øF ø20 G6	øF ø20 G6	øF ø20 G6	øF ø20 G6	øF ø20 G6	øF ø20 G6
mm	*inches*	**øD 25**	**øD 27**	**øD 29**	**øD 32**	**øD 35**	**øD 42**	**øD 49**
23		*603P25230*	**603P27230**		**603P32230**	**603P35230**	**603P42230**	
23.5			**603P27235**		**603P32235**			
24			**603P27240**		**603P32240**	**603P35240**	**603P42240**	
24.5			**603P27245**		**603P32245**		**603P42245**	
25			**603P27250**		**603P32250**		**603P42250**	
25.5	1”			**603P29255**	**603P32255**			
26				**603P29260**	**603P32260**		**603P42260**	
26.5				**603P29265**	**603P32265**			
27				**603P29270**	**603P32270**		**603P42270**	
27.5					**603P32275**			
28					**603P32280**		**603P42280**	
28.5	1”1/8				**603P32285**			
29					*603P32290*	**603P35290**	**403P42290**	
29.5					*603P32295*			
30					*603P32300*	**603P35300**	**603P42300**	**603P49300**
30.5								**603P49305**
31						**603P35310**	**603P42310**	**603P49310**
31.5								**603P49315**
32						**603P35320**	**603P42320**	**603P49320**
32.5								**603P49325**
33						**603P35330**	**603P42330**	**603P49330**
33.5								**603P49335**

øA		øF ø20 G6	øF ø20 G6	øF ø20 G6	øF ø20 G6		
mm	*inches*	**øD 40**	**øD 42**	**øD 44-45**	**øD 49**		
34		**603P40340**	**603P42340**		**603P49340**		
34.5					**603P49345**		
35	1”3/8	**603P40350**	**603P42350**		**603P49350**		
35.5					**603P49355**		
36		**603P40360**	**603P42360**		**603P49360**		
36.5					**603P49365**		
37		**603P40370**	**603P42370**		**603P49370**		
37.5					**603P49375**		
38	1”1/2		**603P42380**		**603P49380**		
38.5					**603P49385**		
39			**603P42390**		**603P49390**		
39.5				**603P44395**	**603P49395**		
40			*603P42400*	**603P44400**	**603P49400**		
40.5				**603P44405**	**603P49405**		
41				**603P44410**	**603P49410**		
41.5				**603P44415**	**603P49415**		
42				**603P45420**	**603P49420**		
42.5				**603P45425**	**603P49425**		
43	1”11/16				**603P49430**		
43.5					**603P49435**		
44					**603P49440**		
44.5	1”3/4				**603P49445**		
45					**603P49450**		

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12.1 LIST OF AFTER-SALES CENTERS

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CZECH REPUBLIC - SLOVAK REPUBLIC		
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GERMANY *(South)*		
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ITALY		
IEMCA S.p.A.	Via Granarolo, 167 I-48018 Faenza (RA)	Phone 0546 / 698208 Telefax 0546 / 698290 Email : iemca@igmi.it Website: www.iemca.com
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Bucci Industries USA Inc.	9332 Forsyth Park Drive Charlotte NC 28273 - USA	Phone ++1 704 583 8341 Telefax ++1 704 583 8486 E-mail: info@bucci-industries.us