PIPE EQUIPMENT SPECIALISTS

SPLIT FRAME CLAMSHELL COLD CUTTING AND BEVELLING MACHINES TSFC6 - TSFC24 MANUAL

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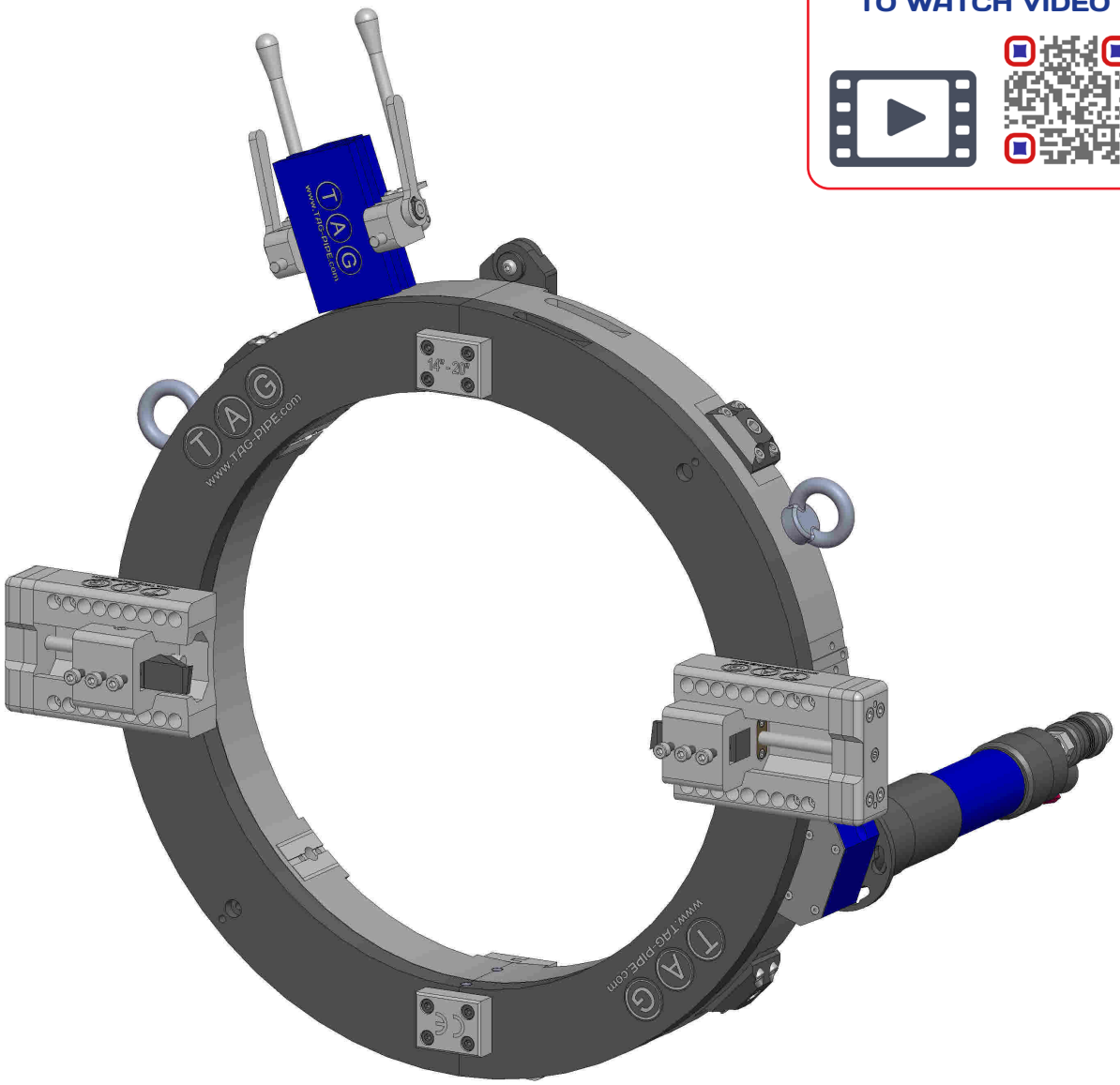


PART OF SFE SPECIALIZED FABRICATION EQUIPMENT GROUP

SPECIALIZED FABRICATION EQUIPMENT GROUP

Introduction to S.F.E. Group

S.F.E. Group was founded in 2019 after the merger of three world leading OEM's in the field of pipe fabrication tooling and machinery: B&B Pipe and Industrial Tools LLC (USA), Mathey Dearman Inc. (USA) and TAG Pipe Equipment Specialists (UK). Most recently the S.F.E Group has completed the acquisition of the AXXAIR Group (France).

S.F.E. Group offers a wide range of products and is continuously exploring new product design and development, as well as add-on acquisitions to enhance its portfolio and to fulfil increasing industries' demands.

With offices and warehousing on 4 continents, 120 employees and more than 250 partnerships and distributors worldwide, S.F.E. Group prides itself in consistently offering the highest standard of both product quality and service to all its customers.

S.F.E. Group looks forward to welcoming you into its global network as a partner, distributor or end user customer and remains at your disposal at any time.

UNITED STATES HEAD OFFICE - HOUSTON

INTERNATIONAL HEAD OFFICE - FRANCE

OUR BRANDS

SPECIALIZED FABRICATION EQUIPMENT
GROUP

S.F.E. GROUP – INTERNATIONAL TERMS AND CONDITIONS

S.F.E. GROUP - INTERNATIONAL HEREINAFTER REFERRED TO AS S.F.E. GROUP

CONDITIONS OF SALE (MARCH 2022)

These conditions of sale override any clauses in buyers' purchase orders and in any other communications if in conflict therewith.

PRICES - All prices are quoted ex-works, **S.F.E. Group** reserves the right to alter the prices of the terms offered to any buyer without notice. Prices and terms shall be those ruling at the date of despatch. All prices quoted are ex-works S.F.E. Group **UK** (unless stated otherwise).

MINIMUM ORDER CHARGE - There is a minimum order charge of **£250.00 / €275.00 / $300.00**

CARRIAGE & PACKING - The Company reserves the right as part of this contract to impose such surcharge or carriage charge as shall be laid down by the Company policy at any time. The Company has sole choice of method of delivery and of carrier employed unless specifically agreed in writing to the contrary.

PAYMENT TERMS - The Company's standard terms of payment are nett cash 30 days. New customers will be subject to proforma payment. Overdue invoices may be subject to interest charge at 5% above Barclays Bank plc base lending rate.

DELIVERY - Time for delivery is given as accurately as possible. The customer shall have no right to damages or to cancel the order for failure for any cause to meet any delivery time stated. All dispatch times quoted are subject to prior sales.

DAMAGE/LOSS IN TRANSIT - (1) The Company accepts no liability for any damage to goods in transit unless notified to the Company and the carrier concerned within five days after delivery. (2) In the case of non-delivery the Company accepts no liability of any sort unless written notice of non-delivery is given to the Company within twelve days after the date of the advice of despatch. (3) The Company's liability for damage in transit or non-delivery of goods duly notified to it in accordance with the above, shall in any event be limited solely to replacement of the goods within a reasonable time, whether non-delivery or damage is due to the Company's negligence or otherwise.

RETENTION OF TITLE - (1) Until **S.F.E. Group** has been paid in full for the goods comprised in this or any other contract between them, the goods comprised in the contract remain the property of **S.F.E. Group** although the risk passes to the buyer at the point of delivery in the contract. (2) If the buyer fails to pay for the goods on the due date or commits any act of bankruptcy or if any resolution of petition to wind-up the buyer's business shall be passed (other than for the purposes of amalgamation or reconstruction) or if a receiver of the buyer's undertakings is appointed **S.F.E. Group** may recover possession of the goods at any time from the buyer and for that purpose **S.F.E. Group**, our servants or agents may enter upon any land or building upon which the goods are situated. (3) The buyer has a right to dispose of the goods in the course of his business for the account of **S.F.E. Group** and to pass good title to the goods to his customer being a bona fide purchaser for value without notice of **S.F.E. Group** rights. In the event of such disposal the buyer has the fiduciary duty to **S.F.E. Group** to account to **S.F.E. Group** for the proceeds (which shall be kept separate and identifiable from the buyer's own monies) but may retain therefrom an excess of such proceeds over the amount outstanding under this or any sale contract between them.

GUARANTEE - S.F.E. Group agrees to replace or repair at its option goods or parts manufactured by **S.F.E. Group** and proved to be defective due to faulty workmanship within a period of 12 months from the date of invoice (fair wear and tear or damage due to misuse of faulty operation excepted). The Warranty contained in the previous paragraph does not extend to any equipment not manufactured by **S.F.E. Group**, although supplied by **S.F.E. Group**, nor does it extend to any second hand or reconditioned goods. Equipment not manufactured by **S.F.E. Group** carry only the Warranty (if any) of their makers and the purchaser is entitled to the benefit thereof only so far as **S.F.E. Group** have the power to transfer it.

LIABILITY - (1) The Buyer agrees that apart from the express terms contained herein or in the quotation or in any document expressly stipulated therein to form part of the contract and to be outside the provisions of this clause no statement or representation has been made by **S.F.E. Group** relating to the goods supplied, or if any such statement of representation has been made the buyer warrants that he understood it to be a statement of opinion only, and did not rely on. (2) No liability is accepted for any direct or indirect costs, damages or expenses relating to damage to property or injury or loss of any person, firm or company or for any loss of profits or production arising out of or occasioned by any defect in or failure of goods or materials or parts thereof supplied by **S.F.E. Group**. (3) **S.F.E. Group's** liability, whether in respect of one claim or in the aggregate, arising out of any contract shall not exceed the purchase price payable under contract.

DATA - Illustrations, weights, measures, specifications and performance schedules set out in the sales literature of **S.F.E. Group** are statements of opinion and are provided for information only and form no part of the contract.

CANCELLATION - Cancellation of an order will not normally be accepted by **S.F.E. Group**. However **S.F.E. Group** may at its discretion agree to cancellation on the strict condition that all costs and expenses incurred by **S.F.E. Group** up to the time of cancellation and all loss of profits and other loss or damage resulting to **S.F.E. Group** by reason of such cancellation will be reimbursed by the customer to **S.F.E. Group** forthwith.

RETURN OF GOODS - Goods supplied in accordance with the buyer's order may later be returned to **S.F.E. Group** only with **S.F.E. Group's** permission in writing. For standard stock items the buyer will be required to pay to **S.F.E. Group** a handling charge of 15% of the list price of such returned goods. In the case of special items the handling charge will depend on the value to **S.F.E. Group** of the returned goods.

HIRE - For hire terms see hire agreement

CONTRACT LAW - This contract will be deemed to be the subject of the law of England.

PIPE EQUIPMENT SPECIALISTS LTD

Table of Contents

1 - PREFACE

This manual provides the essential information and step-by-step guidance to the principle, configuration, installation and usage of the TAG PIPE EQUIPMENT SPECIALISTS LTD's Split Frame Clamshell Machine (in short: TAG Pipe and TSFC).

The TAG Pipe TSFC is a high-tech portable outside diameter locking cold pipe cutting and bevelling machine. The basic functions of the TSFC is the cutting, facing, external bevelling, internal bevelling and counterboring of pipes within the selected model's working range (outside diameter). The TSFC can be used on any type of steel and exotic alloys.

The TSFC model is available with the following motorizations: pneumatic, hydraulic and servo electric motor. The TSFC range configuration is flexible due to its modular character: components (e.g. ring, toolbox, striker block, et cetera) and motors can be (within their limitations) exchanged, upgraded and replaced. The TSFC model accepts a wide range of accessories and cutting and beveling tooling to increase its performance and expand its machining capacities.

Please read the instruction manual carefully before using the equipment.

NOTE
In the event of queries on installation, commissioning, operation or special conditions at the operation's site, or on usage, please contact your nearest TAG Pipe partner or our customer service department on **+44 (0)1869 324 144**, or via e-mail: **sales@tag-pipe.com**.

DISCLAIMER
TAG PIPE's liability related to the operation of the TSFC is restricted solely to the function of the equipment. No other form of liability, regardless of type, shall be accepted. This exclusion of liability shall be deemed accepted by the user on commissioning of the equipment. TAG PIPE is unable to monitor whether or not the instructions in this manual or the conditions and methods are observed during installation, operation, usage and maintenance of the TSFC. An incorrectly performed installation can result in material damage and injure persons as a result. For this reason, TAG PIPE does not accept any responsibility or liability of losses, damages or costs arising from incorrect installation, improper operation or incorrect usage and maintenance or any actions connected to this in any way possible.

2 - SAFETY INSTRUCTIONS

⚠ **WARNING** - TAG Pipe takes great pride in manufacturing safe, quality products with user safety as key priority. TAG Pipe recommends that all users comply with the following safety rules and instructions when operation the TSFC.

For your safety and the safety of others, read and understand these safety recommendations before installing and operating the TSFC. Keep this manual at all time clean and stored safely, accessible for any operator's reference at any time.

The TSFC is a high-tech portable inside diameter locking cold pipe bevelling machine. The basic functions of the TSFC are the facing, external bevelling, internal bevelling and counterboring of pipes within the selected model's working range (inside diameter). The TSFC can be used on any type of steel and exotic alloys. The TSFC can be used on site or in a workshop environment. At all time it is the operator's responsibility to be aware of and adhere to the local applicable rules and legislation related to the operation of the equipment.

Wrong use or abuse of the TSFC can lead to lethal accident and/or material damage (not limited to the equipment itself) and the environment.

The TSFC should be operated at all time by a qualified operator, who has received adequate training on the equipment. Throughout the operation the operator must be familiar with:

- The controls of the equipment.
- The operation of the equipment.
- General and local safety regulations.
- The technical, physical and practical limitations of the equipment.

GENERAL SAFETY INSTRUCTIONS

- Keep working space clean.
- Assess the working conditions properly prior to using the equipment.
- The operator should wear appropriate personal protective equipment when operating the equipment.
- When operating any heavy equipment, it is imperative that the operator is careful and observant of all moving components.
- Keep away from rotating parts during operation of the equipment.
- The operator should be physically and mentally capable of operating the equipment. In case of illness, tiredness or any medical or mental condition limiting the correct and safe operation of the equipment, the operator should be prohibited to conduct any work with the equipment.
- Make sure the grounding is connected properly and electrical cabinets are closed.
- Don't operate the electric switch, or button, or cables with wet hands, for fear of electrical shock. Protect the body from injury due to electric shock by avoiding touching any electrical parts when under power.
- Use only the foreseen earth connection. Do not ground to this equipment as it is possible to short-circuit the motor and/or control box when grounding to this equipment. Improper grounding poses a risk of electrical shock.
- Make sure power supply is disconnected when not operating or executing maintenance on the equipment.
- Do not make any modifications to existing or original electrical circuits, cabinets, safety stops and other related original components.
- Do not operate the equipment before closing all covers of the equipment. Great danger exists in naked terminals of power supply.
- Make sure all power cables are in good condition. In case of wear or damage, replace immediately.
- Don't pull the equipment by its cable(s) and don't disconnect the power cable from the equipment to cut off power. The cable(s) should be kept away from heat, power, oil, dirt and sharp-pointed tools or debris. Check the cable(s) before, during and after every operation.
- Protect yourself from toxic fumes that may be produced during welding operations. Make sure there is appropriate ventilation and/or fume extraction in the working area.
- Wear impact resistant eye and ear protection while operation the equipment. If there is a lot of dust or fumes, wear dust-proof respirator or mask.
- Make sure all of equipment's safety measures, covers and other devices are normal condition and checked.

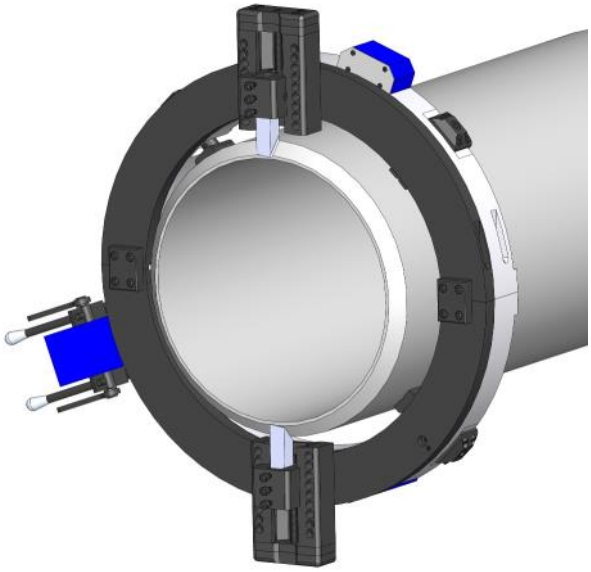
SPECIFIC INSTRUCTIONS

- Use solely original TAG Pipe components, accessories, tooling and (spare) parts.
- The equipment should only be used for its intended purpose.
- Considering the working environment of operation, don't get the equipment unnecessarily wet and don't use the equipment in overly humid conditions. Ensure the machine has the best possible conditions for operation.
- Do not remove or modify any component or part from the original PREP.
- Maintain the equipment regularly. In order to maintain the performance of the machine, keep it clean at all times and add oil lubricant and replace (spare) parts as per periodic recommendations.
- Prior to conducting any maintenance or change of accessories, (spare) parts or tooling, ensure that the power plug or air supply has been disconnected. The machine should not be 'powered' or in 'running mode'.
- When the power supply is connected, consider the machine in 'running mode'. Don't put hands on or near the switch.
- Before using the TSFC make sure to inspect the machine on its completeness of all components, proper installation and general condition. In case of any sign of damage, wear or tear replace the affected components or parts prior to using the machine.
- Store and transport the equipment in the designated boxes in order to protect it from damage or deterioration due to environmental conditions.
- The TSFC shall only be serviced and repaired by TAG Pipe or an authorized TAG Pipe partner.
- Follow carefully the instructions and technical specification related to the motorization of the TSFC (voltage input, air pressure, quality of compressed air supply et cetera).
- Check the handle and safety pedal regularly (applied only to pneumatic motorized machines).

3. Machine working principle

The TAG PIPE TSFC is a high-tech portable outside diameter locking cold pipe cutting and beveling machine. The basic functions of the TSFC is the cutting, facing, external beveling, internal beveling and counterboring of pipes within the selected model's working range (outside diameter). The TSFC can be used on any type of steel and exotic alloys. The TSFC can be used on site or in a workshop environment.

The TSFC model is available with the following motorizations: pneumatic, hydraulic and servo electric motor. The TSFC range configuration is flexible due to its modular character: components (e.g. ring, toolbox, striker block, et cetera) and motors can be (within their limitations) exchanged, upgraded and replaced. The TSFC model accepts a wide range of accessories and cutting and beveling tooling to increase its performance and expand its machining capacities.



The TSFC is essentially a portable lathe offering the versality to perform various applications. The TSFC consists of a lightweight aluminum body (ring), encasing a steel inner ring running on solid adjustable heavy-duty bearings.

The ring is mounted onto the pipe using wide, hardened clamping feet (adjustable via flush hex head through the outer / stationary ring), with easy read rule marking, enabling rapid and repeatable concentric set up, even on out of round pipes and joints.

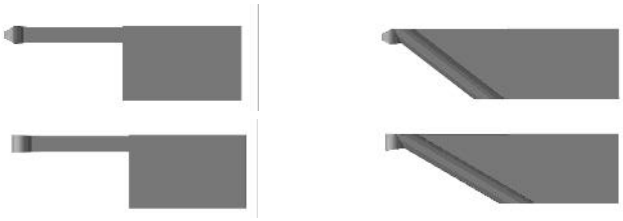
On the front ring – driven by the different motorization types – there are two toolboxes mounted. The toolboxes are available in various configurations (heavy-duty toolbox / spring loaded toolbox / counterbore slide toolbox) to accept the full range of TSFC tooling.

Standard heavy-duty toolbox

Spring loaded outside diameter tracking toolbox

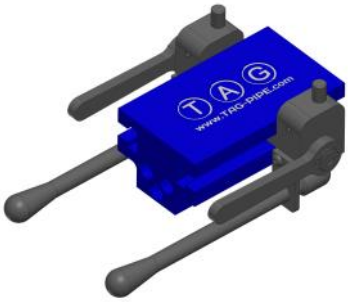
Counter bore slide toolbox

TAG PIPE's TSFC's HSSCO (high speed steel with cobalt) range of tooling includes cutting, facing, bevel, double-bevel, compound bevel and counter bore tools. TAG tooling is available in a range of different lengths and sizes in order to match precisely the required application. TAG PIPE also offers custom designed tooling, special tool steel, coatings, and inserts for applications not covered by the standard range of tooling.



During operation the toolboxes are fed by the striker block mounted on the stationary part of the ring. Using TSFC's unique high precision transmission toolboxes with changeable gears for radial tool feeding, allows the operator to achieve a consistent performance and high-quality result of his cutting and beveling applications.

Stricker block

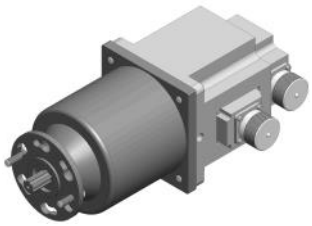


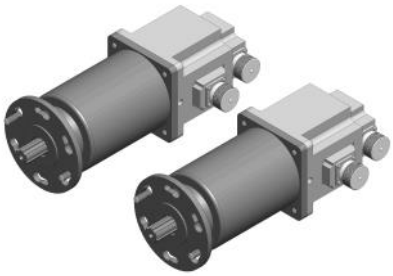
The TAG PIPE TSFC models are modular in the sense that any of the following motor types can be mounted on the TSFC ring. This increases the overall user friendliness and flexibility. The motors can be installed and / or exchanged rapidly on the same motor mounting.

TAG PIPE TSFC can be equipped with the following motor types:

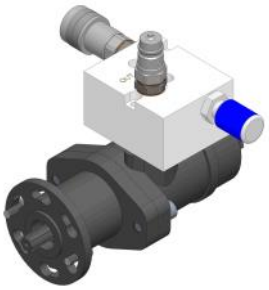
Pneumatic motor

Electric motor





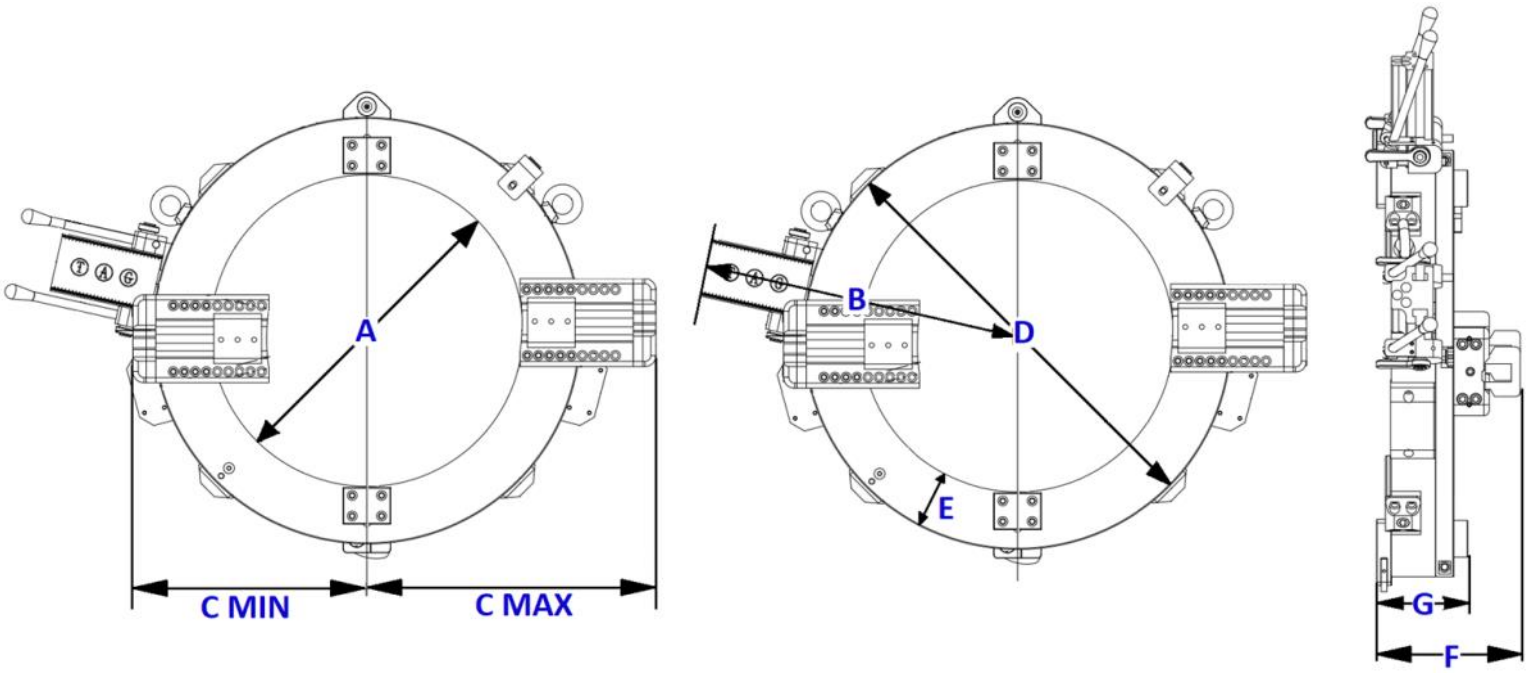
Hydraulic motor

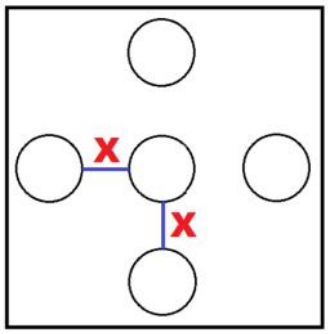


4. Machine technical data

The TAG PIPE TSFC models cover a range from 1" (25.4 mm) to 48" (1219.2 mm) (outside diameter). Every standard model covers a 6" (15.24 mm) range. Larger models are available upon request.

The below diagram and charts illustrate the TSFC's working range and dimensional specifications.





PIPE EQUIPMENT SPECIALISTS LTD

RING DIMENSIONS								
		TSFC6	TSCF8	TSCF12	TSCF16	TSCF18	TSCF20	TSCF24
O/D RANGE	INCH	1"-6"	2"-8"	6"-12"	10"-16"	12"-18"	14"-20"	18"-24"
A	mm	184.00	235.00	350.00	425.00	477.00	528.00	640.00
B	mm	283.00	308.50	396.00	433.50	459.50	485.00	541.00
C MIN	mm	187.00	212.50	270.00	307.50	333.50	359.00	415.00
C MAX	mm	197.00	222.50	356.00	393.50	419.50	445.00	501.00
D	mm	340.00	391.00	506.00	581.00	633.00	684.00	796.00
E	mm	78.00	78.00	78.00	78.00	78.00	78.00	78.00
F	mm	195.50	195.50	195.50	195.50	195.50	195.50	195.50
G	mm	124.00	124.00	124.00	124.00	124.00	124.00	124.00
X	mm	130.00	130.00	210.00	210.00	210.00	210.00	210.00

Low clearence options or Custom machines available on request should you have access restrictions

Clearence **F** ring only	195.50	THE SAME FOR ALL RINGS TSFC6 - TSFC24
Clearence **F** Pneumatic Motor	535.50	
Clearence **F** Servo Motor	525.50	
Clearence **F** Hydraulic Motor	425.00	

Right Angle drive Motors are available on Request (extra at cost)

SPLIT FRAME PARTS WEIGHTS								
RING Weight	KG	22.75	32.00	45.60	53.30	57.80	62.50	76.45
TOOL BOX Weight (pair)	KG	12.60	12.60	14.20	14.20	14.20	14.20	14.20
DOUBLE STRIKER	KG	2.50	2.50	2.70	2.70	2.70	2.70	2.70
PNEUMATIC MOTOR	KG	5.90	5.90	5.90	5.90	5.90	5.90	5.90
SERVO MOTOR & GEARBOX	KG	28.00	28.00	28.00	28.00	28.00	28.00	28.00
SINGLE NC CONTROL BOX 1 MOTOR DRIVE & CABLES	KG	NA	NA	55.20	55.20	55.20	55.20	55.20
DOUBLE NC CONTROL BOX 2 MOTOR DRIVE & CABLES	KG	8.40	8.40	8.40	8.40	8.40	8.40	8.40
HYDRAULIC MOTOR	KG	12.15	12.15	17.85	13.15	15.50	18.10	18.10
HAND TOOLS + SHIMMS	KG	3.25	3.25	3.25	3.25	3.25	3.25	3.25
FILTER LUBRICATOR & HOSE	KG	5.65	5.65	5.65	5.65	5.65	5.65	5.65
WOODEN BOX	KG	23.00	23.00	28.00	31.00	33.00	35.00	42.00

TAG SPLIT FRAME CLAMSHELL (TSFC) INTERCHANGEABILITY			
MODEL		TSFC6	TSCF8
RANGE		1-6"	2-8"
TOOLBOX	mm	7 HOLE	7 HOLE
TOOLBOX MOUNT HOLE POSITION	mm	90mm	90mm
DOUBLE STRIKER	mm	114mm 3 hole	114mm 3 hole
SPLINE DRIVE SIZE	mm	16mm	16mm
FLANGE SIZE	mm	100mm	100mm
GEARBOX		8:1 RATIO	8:1 RATIO
MOTOR MOUNT POSITIONS		1	1
LOCKING JAW	mm	INTERNAL STYLE	INTERNAL STYLE
LOCKING FEET		4	4
BEARING		SMALL	SMALL

TAG SPLIT FRAME CLAMSHELL (TSFC) INTERCHANGEABILITY						
MODEL		TSFC12	TSCF16	TSFC18	TSFC20	TSFC24
RANGE		6-12"	10-16"	12-18"	14-20"	18-24"
TOOLBOX	mm	9 HOLE	9 HOLE	9 HOLE	9 HOLE	9 HOLE
TOOLBOX MOUNT HOLE POSITION	mm	90mm	90mm	90mm	90mm	90mm
DOUBLE STRIKER	mm	140mm 3 hole	140mm 3 hole	140mm 3 hole	140mm 3 hole	140mm 3 hole
SPLINE DRIVE SIZE	mm	16mm	16mm	16mm	16mm	16mm
FLANGE SIZE	mm	100mm	100mm	100mm	100mm	100mm
GEARBOX		8:1 RATIO	8:1 RATIO	8:1 RATIO	8:1 RATIO	8:1 RATIO
MOTOR MOUNT POSITIONS		1	2	2	2	2
LOCKING JAW	mm	INTERNAL STYLE	INTERNAL STYLE	INTERNAL STYLE	INTERNAL STYLE	INTERNAL STYLE
LOCKING FEET		4	4	4	4	4
BEARING		SMALL	SMALL	SMALL	SMALL	SMALL

Pneumatic motor

TAG PIPE pneumatic motor has the following characteristics:

- Power: 1.5 kW
- Air working pressure: 0.6 – 0.7 Mpa / 6 – 7 Bar
- Air consuming flux: 1500 – 3000 L / min.

TAG PIPE offers the pneumatic motor in combination with the TAG Air Filter Lubricator (2 models), mandatory to obtain and guarantee clean air influx. TAG PIPE does not supply air compressors.

On TSFC models 10-16" upwards there is the possibility to mount two pneumatic motors. When choosing this option, the operator must be using a Y-split air supply hose to feed both motors simultaneously.

TAG SPLIT FRAME PNEUMATIC POWER SINGLE MOTOR 16mm Spline							
	TSFC6	TSFC8	TSFC12	TSFC16	TSFC18	TSFC20	TSC24
POWER (HP)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
TORQUE (NM)	2500	2500	2500	2500	2500	2500	2500
RPM (Not under load)	35	30	27	24	20	19	18
Air Consumption LPM	1500	1500	1500	1500	1500	1500	1500
Air Working Pressure PSI/BAR	90 / 6.5	90 / 6.5	90 / 6.5	90 / 6.5	90 / 6.5	90 / 6.5	90 / 6.5
Air Hose Connection	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"

TAG SPLIT FRAME PNEUMATIC POWER DOUBLE MOTOR 16mm Spline							
	TSFC6	TSFC8	TSFC12	TSFC16	TSFC18	TSFC20	TSC24
POWER (HP)	Single Motor Only Available			4.0	4.0	4.0	4.0
TORQUE (NM)				5000	5000	5000	5000
RPM (Not under load)				24	20	19	18
Air Consumption LPM				3000	3000	3000	3000
Air Working Pressure PSI/BAR				90 / 6.5	90 / 6.5	90 / 6.5	90 / 6.5
Air Hose Connection				3/4"	3/4"	3/4"	3/4"

Servo electric motor

TAG PIPE servo electric motor has the following characteristics:

- Voltage: 110 / 220 V
- Power: 1.5 kW
- Output Torque: 7.16 Nm
- Output Rpm: 2000
- Rate frequency 50-60 Hz

TAG PIPE servo motor comes with a touch screen based equipped control box (containing the PLC) and a remote-control device. On TSFC models 10-16" upwards there is the possibility to mount two servo electric motors. There are two different control boxes: one for single servo electric motor operation and one for double servo electric motor operation. The latter also allows to run one single servo electric motor.

Hydraulic motor

TAG PIPE hydraulic motor has the following characteristics:

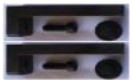
Geometric displacement	cm^3		194.6
	$[in^3]$		[11.91]
Max. speed	min^{-1} [rpm]	cont.	295
		int.*	365
Max. torque	Nm [lbf-in]	cont.	290 [2565]
		int.*	370 [3275]
Max. output	kW [hp]	cont.	8 [10.7]
		int.*	11 [14.8]
Max. pressure drop	bar [psi]	cont.	115 [1670]
		int.*	130 [2180]
Max. oil flow	l/min [US gal/ min]	cont.	60 [15.9]
		int.*	75 [19.8]
Max. starting pressure with unloaded shaft	bar [psi]		7 [100]
Min starting torque	at max. Press-drop Nm [lbf-in]	cont.	250 [2210]
		int.*	340 [3010]

TAG PIPE also offers a hydraulic power pack. Below the technical characteristics are shown.

5. Items standard to the TSFC package

Prior to installing the TSFC, make sure that all required parts, components and tooling are available. The following items belong standard to the TSFC package.

TAG SPLIT FRAME ITEMS INCLUDED TSFC6 to TSFC24

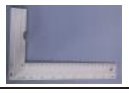
TEMS	PICTURES	DESCRIPTION	QTY	SINGLE SERVO TSFC...SE	DOUBLE SERVO TSFC...DSE	PNEUMATIC TSFC...P	HYDRAULIC TSFC...H	RING ONLY TSFC...R
1		MACHINE WOODEN BOX	1	✓	✓	✓	✓	✓
2		MACHINE ALUMINIUM AND STEEL RING WITH 1 DRIVE BLOCK MOUNTED TO MACHINE	1	✓	✓	✓	✓	✓
3		2ND SMALL DRIVE BLOCK MOUNTED TO MACHINE	1	✗	✓	✗	✗	✗
4		STANDARD TOOL BOX (PAIR) with 6offM8x40mm Bolt to hold toolbox onto ring 4off M8x25mm Bolt for tool Holder	1	✓	✓	✓	✓	✗
5		DOUBLE STRIKER with 3off M8x50mm Bolts to secure onto ring	1	✓	✓	✓	✓	✗
6		LOCKING PIN with Bolts 2off M8x25mm (FITTED TO RING	1	✓	✓	✓	✓	✓
7		LOCKING JAW METAL BOX (BELOW ITEMS 7,8 INSIDE)	1	✓	✓	✓	✓	✓
8		SET OF LOCKING JAWS: 4x SIZE #1, 4x SIZE #2, 4x SIZE #3, 4x SIZE #4, 4x SIZE #5, WITH BOLTS 8off M8X15mm 8off M8x25mm	1	✓	✓	✓	✓	✓
9		SET OF PACKERS 2x15mm, 2x10mm, 2x5mm, 2x2mm, 2x1mm,2x0.5mm	1	✓	✓	✓	✓	✓
10		PNEUMATIC MOTOR SMALL 2xM8X20mm Bolts	1	✗	✗	✓	✗	✗

PIPE EQUIPMENT SPECIALISTS LTD

TAG SPLIT FRAME ITEMS INCLUDED TSFC6 to TSFC24

TEMS	PICTURES	DESCRIPTION	QTY	SINGLE SERVO TSFC...SE	DOUBLE SERVO TSFC...DSE	PNEUMATIC TSFC...P	HYDRAULIC TSFC...H	RING ONLY TSFC...R
11		HYDRAULIC MOTOR SMALL 2xM8X20mm Bolts	1	✗	✗	✗	✓	✗
12		SINGLE SERVO CONTROL BOX	1	✓	✗	✗	✗	✗
13		DOUBLE SERVO CONTROL BOX	1	✗	✓	✗	✗	✗
14		SINGLE SERVO CONTROL BOX TO MOTOR CONNECTING ELECTRICAL CABLES	1	✓	✗	✗	✗	✗
15		DOUBLE SERVO CONTROL BOX TO MOTOR CONNECTING ELECTRICAL CABLES	1	✗	✓	✗	✗	✗
16		SINGLE SERVO MOTOR & GEARBOX 8:1 RATIO 16mm WITH 2xM8X20mm Bolts	1	✓	✗	✗	✗	✗
17		DOUBLE SERVO MOTOR & GEAR-BOX 8:1 RATIO 16mm WITH 2xM8X20mm Bolts	1	✗	✓	✗	✗	✗
18		POWER CABLE	1	✓	✓	✗	✗	✗
19		REMOTE CONTROL	1	✓	✓	✗	✗	✗
20		HAND TOOLS PLASTIC BOX (BELOW ITEMS 21,22,23,24,25,26, 27 INSIDE)	1	✓	✓	✓	✓	✓
21		SET OF ALLAN KEYS	1	✓	✓	✓	✓	✓
22		6mm T HANDLE ALLAN KEY	1	✓	✓	✓	✓	✓
23		10mm T HANDLE ALLAN KEY	1	✓	✓	✓	✓	✓

PIPE EQUIPMENT SPECIALISTS LTD

TAG SPLIT FRAME ITEMS INCLUDED TSFC6 to TSFC24								
TEMS	**PICTURES**	**DESCRIPTION**	**QTY**	**SINGLE SERVO TSFC...SE**	**DOUBLE SERVO TSFC...DSE**	**PNEUMATIC TSFC...P**	**HYDRAULIC TSFC...H**	**RING ONLY TSFC...R**
24		SET SQUARE	1	✓	✓	✓	✓	✓
25		150mm METAL RULE	1	✓	✓	✓	✓	✓
26		RUBBER HAMMER	1	✓	✓	✓	✓	✓
27		THIN NOSE PLIERS	1	✓	✓	✓	✓	✓

6. TSFC Tools

TAG PIPE's TSFC's HSSCO range of tooling includes cutting, facing, bevel, double-bevel, compound bevel and counter bore tools. TAG tooling is available in a range of different lengths and sizes in order to match precisely the required application. TAG PIPE also offers custom designed tooling, special tool steel, coatings, and inserts for applications not covered by the standard range of tooling.

In the below chart the standard offered TSFC tools are listed.

PART CODE	PICTURES	DESCRIPTION
TSFCT401		TAG SPLIT FRAME CLAMSHELL CUTTING TOOL 1ST (MAX. 40mm THICKNESS)
TSFCT402		TAG SPLIT FRAME CLAMSHELL CUTTING TOOL 2ND (MAX. 40mm THICKNESS)
TSFCT601		TAG SPLIT FRAME CLAMSHELL CUTTING TOOL 1ST (MAX. 60mm THICKNESS)
TSFCT602		TAG SPLIT FRAME CLAMSHELL CUTTING TOOL 2ND (MAX. 60mm THICKNESS)
TSFCBT30401		TAG SPLIT FRAME CUTTING & BEVELLING TOOL 1ST 30 DEGREE (MAX. 40mm THICKNESS)
TSFCBT30402		TAG SPLIT FRAME CUTTING & BEVELLING TOOL 2ND 30 DEGREE (MAX. 40mm THICKNESS)
TSFCBT37401		TAG SPLIT FRAME CUTTING & BEVELLING TOOL 1ST 37.5 DEGREE (MAX. 40mm THICKNESS)
TSFCBT37402		TAG SPLIT FRAME CUTTING & BEVELLING TOOL 2ND 37.5 DEGREE (MAX. 40mm THICKNESS)

PART CODE	PICTURES	DESCRIPTION
TSFCBT3015602		TAG SPLIT FRAME CUTTING & BEVELLING TOOL 2nd COMPOUND BEVEL +15 deg (MAX 60MM THICKNESS)
TSFCBT3710602		TAG SPLIT FRAME CUTTING & BEVELLING TOOL 2nd COMPOUND BEVEL 37.5 + 10 DEGREE (MAX 60mm THICKNESS)
TSFCTH401		TAG SPLIT FRAME CUTTING TOOL INSERT HOLDER 1ST (MAX. 40mm THICKNESS)
TSFCTH402		TAG SPLIT FRAME CUTTING TOOL INSERT HOLDER 2ND (MAX. 40mm THICKNESS)
TSFCTI401TC		TAG SPLIT FRAME CUTTING TOOL INSERT TUNGSTEN CARBIDE 1ST (MAX. 40mm THICKNESS) (PACK OF 10)
TSFCTI402TC		TAG SPLIT FRAME CUTTING TOOL INSERT TUNGSTEN CARBIDE 2ND (MAX. 40mm THICKNESS) (PACK OF 10)
TSFCTI401HSS		TAG SPLIT FRAME CUTTING TOOL INSERT HIGH SPEED STEEL 1ST (MAX. 40mm THICKNESS) (PACK OF 10)
TSFCTI402HSS		TAG SPLIT FRAME CUTTING TOOL INSERT HIGH SPEED STEEL 2ND (MAX. 40mm THICKNESS) (PACK OF 10)

7. Machine setup and operation

7.1. TSFC locking jaws

Prior to mounting the TSFC it is important to measure the outside diameter (in short: O.D.) of the workpiece and to adapt the ring to this O.D. by using the locking jaws.

Every ring has a standard 6" working range and to cover this range every TSFC comes with a standard box of locking jaws that can be mounted on the ring.

Find on the chart the correspondent pipe O.D (outside diameter) according to the model splitframe in use.

LOCKING JAW CHART

MODEL: TSFC6 1"- 6"	
JAW NO:	SIZE RANGE O/D mm
NO EXTENSION JAW	145 – 185
1#	115 – 155
2#	85 – 125
3#	55 – 95
4#	25 – 65

LOCKING JAW CHART

MODEL: TSFC8 2"- 8"	
JAW NO:	SIZE RANGE O/D mm
NO EXTENSION JAW	230 – 208
1#	208 – 178
2#	178 – 148
3#	148 – 118
4#	118 – 88
5#	88 – 50

LOCKING JAW CHART

MODEL: TSFC12 6"- 12"	
JAW NO:	SIZE RANGE O/D mm
NO EXTENSION JAW	310 – 350
1#	280 – 320
2#	250 – 290
3#	220 – 260
4#	190 – 230
5#	160 – 200

LOCKING JAW CHART

MODEL: TSFC16 10"- 16"	
JAW NO:	SIZE RANGE O/D mm
NO EXTENSION JAW	385 – 425
1#	355 – 395
2#	325 – 365
3#	295 – 335
4#	265 – 305

LOCKING JAW CHART

MODEL: TSFC18 12"- 18"	
JAW NO:	SIZE RANGE O/D mm
NO EXTENSION JAW	477 – 437
1#	447 – 407
2#	417 – 377
3#	387 – 347
4#	357 – 317

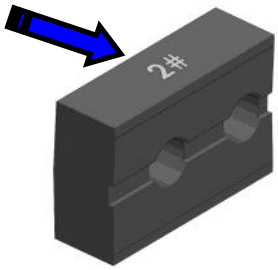
LOCKING JAW CHART

MODEL: TSFC20 14"- 20"	
JAW NO:	SIZE RANGE O/D mm
NO EXTENSION JAW	528 – 488
1#	498 – 458
2#	468 – 428
3#	438 – 398
4#	408 – 368
5#	378 – 338

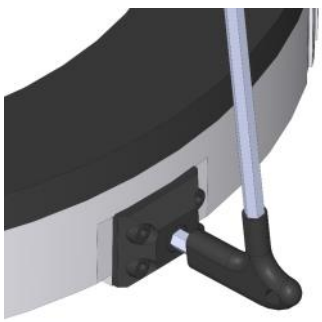
LOCKING JAW CHART

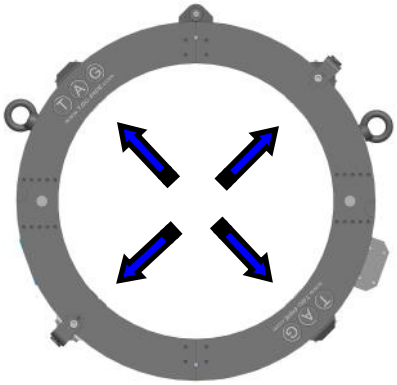
MODEL: TSFC24 18"- 24"	
JAW NO:	SIZE RANGE O/D mm
NO EXTENSION JAW	600 – 640
1#	570– 610
2#	540 – 580
3#	510 – 550
4#	480 – 520
5#	450 – 490
6#	462.5 – 422.5

Locking feet model 2# as per above chart and illustration of mounting locking jaws onto TSFC ring

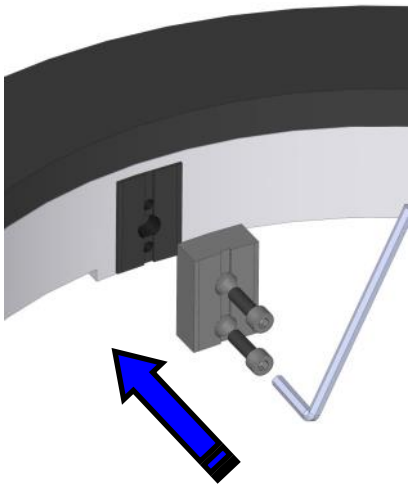


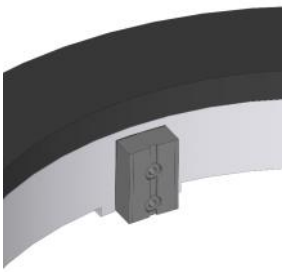
With allen key unscrew the feeding jaws at the minimum posizion like the image below.

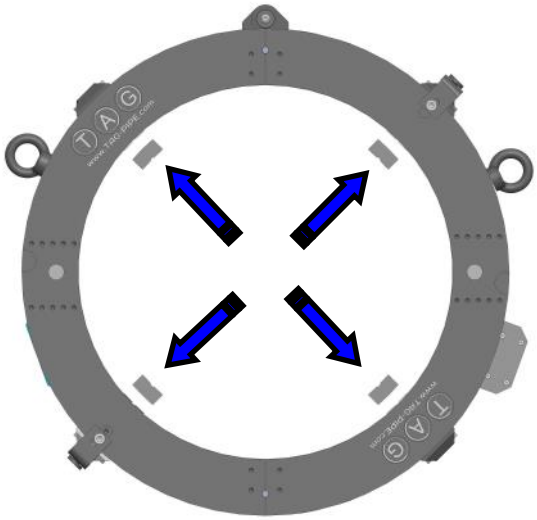




On the TSFC rings up to 24” there are standard 4 positions to mount locking jaws. On the larger TSFC rings (above 24” models) there are standard 6 positions to mount locking jaws. In order to achieve a correct and square positioning of the TSFC on the workpiece all positions need to have the same locking jaws. The locking jaws can be adjusted to the exact required diameter range of the workpiece by using a hex key as per the below illustration.



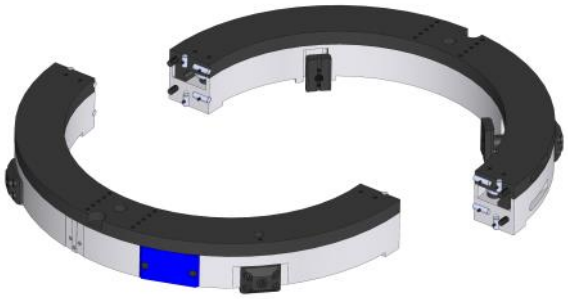




Once the ring is mounted on the workpiece it is important and mandatory to make sure that the hinges, locking pats and ring locking screws are brought back in position and are bolted securely. The TSFC ring should be stable, square and locked firmly on to the workpiece. Use the supplied set square tool to ensure correct positioning of the ring on the workpiece. If not, this might cause vibrations, slipping and dispositioning of TSFC ring and finally lead to severe personal injury and material and collateral damage.
If the machine is not squared on the workpiece, loosen the external screws on position 3 and 9 o’clock connected with the locking jaws and adjust the ring. Once the ring has been put in square position tighten all screws properly to secure its position.

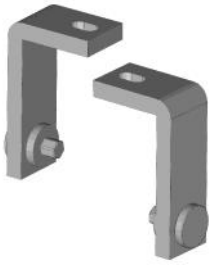
7.2. TSFC ring

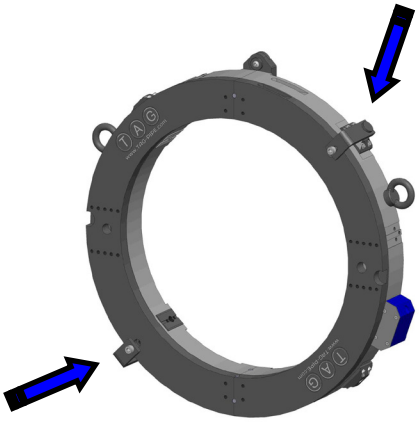
The TSFC is made up of two rings: one stationary (aluminum) and one rotating ring (steel / front). Both rings can be opened and split in half in order to set up the machine on the workpiece. The ring is the key component of the TSFC on which all other parts mounted or directly / indirectly connected to.



7.3. Preparation

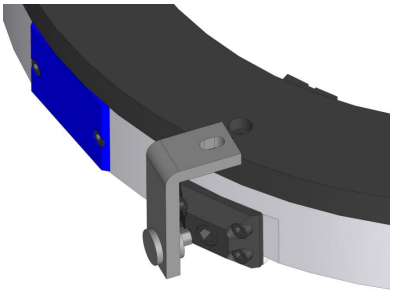
Prior to operating the TSFC, remove the locking pins (2 pieces) from the ring. The locking pins are used to keep the rings together and to avoid any movement or undesirable rotation of the rings during transportation or installation of the equipment.

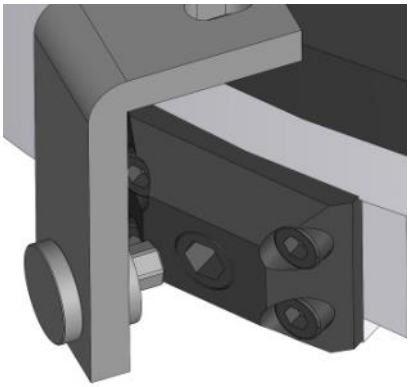




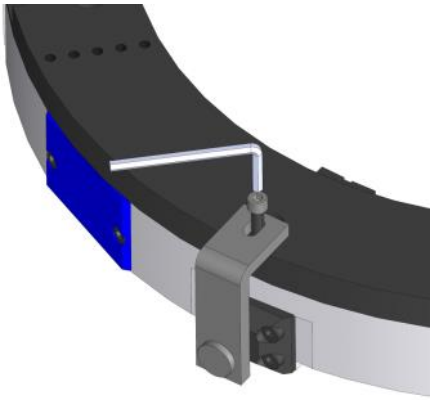
During installation of the machine the locking pins should be installed and used, to avoid slipping of the rings which may result in serious injury and material damage. See the images below

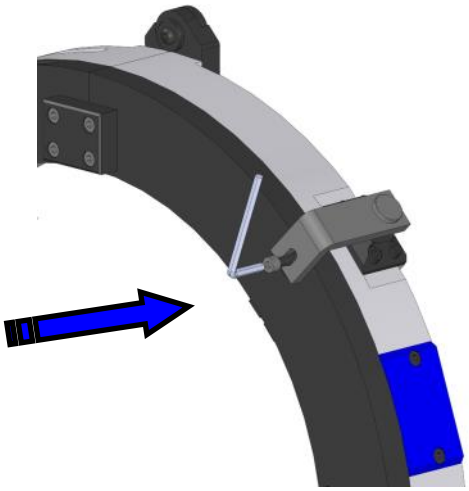
To split the ring in two part fix the safety plate+pin to keep the crown together with the body like the images below

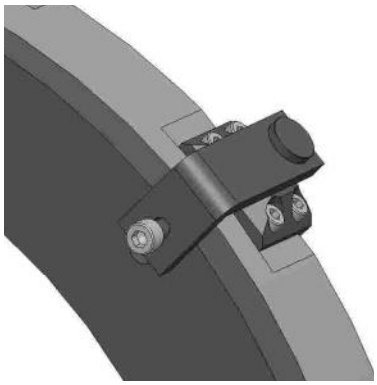




Tighten the plate+pin with screws and allen key like images below.





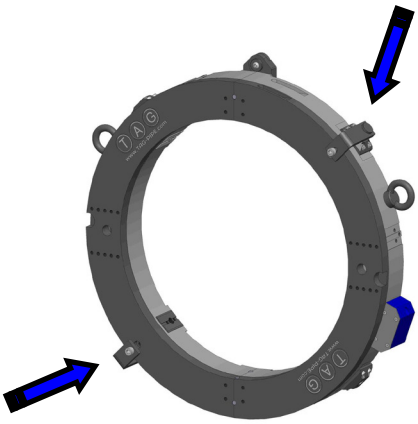


7.4. Hinges, locking pats and ring screws

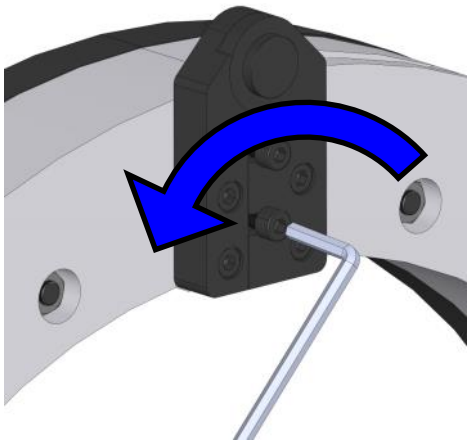
When setting up the TSFC, disjoin or fold the two ring segments in order to make it easier to mount the machine to the workpiece. To disconnect the rings completely, or to open them (connected by ring's hinge) adhere to following instructions.

There are two hinges on the TSFC's stationary ring: on at the top and one at the bottom of the ring. Unbolt the hinges as illustrated to open (partially) the ring. Unbolting the hinge at the bottom should be done as the last step, as this hinge will finally allow the operator to open or close the ring.

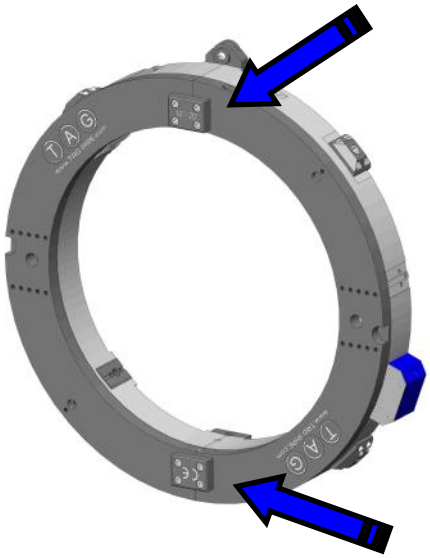
Be sure that the safety plate+pin are mounted before split the ring.

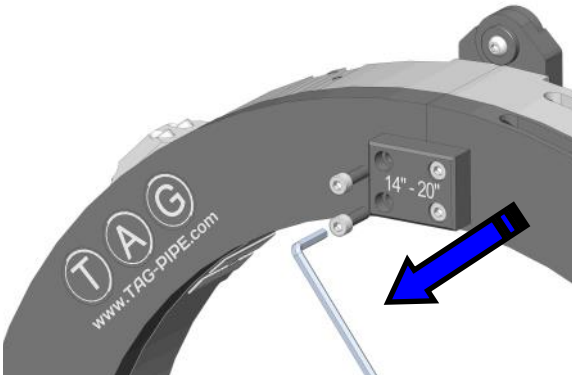


Hinge at the top of the ring. Unscrew the allen screw like image.



On the front ring there are two locking pats (one at the top and one at the bottom of the ring, bolted to the ring to keep the separates ring parts together. To open the ring remove two bolts on both locking pats as illustrated below and loosen the two remaining bolts on each locking pat.

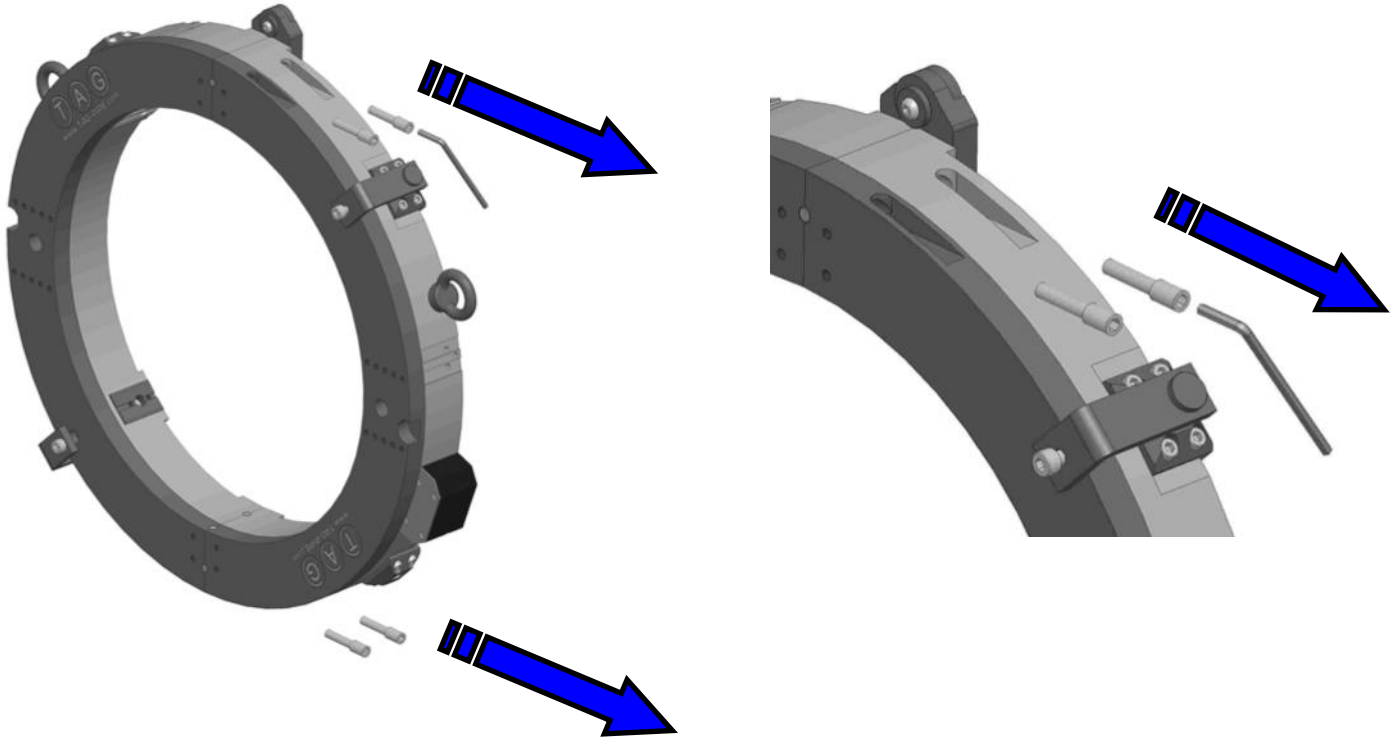




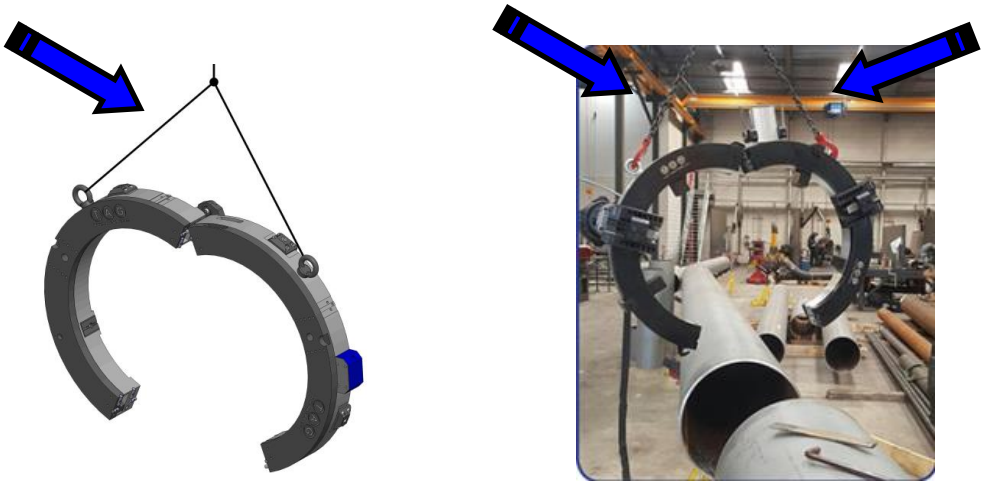
Remove two bolts

Loosen the two remaining bolts

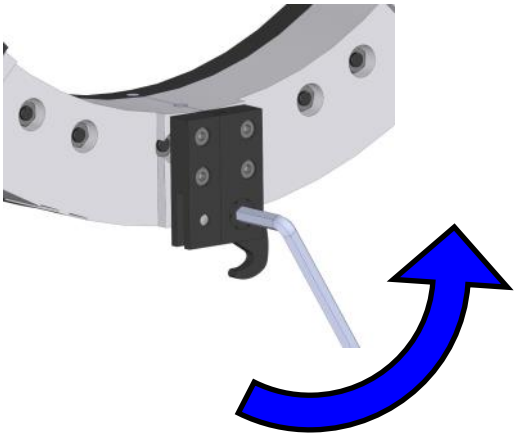
Finally, there are also 4 screws that need to be removed: 2 in each ring at the top and bottom as per illustration below.



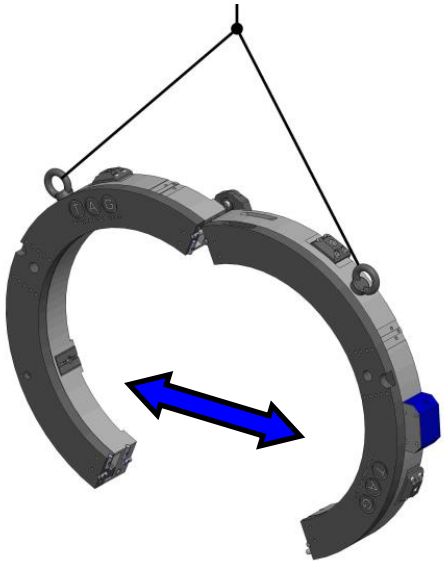
Kindly use a sling or e belt before splitting the ring

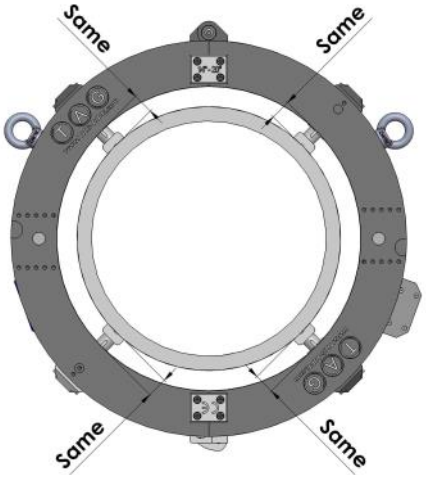


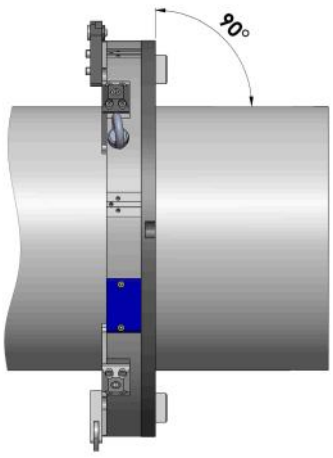
Hinge at the bottom of the ring (closed /open):



Once all above instructions are followed the ring can be opened completely in separate parts or partially keeping one hinge at the top in place connecting the both parts of the ring.





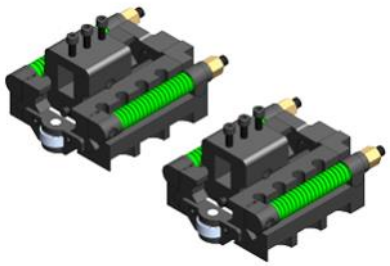


7.5. TSFC toolbox

Once the ring is mounted and locked correctly on the workpiece, the operator can mount the two toolboxes on the ring. TAG PIPE is offering 3 types of toolboxes that can be mounted on TSFC model's rings.

Standard heavy-duty toolbox

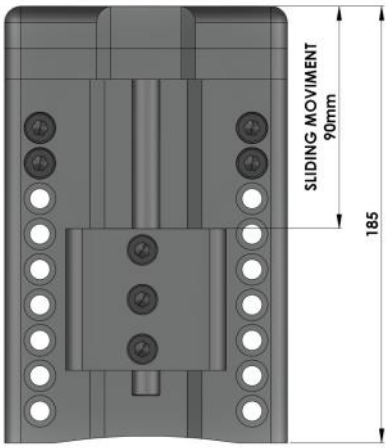
Spring loaded outside diameter tracking toolbox

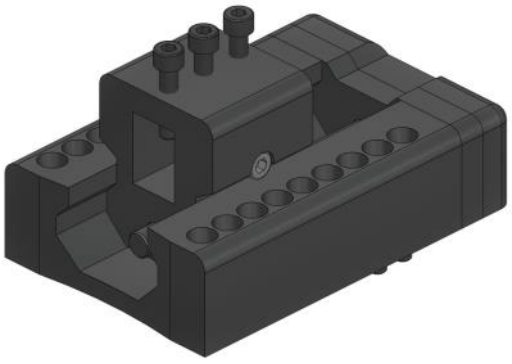


Counter bore slide toolbox

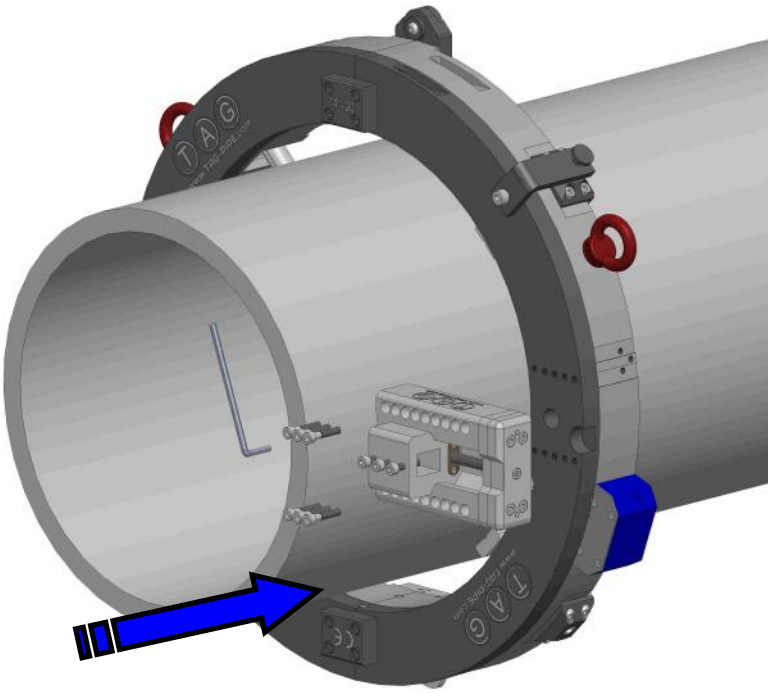
Standard heavy-duty toolbox

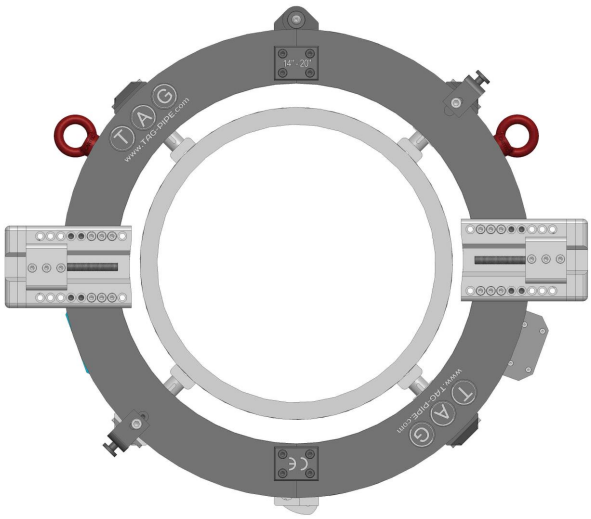
The standard heavy-duty toolbox contains 9 locating holes in two lines (18 in total) and is used with 6 mounting screws to fix the toolbox in the desired position on the ring. By having 9 locating holes it is possible to achieve following positions: high – medium – low. The sliding movement range is 90mm on this toolbox.

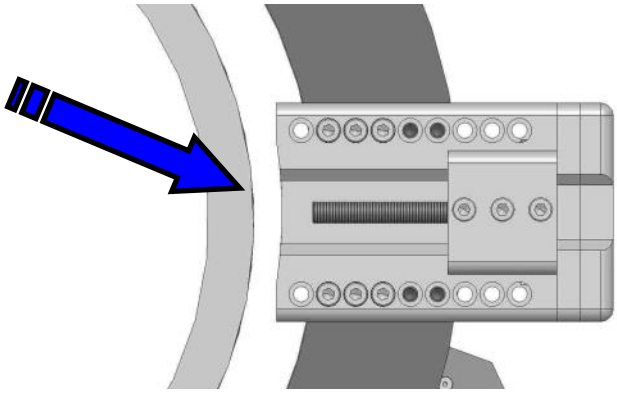




The choice of the position depends of toolbox on the size of the workpiece that will be machined. Ideally the tool-box is installed as closely as possible to the workpiece.

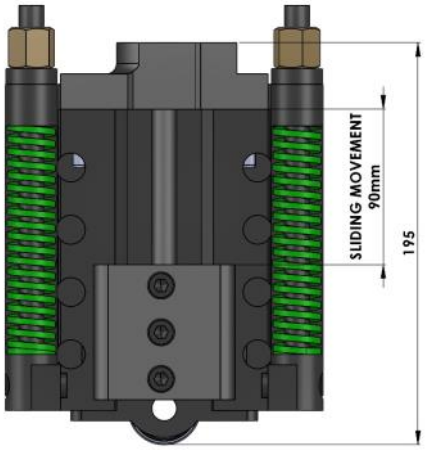


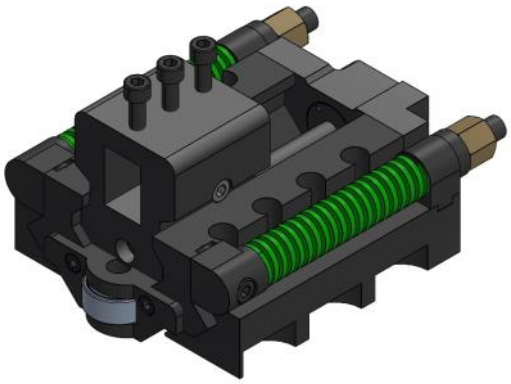




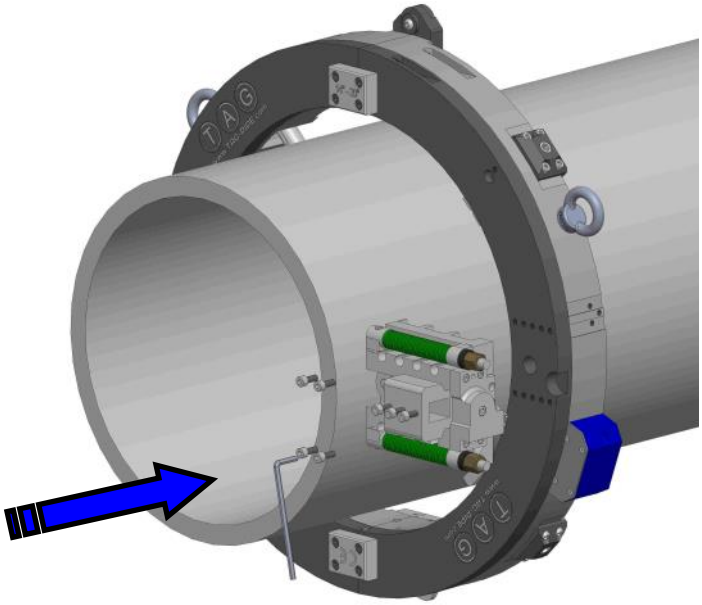
Spring loaded O.D. tracking toolbox

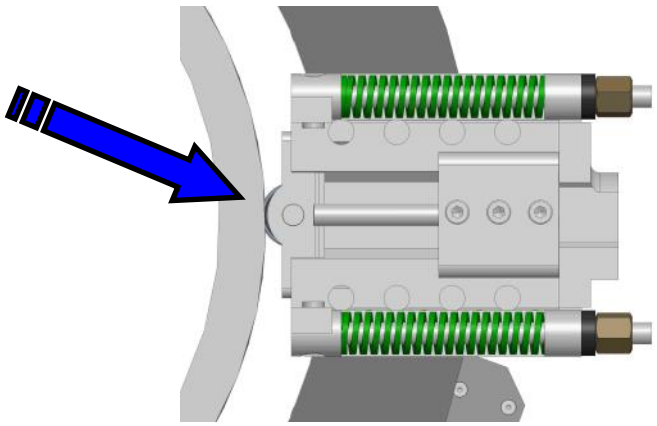
When machining a workpiece that is not concentric, a spring loaded O.D. tracking toolbox may be used to achieve the required cut and bevel quality. This toolbox is also recommended to obtain an accurate fine finish on this wall pipes. The toolbox has a mechanical tracking system that runs on and follows the contour of the workpiece and adjusts mechanically the feeding of the cutting tool into the workpiece's material. This toolbox contains 4 locating holes in two lines (8 in total) and is used with 4 mounting screws to fix the toolbox in the desired position on the ring. The sliding movement range is 90mm on this toolbox.



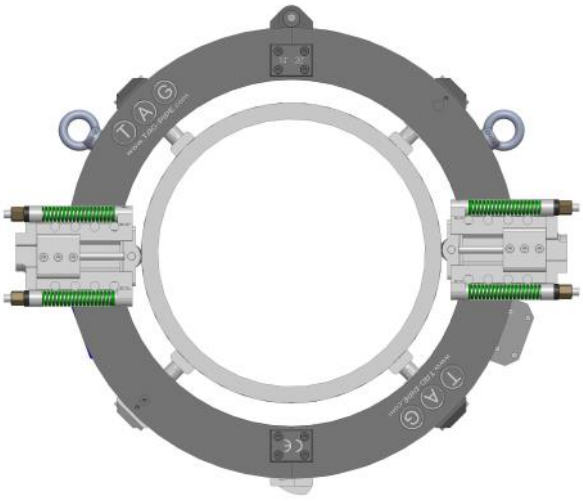


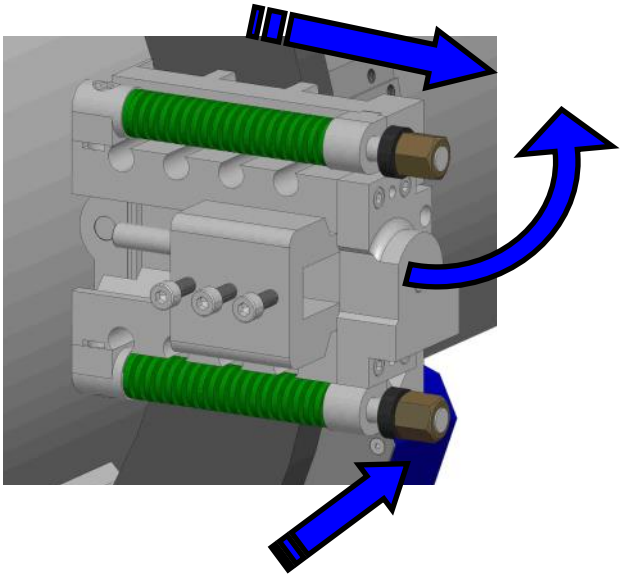
When the bearing is in fully retracted position use 4 screws and position the tool box so that the bearing is approximately 5 mm away from O.D of the pipe.





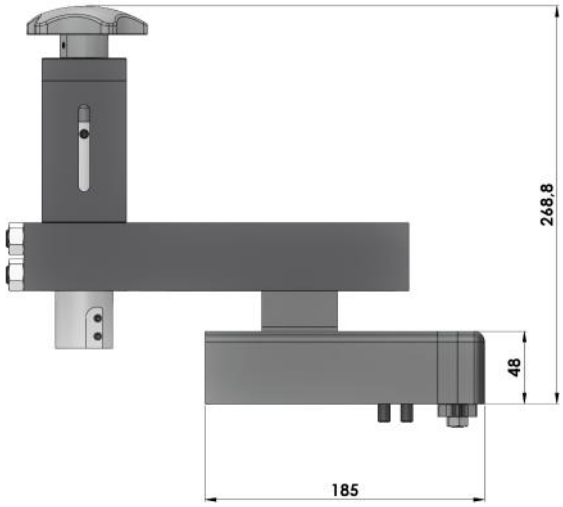
Unscrew the brass nuts to fully top position, like the image below.

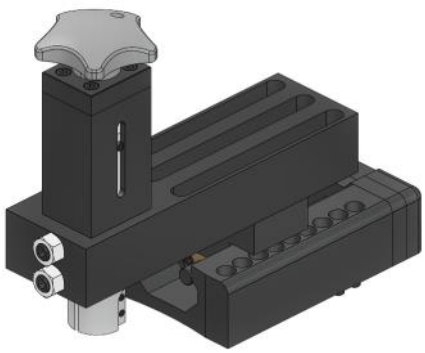




6.7. Counter bore slide toolbox

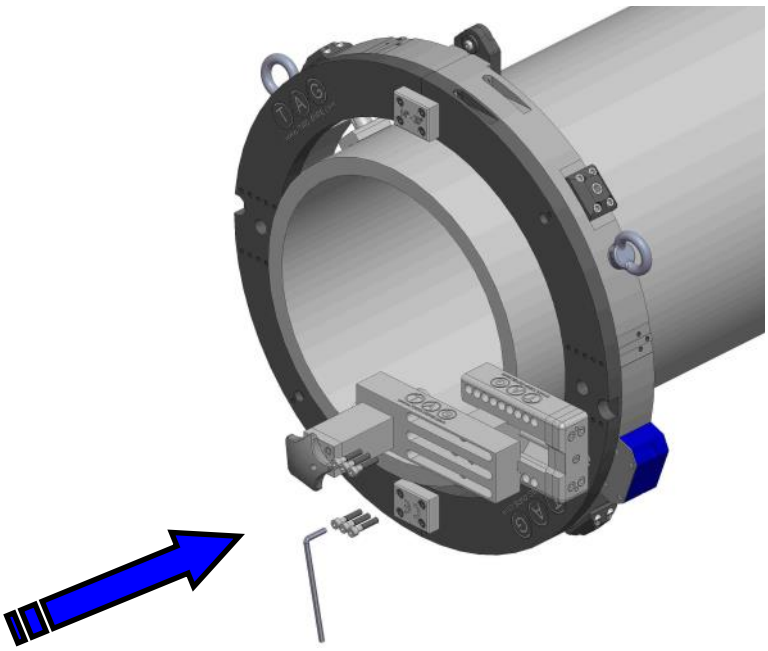
A third toolbox is the counter bore slide. This toolbox consists of an adaptor that fits on to the standard heavy-duty toolbox and is used to perform inside machine on the workpiece.

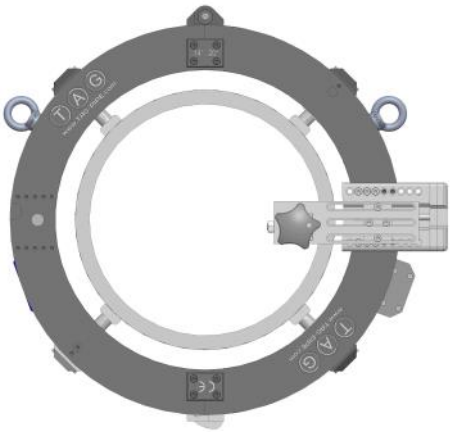


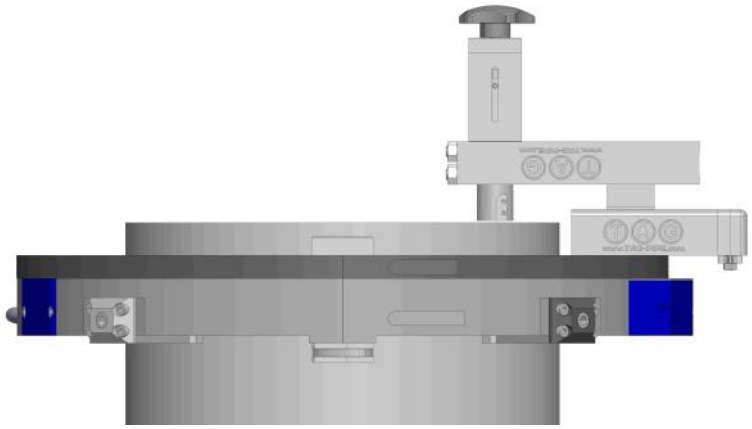


ALL DIMENSION ARE IN mm

Mount the internal tool box in such a way so that the tool box doesn't touch the pipe.





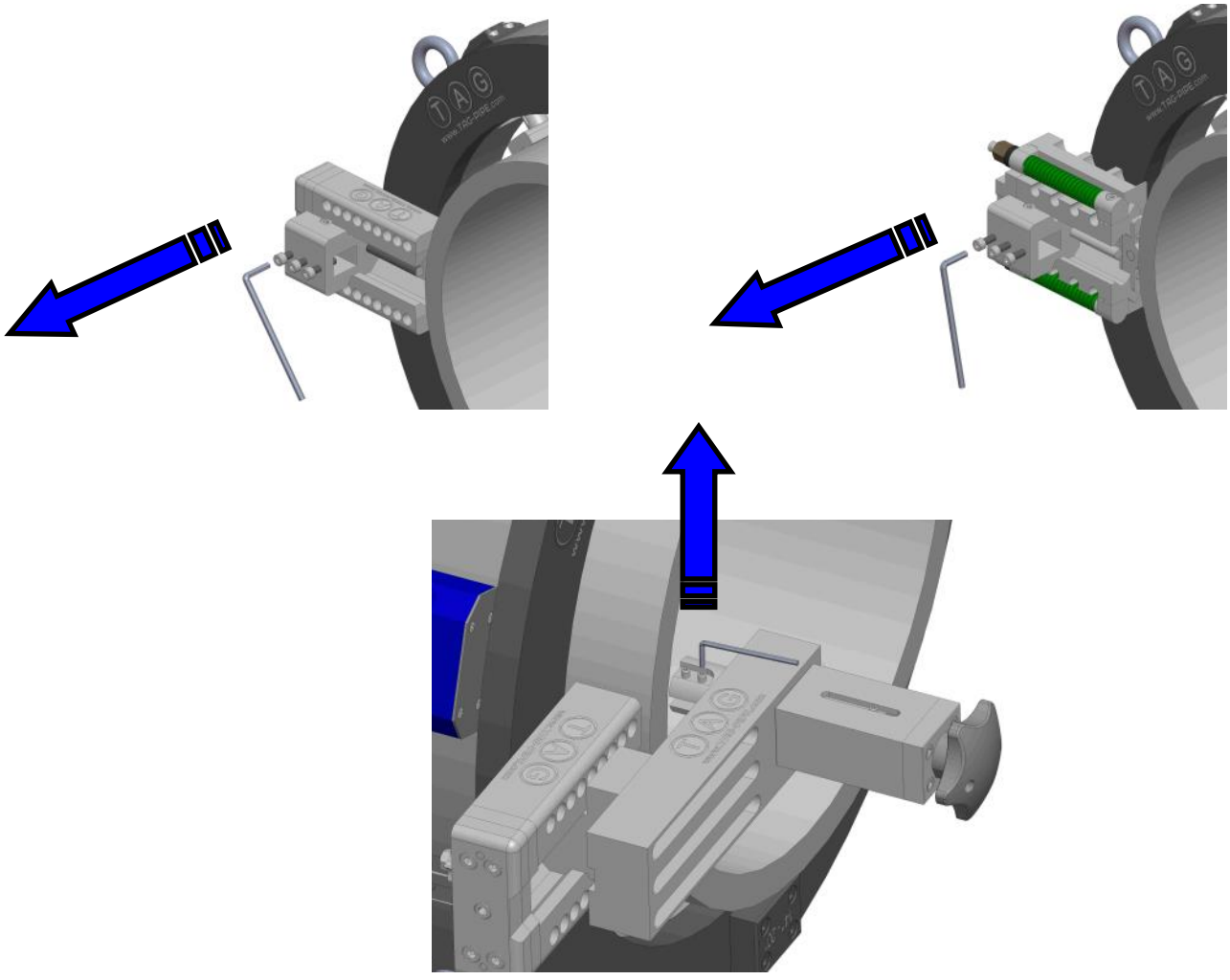


7.6. Cutting tool

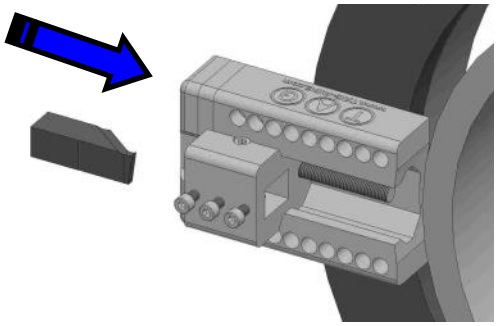
In order to execute the required machining on the workpiece the operator needs to select the correct cutting tools. In chapter 7 there is an overview of the standard offered cutting tools that can be used on the TSFC models. The list is not exhaustive and special requests can be made and specific tooling and solutions can be engineered.

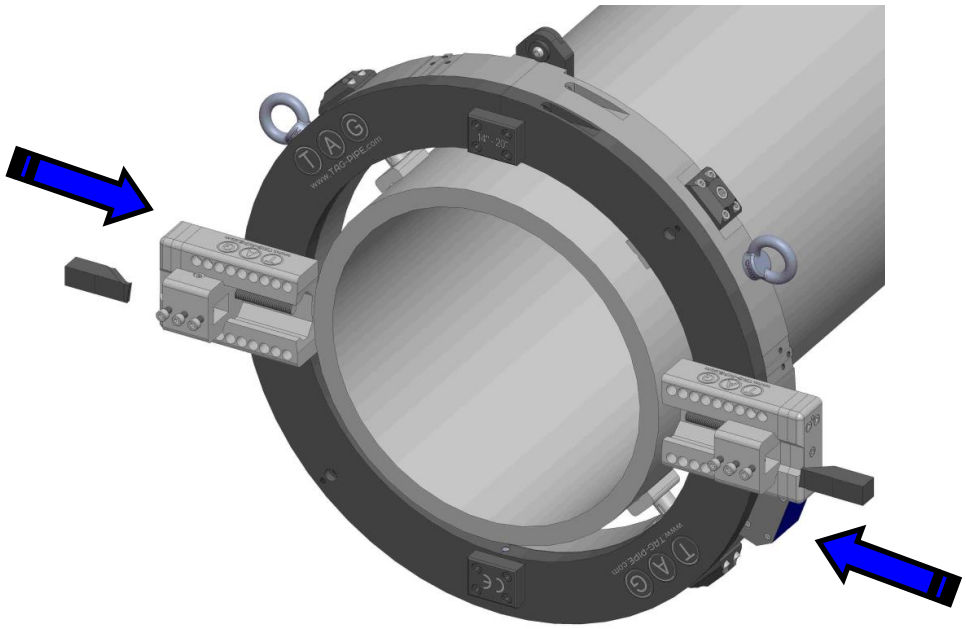
It is important to position the tools in the proper position in the toolbox. Note that the rotation of the front ring is clockwise. In general, there are 3 main machining operations possible with the TSFC: cutting the workpiece (using 1 or 2 cutting tools), beveling the workpiece (using 1 or 2 beveling tools), cutting and beveling the workpiece simultaneously (using 1 cutting and 1 beveling tool).

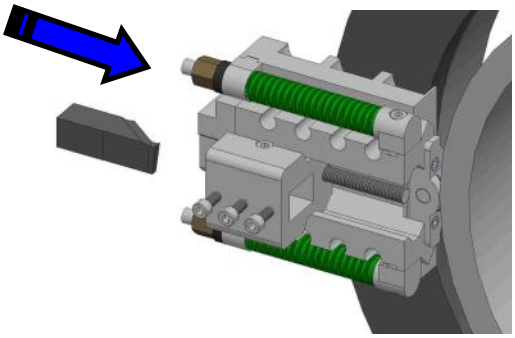
The first step is to loosen the screws on the toolbox in order to allow the cutting tool to be inserted.

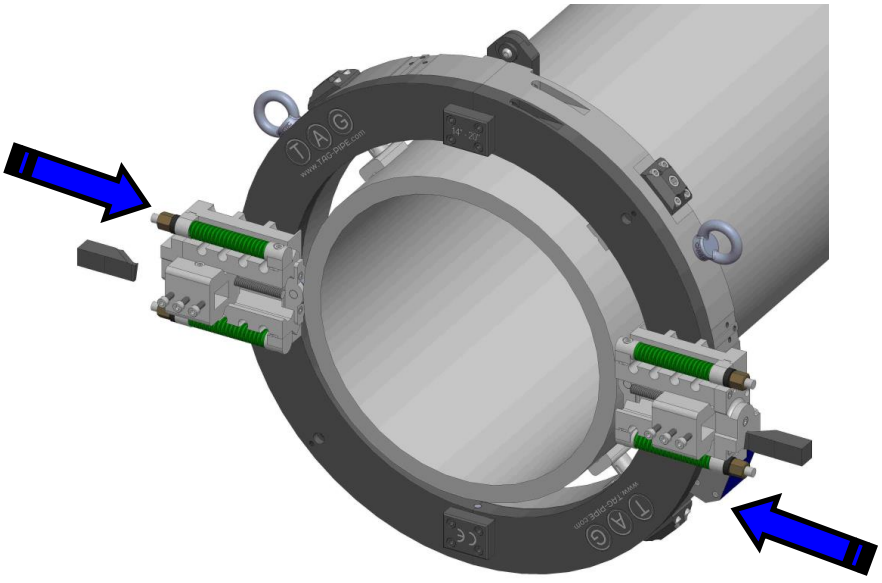


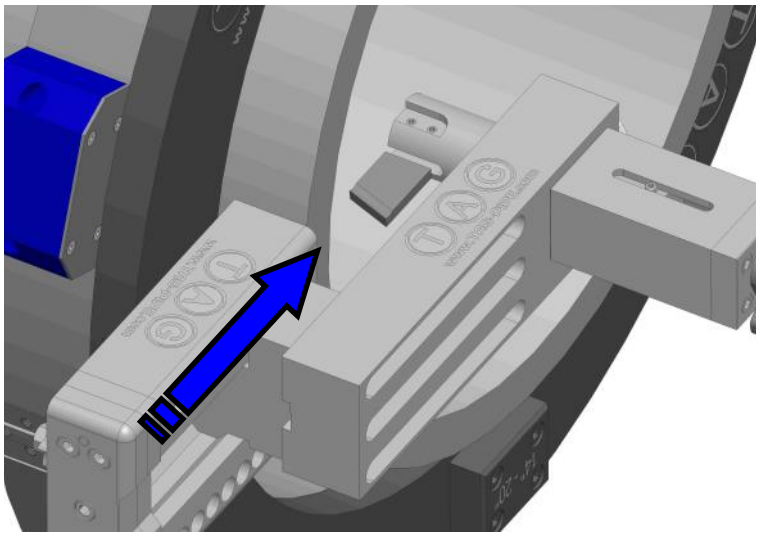
Once the screws are loosened, slide in the chosen cutting tool keeping in mind the rotation direction of the TSFC ring. When the cutting tool is in the correct position, tighten the screws again on the toolbox in order to fix the cutting tools. Make sure the cutting tools are properly tightened, not allowing for any vibration or slightest of movement.



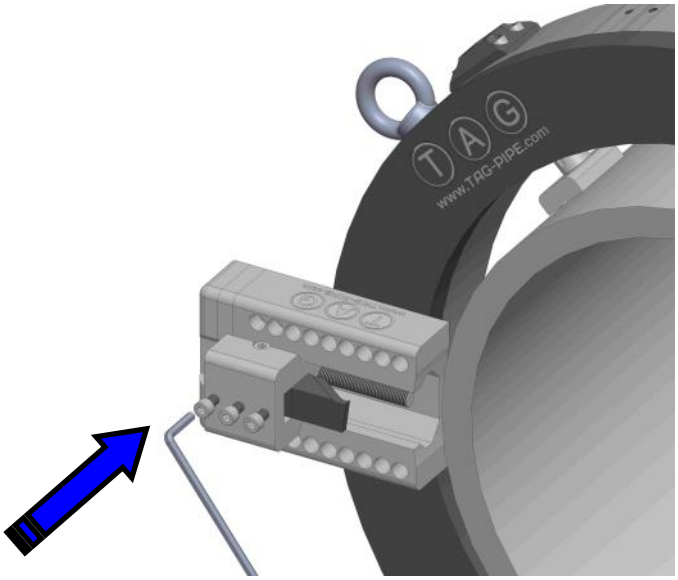


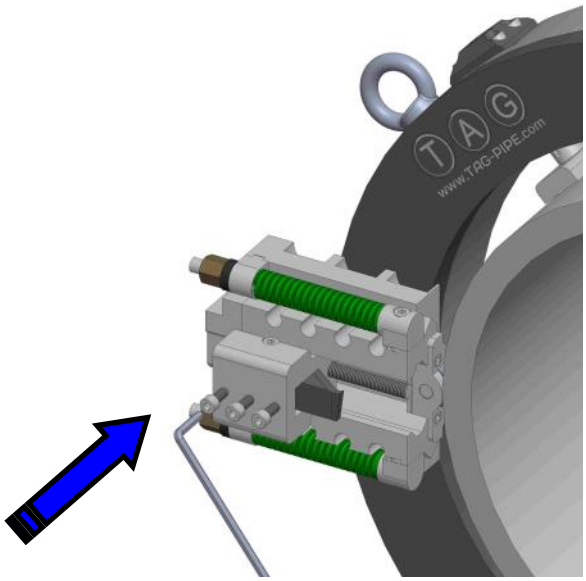


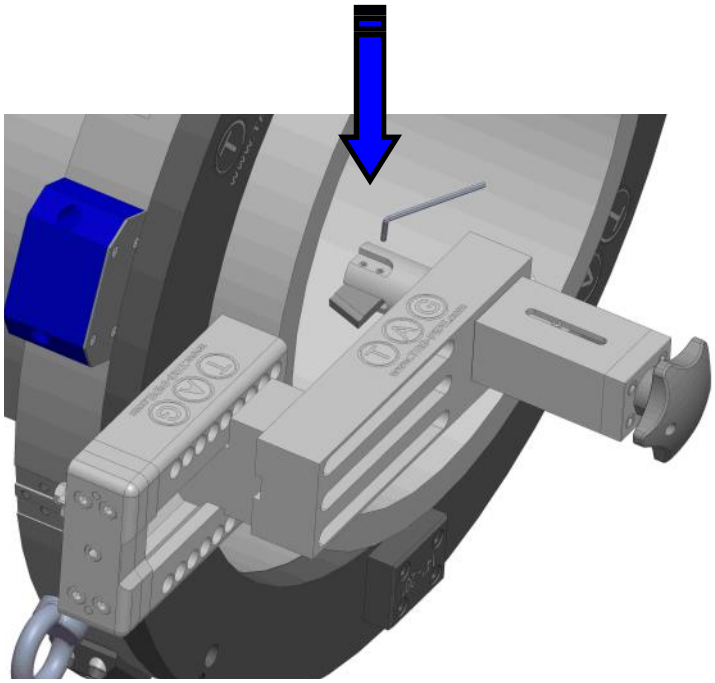




When the cutting tool is in the correct position, tighten the screws again on the toolbox in order to fix the cutting tools. Make sure the cutting tools are properly tightened, not allowing for any vibration or slightest of movement.



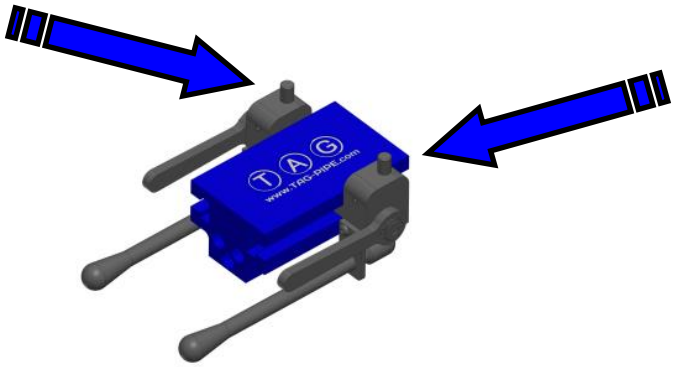




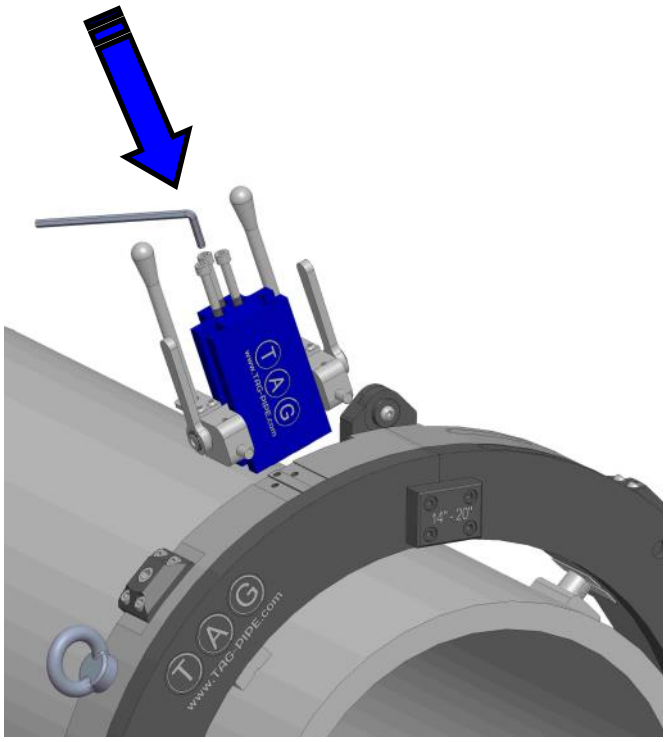
7.7. TSFC striker block

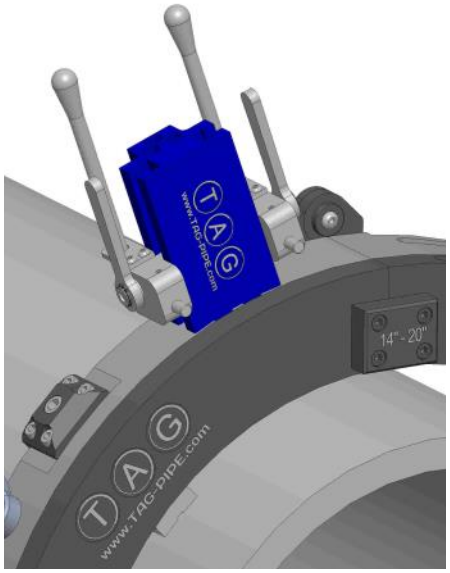
The next step is to mount the striker block (or star wheel feeding system) onto the TSFC ring. There are different positions on the ring to mount the striker block, allowing for physical restrictions and ensuring flexibility in operation.

The TAG PIPE striker block has a double feeding or striking system, allowing the operator to use a single strike (0.1 mm feed of the cutting per revolution) or a double strike (0.2 mm feed of the cutting tool per revolution). The usage of single or double striker depends on the material, wall thickness and required time of machining of the workpiece.

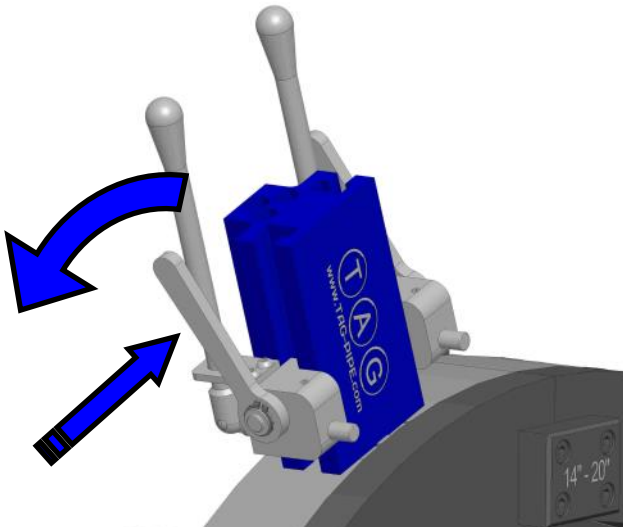


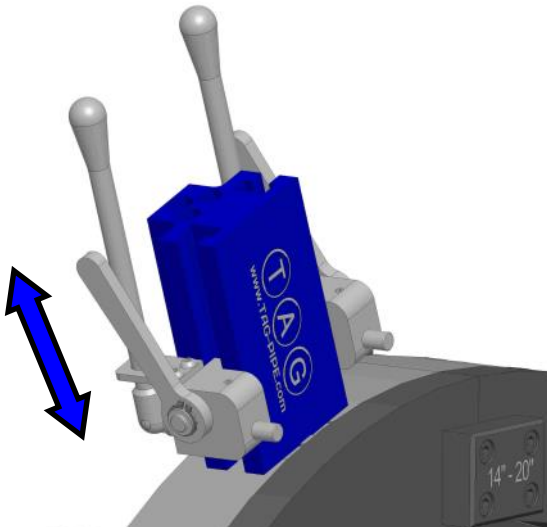
The striker block is fixed with screws onto the TSFC ring and can easily be taken off and re-installed.

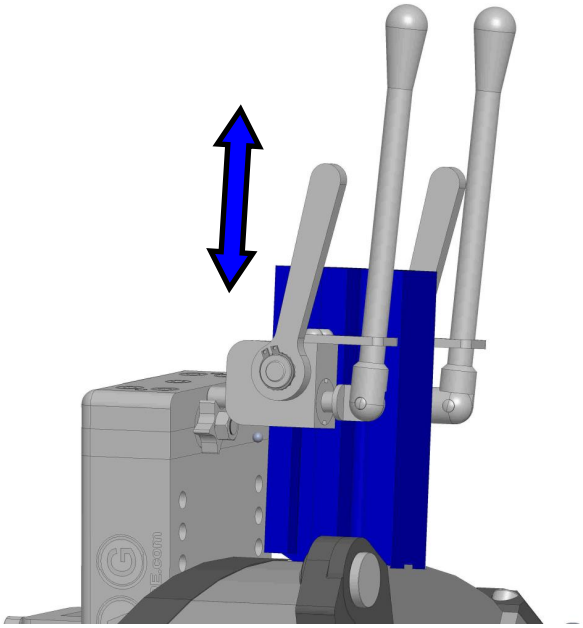


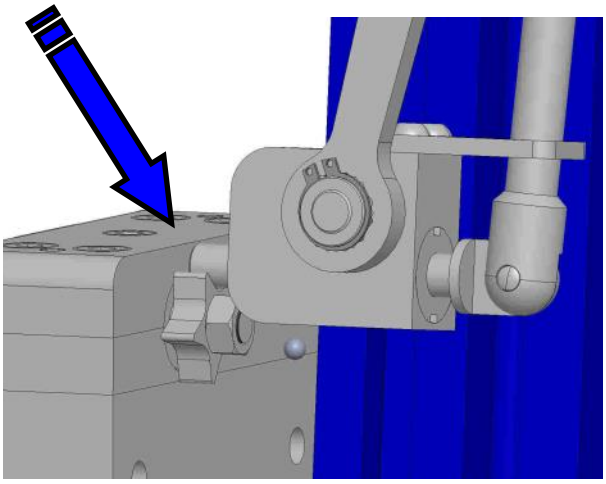


Make sure that the spanner is used to loosen the pin-block and it can slide.

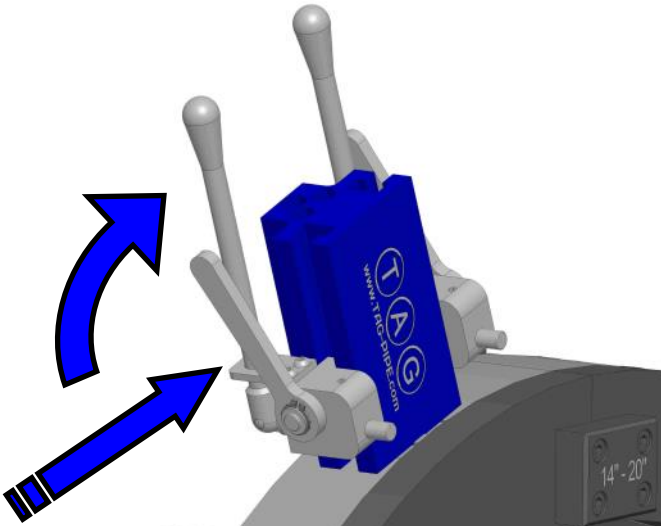








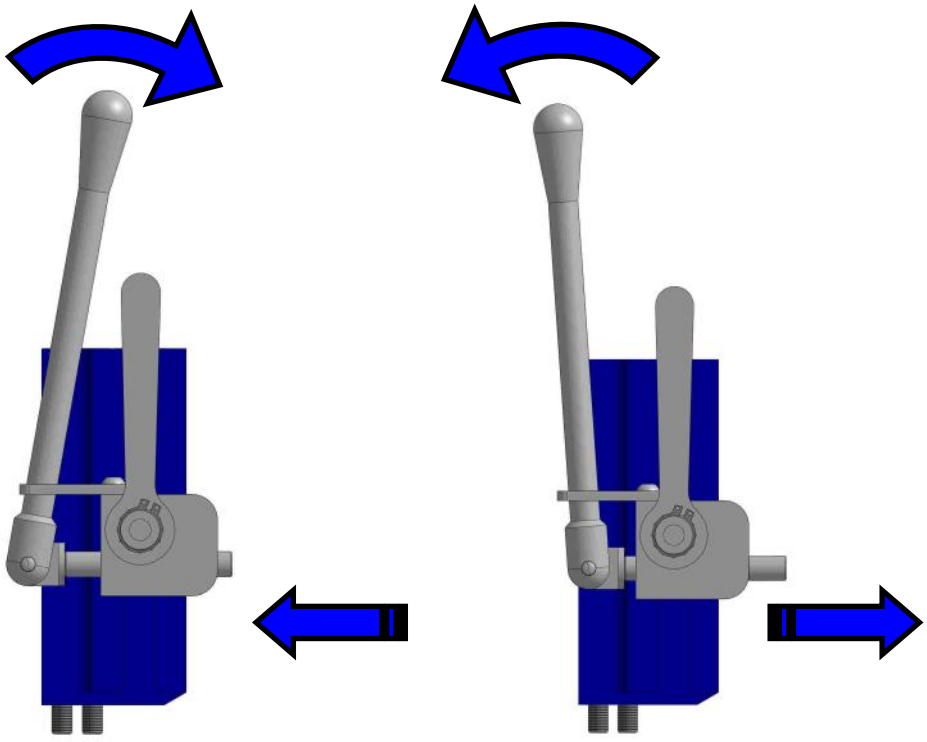
Find the right position of the star wheel so that it absulutely aligns with the striker-pin.



Operate the lever as shown below to engage or disìangage position-

Disengage position

Engage position



It is important that the strikers on striker block are aligned with the star wheel on the backside of the toolbox in order to secure and guarantee constant and consistent feeding of the tools. The position of the strikers can be adjusted by using the handles on the striker block. During operation of the TSFC the user has the choice to engage one or two strikers. Not setting up the strikers properly might lead to damage to the striker block unit and the toolbox and will lead to unnecessary stress on the machine affecting its performance.

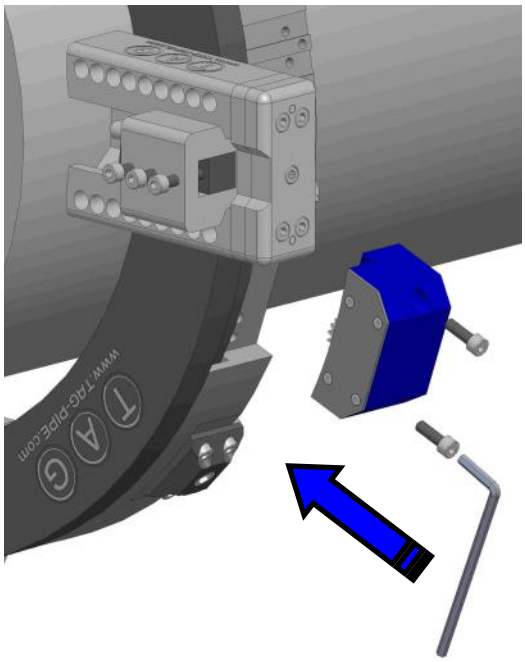
When the machine is not in use and stored it is recommended to dismantle the striker block and store it safe apart from the ring.

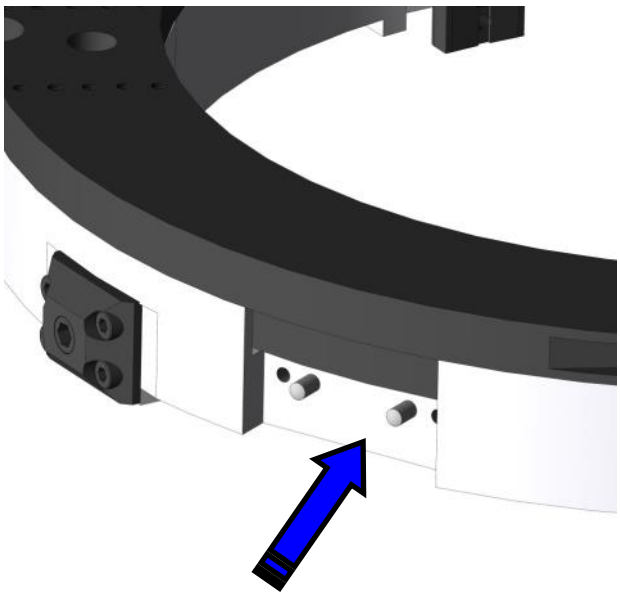
7.8. TSFC pinion housing

The final component that needs to be mounted on the TSFC ring is the motor. The TAG PIPE TSFC range can be equipped with pneumatic, hydraulic and servo electric motors.

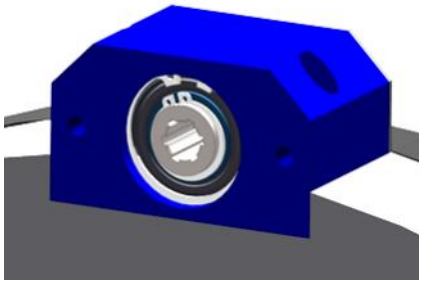
Every ring – except for the three smallest models: 1-6” / 2-8” / 6-12” – has to two motor mounting places. These two options allow for physical restrictions and ensure flexibility in operation. The two options also allow for the installation and usage of two motors simultaneously (servo electric or pneumatic version, not in hydraulic version) which may be required on heavy wall thickness and / or large diameters.

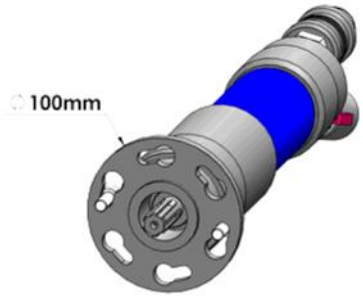
Install the second drive block in case second motor is needed to be fitted.

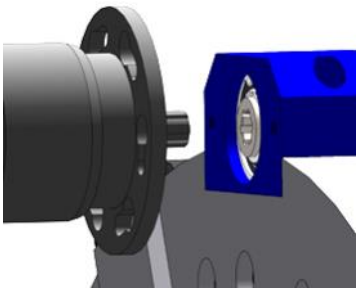


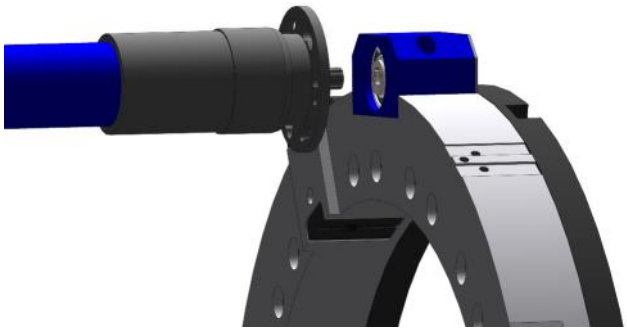


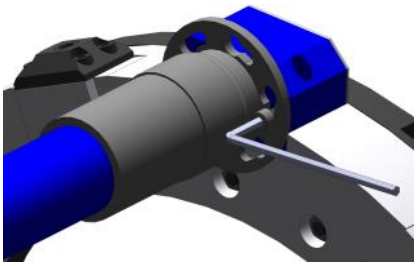
Install the motor shaft fully insert in the female drive and secure the motor with 2 screws taking care that the motor flange is rotated to lock with the screw before tightening the screws.











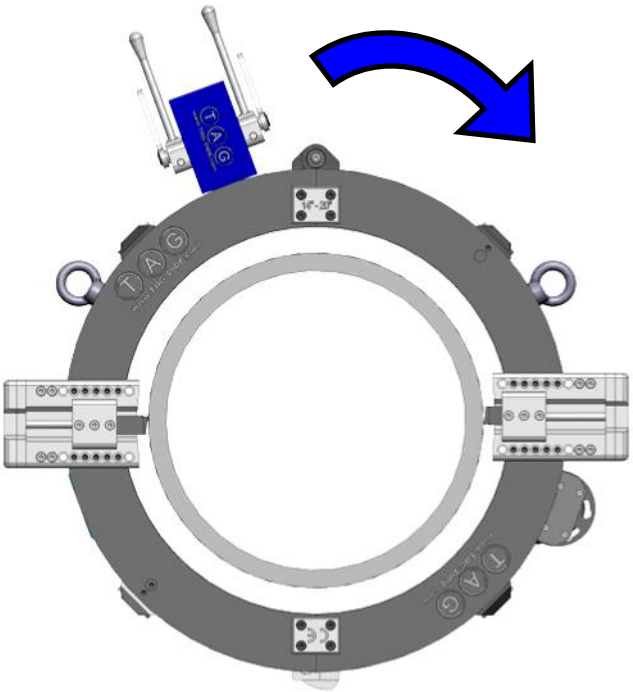
When installing the TSFC, always check and make sure the right flange size is available. Always make sure that the flanges and motors are connected properly to the TSFC's pinion housing. Do not operate the machine when the flange and / or motor shows any sign of damage or can't be positioned firmly to the TSFC ring.

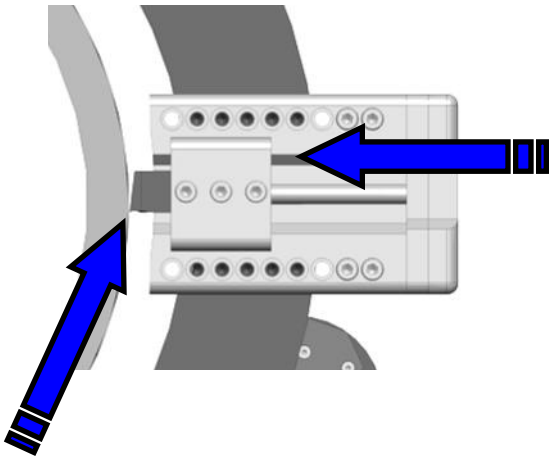
7.9. Operation

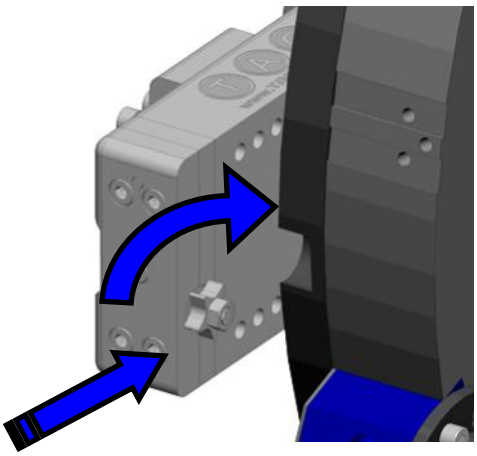
Once the TSFC ring is positioned on the workpiece and all its components are mounted, the operator can prepare for the actual machining of the workpiece.

At first the operator shall look for the 'high point' of the workpiece. This is the spot where the first cutting tool will cut into the workpiece's material first. This point can be found by slowly (manually) rotating the front ring around with the first cutting tool close to the surface of the workpiece.

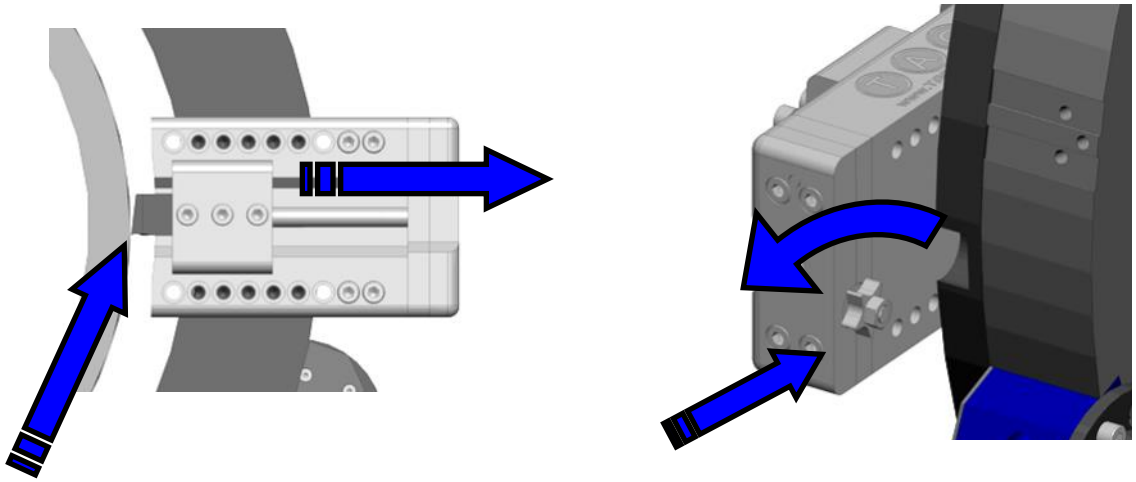
Once this point is identified the operator will position the toolbox of the first cutting tool on the high point, lower the cutting tool till it touches the workpieces. Use the allen key on the toll slide box to bring the tool touch the OD of the pipe

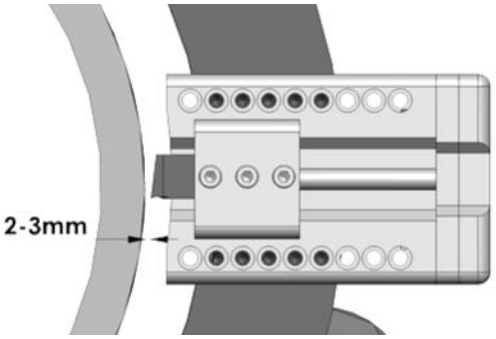






Revert it back two-quarter turn, leaving the first cutting tool approx. 2 to 3 mm above the surface of the workpiece. Then the same will be done with the second toolbox carrying the second cutting tool. But when reverting the cutting tool back, this will be done by a three-quarter turn, leaving the second cutting tool approx. 3-4 mm above the surface of the workpiece. When this is done, the operator has secured that the first cutting tool will cut first into the workpiece, shortly followed by the second cutting tool when start rotating the ring.





The operator needs to check to correct alignment of the star wheel on the back of the toolboxes and the striker(s) on the striker block. See images above to alighn the star wheel for first strike with the striker pin.

The operator can start the rotation of the ring at a low speed, in order to allow the cutting tools to cut into the material at a controller speed and pace, allowing him to closely monitor the initial machining. The rotation speed can then be adjusted to achieve maximum performance and machining results. Whilst machining it is advised to use liquid cooling to enhance the life time of the cutting tools and to obtain maximum cut and bevel performance.

8 - PERIODIC MAINTENANCE AND REPAIR

Continued safe operation of the equipment depends on regular maintenance and testing of its operating and protective controls. The equipment should only be inspected, tested and maintained by qualified trained personnel.

Should any test indicate that the equipment being tested or observed is not in good operating condition, it should be repaired immediately. Record and maintain records of repairs or changes so that a complete record will be available for review at any time.

It is advisable to regularly check the machine for any deficiencies; in case of non-conformities, do not use the equipment and initiate repair activities. Any repair should be conducted by TAG Pipe or by a TAG Pipe authorised machine repair partner. All spare parts used during repair activities should be genuine TAG Pipe original spare parts. The warranty on the equipment voids in case any form of repair is conducted by any unauthorized individual or service provider and / or in case non-genuine spare parts are used during any form of repair activity.

PERIODIC MAINTENANCE

- Prior to conducting any form of maintenance, make sure the equipment is not powered.
- When not using the equipment, keep the equipment safe and clean in the storage boxes.
- Do not store the equipment in humid storage area.
- Keep the equipment clean at all times in order to allow for optimal working conditions and performance.
- After use, the equipment should be thoroughly cleaned by brush and anti-rust spray or grease should be applied.
- Do not clean the equipment by using compressed air.
- Make sure no metal particles or swarf is remaining on any parts of the equipment.
- Before and after usage check all components, especially the power cords, and connecting hoses for pneumatic and hydraulic motors.
- Check the tension and accuracy of the toolboxes.
  The high precision feed and tolerance (0.1 mm feed per revolution) is of critical performance of the equipment.
- It is advised to conduct an annual inspection and formal maintenance check-up by TAG Pipe or any of its authorized service partners.

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