PASS | STANZTECHNIK AG

TRUMPF

THICK TURRET

SALVAGNINI

OPERATION MANUAL 12/2024-WW

ps:®single-thread

ps:®single-thread

THANK YOU VERY MUCH,

for purchasing the **ps:®single-thread** tool from the system TRUMPF, developed and produced by PASS Stanztechnik AG.

It is our utmost intention to guarantee you a long-term service with your new PASS tool.
Therefore, we have prepared a detailed operation manual for you including notes on technology requirements, application area, installation, drawing and parts list as well as cleaning and care.

Please feel free to contact us in any case of questions.

Yours

PASS Stanztechnik AG

ps:®single-thread

SAFETY

ps:®single-thread

SAFETY

A. WARRANTY AND LIABILITY

Before using the tools for the first time, it is recommended to read this operation manual carefully, as PASS Stanztechnik AG does not assume any liability for damages and malfunctions resulting from non-observance of this operation manual.

Please contact us by email if you require further information: sales@pass-ag.com.

Basically, the „General Terms and Conditions of Delivery and Payment“ of PASS Stanztechnik AG are to be obtained. These will be made available to the operator at the latest when the contract is concluded. Warranty and liability claims concerning personal injury and damage to property are excluded if they are due to one or more of the following causes:

- improper use of the tool
- improper assembly, disassembly and maintenance
- non-compliance with the instructions in the operation manual
- inadequate control of tools or tool parts subject to wear and non-observance of the prescribed maintenance intervals
- improperly performed repairs
- disasters caused by foreign objects and force majeure

Furthermore, when using tools from PASS Stanztechnik AG, the standards, regulations and laws applicable in the respective country must be observed.

B. GENERAL SAFETY INSTRUCTIONS

Risk of cuts and bruises!

Working without approved protective work clothing can result in cuts and bruises.

Therefore, always wear suitable protective clothing such as work shoes and work gloves to avoid injuries.

Danger of ejected metal shavings!

When grinding tools, there is an increased risk of injury from flying metal chips.

Always wear safety goggles when working to prevent eye injury.

NOTES

ps:®single-thread

A. TECHNOLOGY REQUIREMENTS

Machines

Usable for machine group I:

- TruPunch 1000/2000/2020/3000/5000
- TruMatic 1000/3000/6000/7000

B. APPLICATION AREA

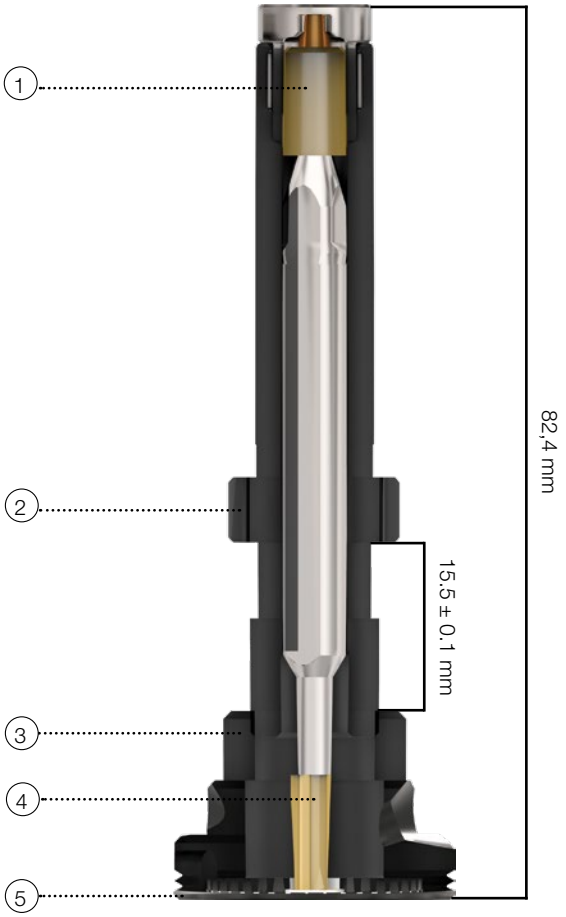
- sheet material: aluminium / steel / stainless steel
- sheet thickness: s = 1,00 up to 8,00 mm
- thread M2,5 up to M10 and UNC #2-56 up to UNC 3/8“-16

C. INSTALLATION

Upper part type 1 and 2 / die type A and B

THREAD SIZE	UPPER PART TO BE USED	DIE TO BE USED
M2,5	type 1	type A / type B
M3	type 1	type A / type B
M4	type 1	type A / type B
M5	type 1	type A / type B
M6	type 2	type A / type B
M8	type 2	type A / type B
M10	type 2	type A
UNC #2-56	type 1	type A / type B
UNC #3-48	type 1	type A / type B
UNC #4-40	type 1	type A / type B
UNC #5-40	type 1	type A / type B
UNC #6-32	type 1	type A / type B
UNC #8-32	type 1	type A / type B
UNC #10-24	type 2	type A / type B
UNC #12-24	type 2	type A / type B
UNC 1/4“-20	type 2	type A / type B
UNC 5/16“-18	type 2	type A / type B
UNC 3/8“-16	type 2	type A
UNF #10-32	type 1	type A / type B
UNF 1/4“-28	type 2	type A / type B
UNF #12-28	type 2	type A / type B

Assembly tap module



1. magnet
2. leading screw
3. leading nut
4. tap inserts
5. plastic cover

- slide the tap insert into the leading screw until it is automatically held by the magnet.
- put in the plasctic cover

CAUTION

Ensure that the dimension of 15,5 +/- 0,1 mm between the leading nut and gear ring is set correctly!

The total length of 82,4 mm varies to the tap modules of other manufacturers and is therefore **NOT** suitable for setting the tap modules.

In the worst case, adjustment based on the total length can lead to tool or machine damage.

ps:®single-thread

Further assembly

- Insert the set tap module from below into the upper part.
- For this purpose, the upper part must be in the initial position in which the ball plunger engages.
- The keyway in the leading nut of the tap module must be in alignment with the locking screw (version of other manufacturers) or with the locking slide (PASS version).
- Actuate the locking slide so that the tap module slides completely flush into the upper part and then fixes the tap module.

Programming

All further details on programming can be found in the machine data.

NOTE

Setting values for NC programming!

The setting values can be found in the machine manufacturer's manual.

Parameter

The quality and accuracy of a formed thread depends on the following parameters:

- pre-punch diameter
- sheet quality

Pre-punch diameter

The nominal dimension of the pre-punch diameter is larger for thread forming than for thread cutting, as the material is displaced within the thread and not cut. Only a limited space is available for the displaced material.

The pre-punch dimensions and the maximum number of turns are shown in the tables below:

Type 1 (metric threads)

THREAD	PRE-PUNCH DIAMETER	NUMBER OF TURNS (MM) TO BE PROGRAMMED							MAX. TURNS
	aluminium / steel / stainless steel	s = 1	s = 2	s = 3	s = 4	s = 5	s = 6	s = 8	
M2.5	2,30	1,1	1,3	1,5	1,7	1,8	2,2	–	2,5
M3	2,8	1,0	1,2	1,4	1,6	1,8	2,0	–	2,3
M4	3,70	0,9	1,0	1,1	1,3	1,4	1,5	–	1,7
M5	4,70	0,7	0,9	1,0	1,1	1,2	1,3	–	1,4

Type 2 (metric threads)

THREAD	PRE-PUNCH DIAMETER	NUMBER OF TURNS (MM) TO BE PROGRAMMED							MAX. TURNS
	aluminium / steel / stainless steel	s = 1	s = 2	s = 3	s = 4	s = 5	s = 6	s = 8	
M6	5,60	2,0	2,3	2,7	3,0	3,3	3,6	4,3	4,3
M8	7,50	1,5	1,8	2,1	2,4	2,6	2,9	3,5	3,5
M10	9,45	1,2	1,5	1,8	2,0	2,2	2,4	2,7	2,9

Type 1 (Inch threads)

THREAD	PRE-PUNCH DIAMETER	NUMBER OF TURNS (MM) TO BE PROGRAMMED							MAX. TURNS
	aluminium / steel / stainless steel	s = 1	s = 2	s = 3	s = 4	s = 5	s = 6	s = 8	
#2-56	2,00	1,1	1,3	1,5	1,8	2,0	2,2	–	2,5
#3-48	2,30	1	1,1	1,3	1,5	1,7	1,9	–	2,2
#4-40	2,60	1	1,1	1,2	1,4	1,5	1,7	–	2,0
#5-40	2,90	1	1,1	1,2	1,4	1,5	1,7	–	2,0
#6-32	3,20	0,7	0,9	1,0	1,1	1,2	1,3	–	1,4
#8-32	3,85	0,7	0,9	1,0	1,1	1,2	1,3	–	1,4
#10-32	4,5	0,9	1,0	1,2	1,3	1,4	1,5	-	1,6

Type 2 (Inch threads)

THREAD	PRE-PUNCH DIAMETER	NUMBER OF TURNS (MM) TO BE PROGRAMMED							MAX. TURNS
	aluminium / steel / stainless steel	s = 1	s = 2	s = 3	s = 4	s = 5	s = 6	s = 8	
#10-24	4,40	2,2	2,5	3,1	3,4	3,7	4	4,9	5,6
#12-24	5,05	2,2	2,5	3,1	3,4	3,7	4	5	5,6
1/4“-20	5,80	2,0	2,4	2,6	2,9	3,1	3,4	4,5	4,7
5/16“-18	7,35	2,0	2,2	2,3	2,5	2,7	2,9	3,2	4,2
3/8“-16	8,85	2,0	2,2	2,3	2,5	2,7	2,9	3,2	3,7
1/4“-28	6,0	2,2	2,5	2,7	3	3,2	3,5	4	5,6
#12-28	5,1	2,2	2,5	2,7	3	3,2	3,5	4	5,6

ps:®single-thread

Technology data for thread forming in extrusions

- Definition: Extrusions are embossings that are manufactured using the tensile-compression method.

NOTE

Parameter determination for thread forming in extrusions!

At thread forming in embossings, the height of the embossing (offset) must be considered when defining the parameters.

- Number of turns: By adding the material thickness and drawing height, the number of turns for the whole embossing including sheet thickness must be programmed.

Lubrication

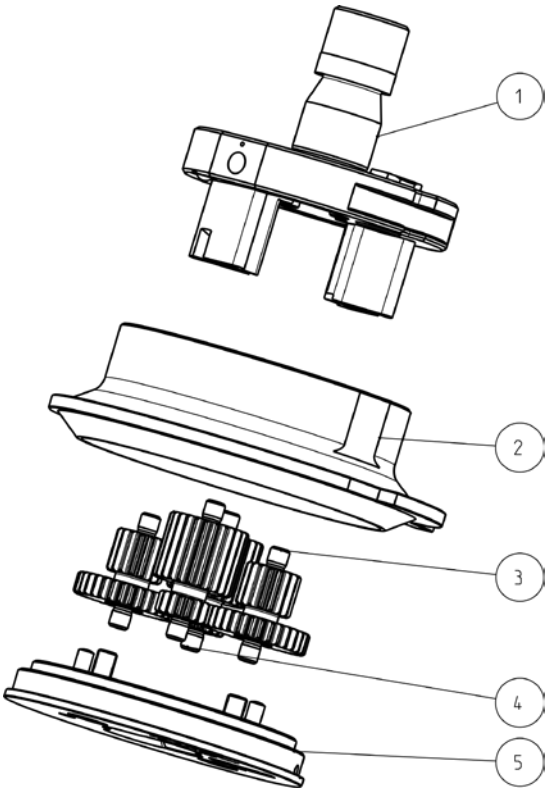
The required lubrication of the tap insert has to be done via the machine lubrication. Therefore, an oil impulse is added to the tapping insert at the beginning of each thread forming cycle via an injection lubricator with a nozzle. For this purpose, a hole is provided in the stripper as well as in the tool through which the oil reaches the tapping insert.

Safety

To ensure a high level of operational safety, the die is equipped with a protective mechanism so that the "FEED STOP" error message is automatically triggered if the tap insert is accidentally plunged too deep. Furthermore, the tapping tool is secured against damage through a freewheel in the leading screw when the programmed number of turns is incorrectly, i.e. the tap insert is immersed too deeply into the die.

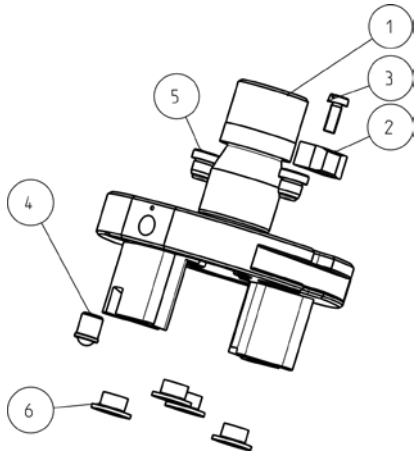
D. DRAWING AND PARTS LIST

Upper part type 1



POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1-5	Upper part	1	924GF1101
1	Punch shaft	1	924601003
2	Gear ring	1	924601020
3	Gear wheel	2	124601040
4	Gear wheel	2	124601050
5	Holder plate	1	924601006

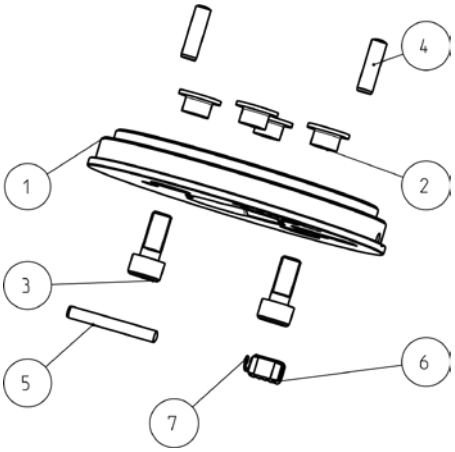
Punch shaft type 1



POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1 - 6	Punch shaft	1	924601003
1	Shaft	1	1620113
2	Adjusting key	1	1620114
3	Screw	1	1620115
4	Ball plunger	1	1620116
5	Lubrication nipple	2	1620117
6	Socket	4	1620118

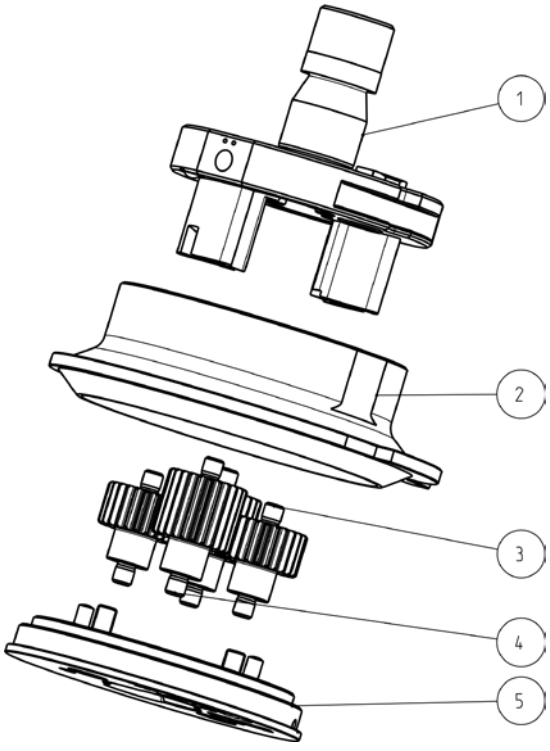
ps:®single-thread

Holder plate type 1



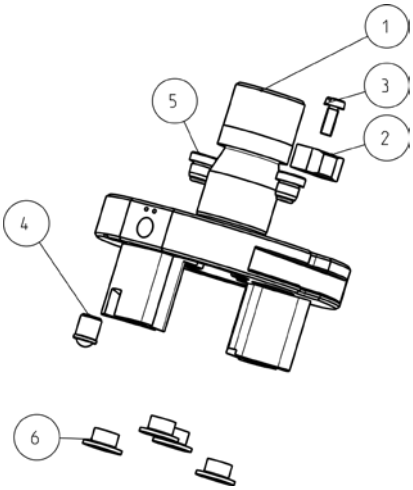
POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1 - 7	Holder plate	1	924601006
1	Plate	1	1620122
2	Socket	4	1620125
3	Screw	2	1620123
4	Pin	2	1620124
5	Pin	1	1620126
6	Locking slide	1	1620127
7	Spring	1	1620128

Upper part type 2



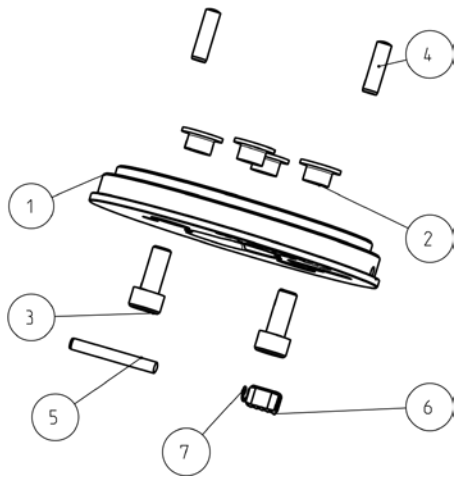
POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1 - 5	Upper part	1	924GF2101
1	Punch shaft	1	924602003
2	Gear ring	1	924601020
3	Gear wheel	2	124602040
4	Gear wheel	2	124602050
5	Holder plate	1	924602006

Punch shaft type 2



POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1 - 6	Punch shaft	1	924602003
1	Shaft	1	1620213
2	Adjusting key	1	1620214
3	Screw	1	1620215
4	Ball plunger	1	1620216
5	Lubrication nipple	2	1620217
6	Socket	4	1620218

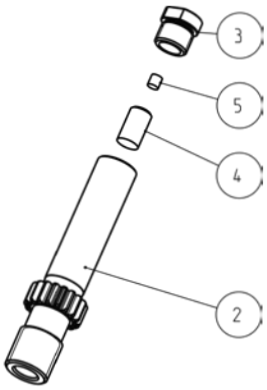
Holder plate type 2

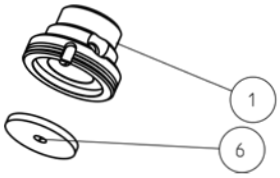


POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1 - 7	Holder plate	1	924602006
1	Plate	1	1620222
2	Socket	4	1620225
3	Screw	2	1620223
4	Pin	2	1620224
5	Pin	1	1620226
6	Locking slide	1	1620227
7	Spring	1	1620228

ps:®single-thread

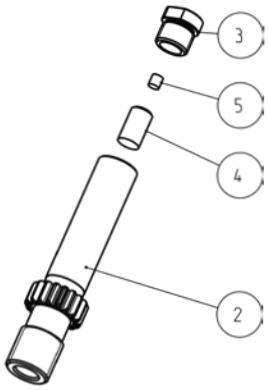
Tap module type 43 (M2,5 or UNC #2-56)

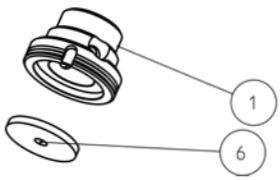




POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1-6	Tap module M2,5 or tap module UNC #2-56	1	924GF1301 924GF1311
2-5	Leading screw	1	16201BA
2	Leading screw	1	16201BB
3	Screw	1	16201BC
4	Magnet	1	16201BD
5	PU spring	1	16201BE
1	Leading nut	1	16201BG
6	Plastic cover	1	124614030

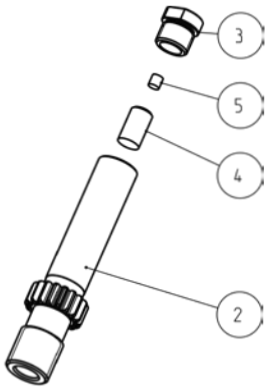
Tap module type 48 (M3 or UNC #3-48)

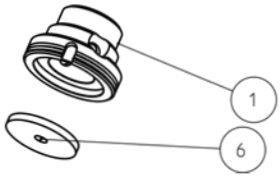




POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1-6	Tap module M3 or tap module UNC #3-48	1	924GF1302 924GF1312
2-5	Leading screw	1	16201CA
2	Leading screw	1	16201CB
3	Screw	1	16201CC
4	Magnet	1	16201CD
5	PU spring	1	16201CE
1	Leading nut		16201CG
6	Plastic cover		124614030

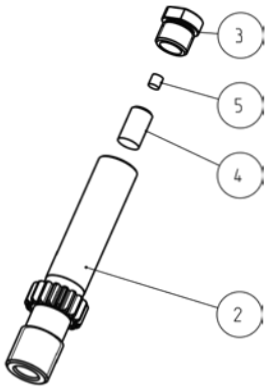
Tap module type 61 (UNC #4-40 or UNC #5-40)

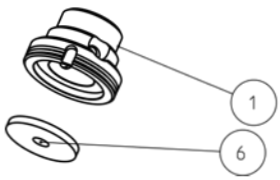




POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1-6	Tap module UNC #4-40 or tap module UNC #5-40	1	924GF1313 924GF1314
2-5	Leading screw	1	16201DA
2	Leading screw	1	16201DB
3	Screw	1	16201DC
4	Magnet	1	16201DD
5	PU spring	1	16201DE
1	Leading nut	1	16201DG
6	Plastic cover	1	124614040

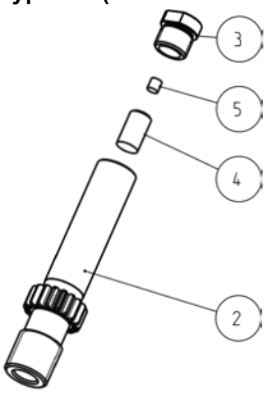
Tap module type 67 (M4)

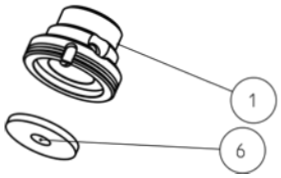




POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1-6	Tap module M4	1	924GF1304
2-5	Leading screw	1	16201DA
2	Leading screw	1	16201DB
3	Screw	1	16201DC
4	Magnet	1	16201DD
5	PU spring	1	16201DE
1	Leading nut	1	16201DG
6	Plastic cover	1	124614040

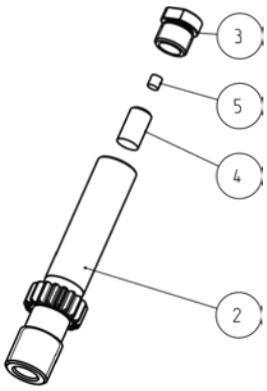
Tap module type 76 (M5 or UNC #6-32 or UNC #8-32 or UNC #10-32)

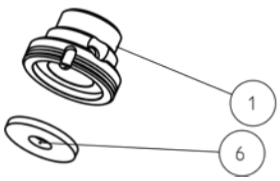




POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1-6	Tap module M5 or tap module UNC #6-32 or tap module UNC #8-32 or tap module UNC #10-32	1	924GF1305 924GF1315 924GF1316 924GF1317
2-5	Leading screw	1	16201EA
2	Leading screw	1	16201EB
3	Screw	1	16201EC
4	Magnet	1	16201ED
5	PU spring	1	16201EE
1	Leading nut	1	16201EG
6	Plastic cover	1	124614050

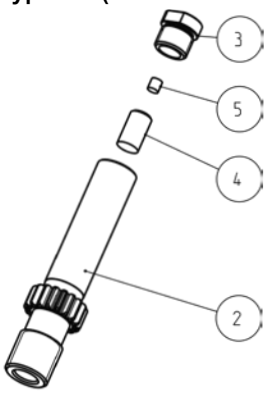
Tap module type 76 (M6 or UNC #10-24 or UNC #12-24 or UNF 1/4“-28 or UNF #12-28)

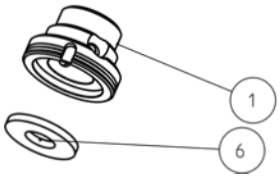




POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1-6	Tap module M6 or tap module UNC #10-24 or tap module UNC #12-24 or tap module UNF 1/4“-28 or tap module UNF #12-28	1	924GF2301 924GF2311 924GF2312 924GF2316 924GF2317
2-5	Leading screw	1	16202FA
2	Leading screw	1	16202FB
3	Screw	1	16202FC
4	Magnet	1	16202FD
5	PU spring	1	16202FE
1	Leading nut	1	16202FG
6	Plastic cover	1	124614060

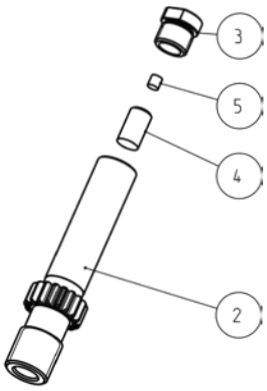
Tap module type 95 (M8 or UNC 1/4“-20)

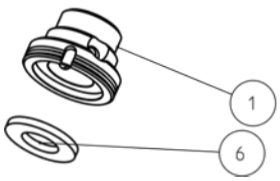




POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1-6	Tap module M6 or tap module UNC 1/4“-20	1	924GF2302 924GF2313
2-5	Leading screw	1	16202GA
2	Leading screw	1	16202GB
3	Screw	1	16202GC
4	Magnet	1	16202GD
5	PU spring	1	16202GE
1	Leading nut	1	16202GG
6	Plastic cover	1	124614080

Tap module type 119 (M10 or UNC 5/16“-18 or UNC 3/8“-16)





POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1-6	Tap module M8 or tap module UNC 5/16“-18 or tap module UNC 3/8“-16	1	924GF2303 924GF2314 924GF2315
2-5	Leading screw	1	16202HA
2	Leading screw	1	16202HB
3	Screw	1	16202HC
4	Magnet	1	16202HD
5	PU spring	1	16202HE
1	Leading nut	1	16202HG
7	Plastic cover	1	124614100

ps:®single-thread

Tap inserts

Type 1 (metric threads)

DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
M2.5	1	924GF1401
M3	1	924GF1402
M4	1	924GF1404
M5	1	924GF1405

Type 1 (Inch threads)

DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
UNC #2-56	1	924GFUC05
UNC #3-48	1	924GFUC10
UNC #4-40	1	924GFUC15
UNC #5-40	1	924GFUC20
UNC #6-32	1	924GFUC25
UNC #8-32	1	924GFUC30
UNF #10-32	1	924GFUF31

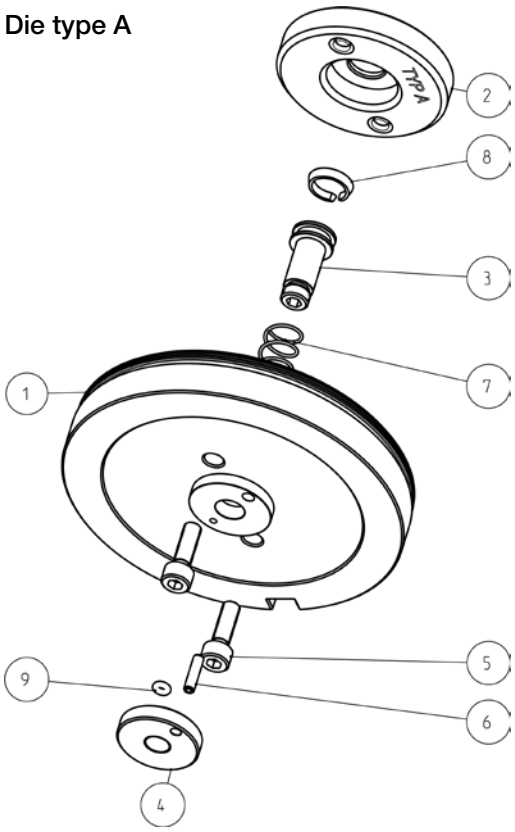
Type 2 (metric threads)

DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
M6	1	924GF2401
M8	1	924GF2402
M10	1	924GF2403

Type 2 (Inch threads)

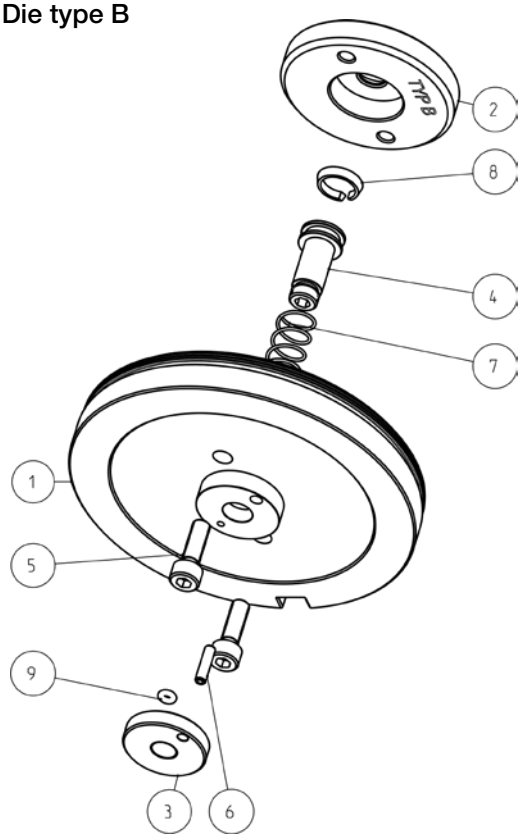
DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
UNC #10-24	1	924GFUC035
UNC #12-24	1	924GFUC40
UNC 1/4“-20	1	924GFUC45
UNC 5/16“-18	1	924GFUC50
UNC 3/8“-16	1	924GFUC55
UNF 1/4“-28	1	924GFUF32
UNF #12-28	1	924GFUF33

Die type A



POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1-9	Die for flat sheets and extrusions upwards	1	924GF2201
1	Die holder	1	1620A42
2	Die plate	1	1620A43
3	Piston	1	1620A44
4	Clamping disc	1	1620A45
5	Screw	2	1620A46
6	Pin	1	1620A47
7	Spring	1	1620A48
8	Piston ring	1	1620A49
9	O-ring	1	1620A50

Die type B



POSITION	DESCRIPTION	INSTALLED PIECES	PART-NO. (PER PIECE)
1-9	Die for extrusions up- and downwards	1	924GF2211
1	Die holder	1	1620B42
2	Die plate	1	1620B43
3	Piston	1	1620B44
4	Clamping disc	1	1620B45
5	Screw	2	1620B46
6	Pin	1	1620B47
7	Spring	1	1620B48
8	Piston ring	1	1620B49
9	O-ring	1	1620B50

E. CLEANING & CARE

We recommend to check and if necessary to clean the tool daily. Especially when you work with galvanised steel, periodic visual inspections for wear and tear should be made more frequently. Sharpening or grinding the material in time increases the tool life enormously.

NOTE

Carry out periodic (daily) visual inspections and clean the tool if necessary!

Especially when soft and galvanised or foil-coated sheets are processed, abrasion of material, zinc or foils can get into the tool and can lead to a damage of the tool!

SALVAGNINI | THICK TURRET | TRUMPF

Operation Manual 12/2024-WW ps:®single-thread Version 2.2 - Z95027WW1

Am Steinkreuz 2
95473 Creußen | Germany

WEB: www.pass-ag.com
MAIL: info@pass-ag.com

FON: +49 (0) 92 70 / 9 85 - 0
FAX: +49 (0) 92 70 / 9 85 - 99