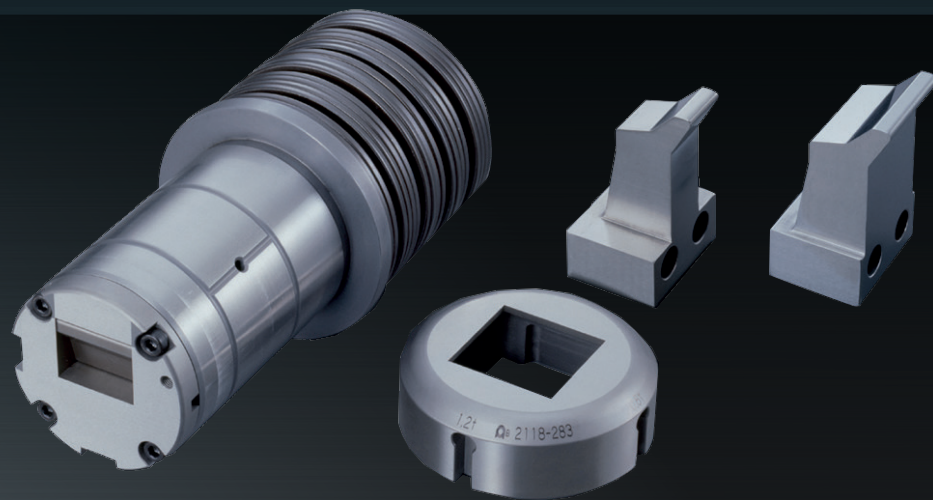


SOLUTION

PUNCHING



TURRET PUNCH PRESS TOOLING



STANDARD SHAPES & FORMING SPECIAL PURPOSE TOOLS



AMADA[®]



TURRET PUNCH PRESS TOOLING

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Web site

www.amada.fr

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• APPLICABLE MACHINE MODELS • • • • • • • • • •

EM, EML, AC, APELIO, LIBRA, COMA, PEGA(H), OCTO(H), VELAI(H), LYRA, ARIES(H), SPINGAR, EUROPE AND ARCADE
 Use Amada's genuine tool on Amada machines.
 Amada is unable to guarantee maintenance for any trouble resulting from use of other tool.

AMADA outillage

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Tél. : +33 (0)2 32 80 81 00
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Punch body replacement and height adjustment become so easy by new spring assy mechanisms. Tooling costs is dramatically reduced by spring assy + guide combination and by the the grind length increase.

— Tooling recommended for EM series of machines —

NEX Spring Assy

For long tooling A (1/2") and B (1 1/4")

Maxthickness 6.0mm

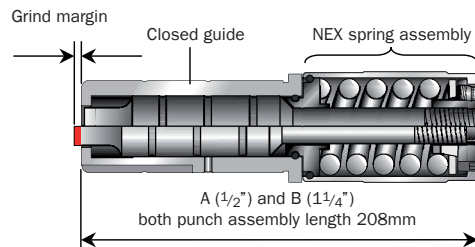
Mild steel - aluminum max 6.0mm
Stainless steel max 3.0mm



Nex spring assembly can be use for both Air-Blow and original style punch body

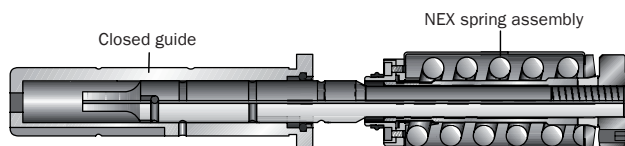
▶ Grinding amount increased to a maximum of 5.0 mm

maximum of 5.0 mm. This means that a punch that may have reached its grinding limit of a conventional standard type can now be reground and reused. peut désormais être encore affuté et utilisé.



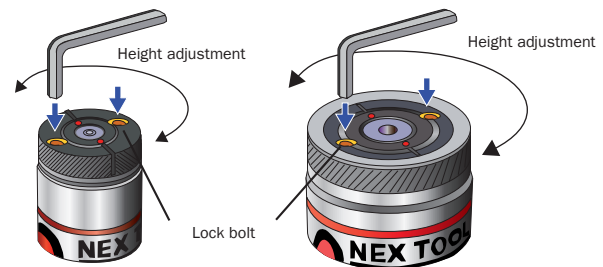
▶ Conventional punch bodies also utilizable

NEX spring units and closed guides are common to all punches of the same size. Conventional punch bodies can be directly used as well.



▶ Maintenance time reduce to 1/3

Height adjustment and punch body change can be performed simply by loosening the lock bolt and turning the punch body.



▶ One-piece spring pack keeps the constant height

The punch head and spring unit are combined into one structure to keep the overall punch assembly height unchanged despite height adjustment.

▶ Optimum benefits air-blow tooling displayed

The air-blow system supplies the air-blow tooling with air and oil mist to prevent deposition and slug pulling and to facilitate maintenance.

Benefit of air-blow tooling



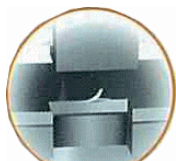
Prevention of entry of foreign body



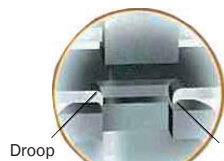
Reduction of slug pulling



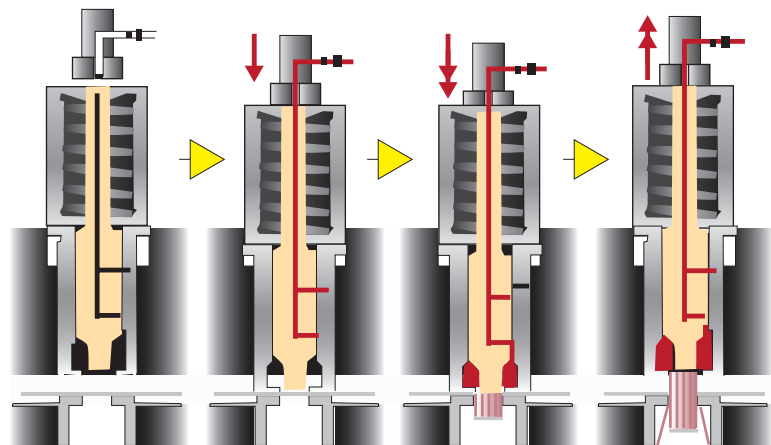
Reduction of strip failures



Reduction of fine needle pulling



Retain hole accuracy



Top dead center

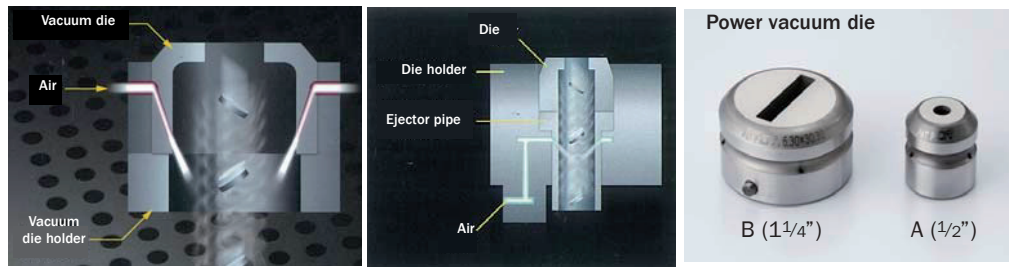
Contact of guide with material

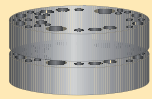
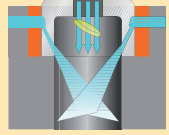
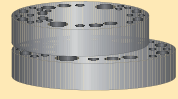
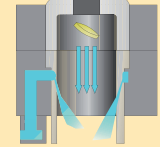
Punching

Rise of tooling

Power Vacuum Die: standard die for EM & AC for A (1/2") et B (1 1/4")

Vacuum suction unit by air jet flowing downwards in the die preventing slug-pulling



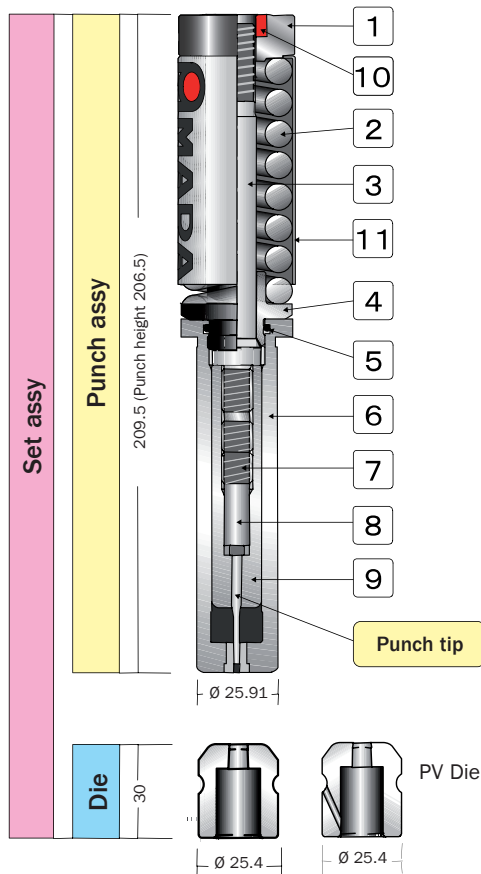
Tooling size	Specification	Vacuum unit	Turret size	Air flow line
A (1/2")	Power vacuum die (PV)	Power vacuum (PV) Die has a small pin holes aiming toward downward, and this creates maximum vacuum effect.	Same diameter turret 	
B(1 1/4")		Air jet vacuum (AJV) Slug vacuum system by strong jet air projected toward downward under the die.	Z turret 	

* Power vacuum die cannot be applied on PKK die and back tapered die, because of less effectiveness of slug-pulling prevention.

* Z turret uses AJV system, air projected position is different from power vacuum system. (See upper drawing)

* Power vacuum system works A(1/2") and B(1 1/4") on the same diameter turret. (except auto index station)

A (1/2") Size ROUND (Ø 0.8 ~ Ø 1.5mm) Tip type Original style



Tooling selection and code

Description	Punch	Die		Code N°
	Material	Grade	Material	
Set assy	SKH	Original	SKD	311110
Punch assy	SKH			111110
Punch tip	SKH			411110
Die		PV	SKH	261V20
		Original	SKH	261020
			SKD	211020

Component parts list

N°	Description	Code N°
1	Double punch head	901400
2	Stripping spring	901300
3	Punch driver	901520
4	Retainer collar	901200
5	O-ring	910060
6	Closed guide with bush & O-ring	901510
7	Lock screw (M10x10)	998600
8	Straight pin	901550
9	Punch body	901530
10	Urethane tube (10pcs.)	-
11	Urethane tube (10pcs.)	926220

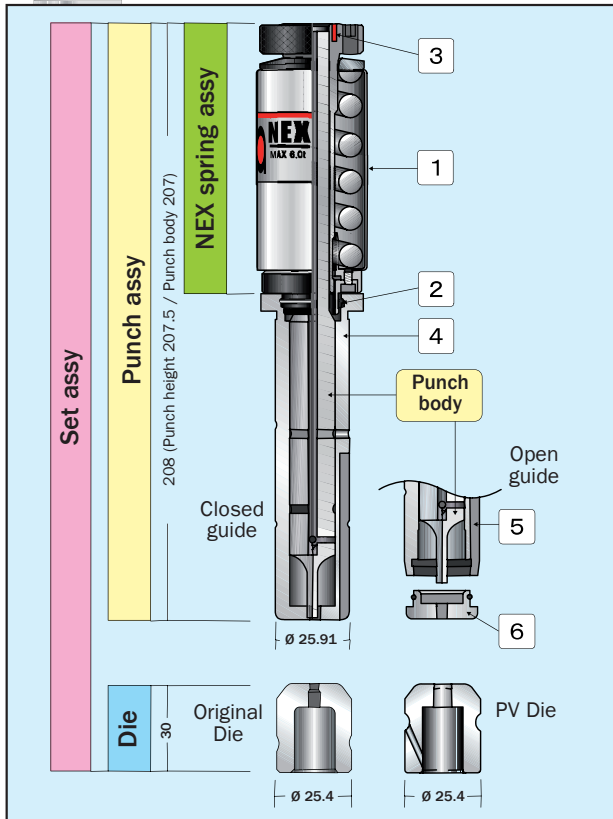
A (1/2") Size

ROUND

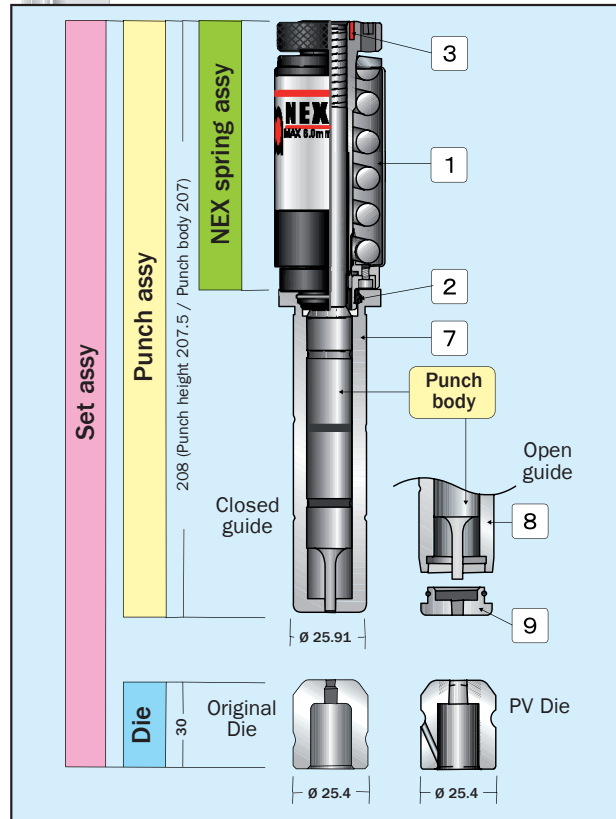
(Ø 1.51 ~ Ø 3.2mm)



NEX Air-Blow



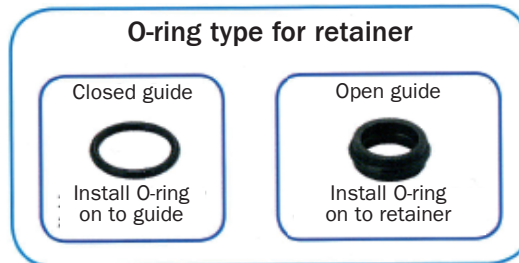
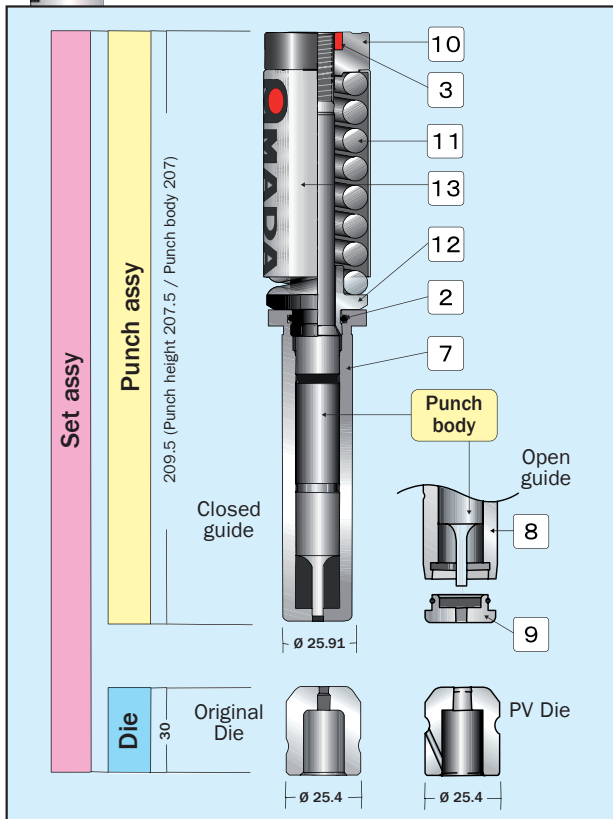
NEX Original Style



* Closed guide is recommended for EM machine.



Original style



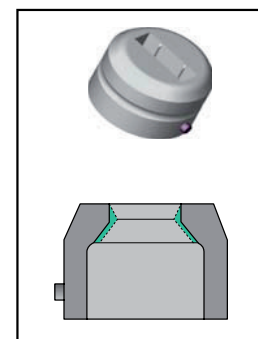
■ Tooling selection and code

Description	Punch		Die		NEX Air-Blow		NEX Original style		Original style	
	Material	Grade	Material		Closed guide	Open guide	Closed guide	Open guide	Closed guide	Open guide
Set assy	APH	APV	HSS		36HV20	36HZ20	36XV20	36XZ20		
		Original	HSS		36HY20	36HX20	36XY20	36XX20	36X020	36X720
			HWS		31HY20	31HX20	31XY20	31XX20	31X020	31X720
	HSS + TiCN	APV	HSS		36GV20	36GZ20	366V20	366Z20		
		Original	HSS		36GY20	36GX20	366Y20	366X20	366020	366720
			HWS		31GY20	31GX20	316Y20	316X20	316020	316720
	HSS	APV	HSS		36FV20	36FZ20	362V20	362Z20		
		Original	HSS		36FY20	36FX20	362Y20	362X20	362020	362720
			HWS		31FY20	31FX20	312Y20	312X20	312020	312720
Punch assy	APH				11HY20	11HX20	11XY20	11XX20	11X020	11X720
	HSS+TiCN				11GY20	11GX20	116Y20	116X20	116020	116720
	HSS				11FY20	11FX20	112Y20	112X20	112020	112720
Punch body	APH				41H020	41H020	41X020	41X020	41X020	41X020
	HSS+TiCN				41G020	41G020	416020	416020	416020	416020
	HSS				41F020	41F020	412020	412020	412020	412020
Die		Original	HSS		261020	261020	261020	261020	261020	261020
			HWS		211020	211020	211020	211020	211020	211020
		APV	HSS		261V20	261V20	261V20	261V20		
			PKK die Ø 2.0mm or more	HSS		261420	261420	261420	261420	261420
		HWS			211420	211420	211420	211420	211420	211420
		ARX	HSS		26142X	26142X	26142X	26142X	26142X	26142X
HWS			21142X	21142X	21142X	21142X	21142X	21142X		

■ Component parts list

Fig. N°	Description	Code N°	
1	NEX spring assy	980000	
2	O-ring	Closed guide	910060
		Open guide	910150
3	Urethane tube (10pcs.)	-	
4	Closed guide (AB)	51F020	
5	Open guide (AB)	51F320	
6	QM stripper plate (AB)	51F730	
5 6	Open guide (AB) & QM stripper plate (AB)	81F630	
7	Closed guide (Original style)	511020	
8	Open guide (Original style)	511320	
9	QM stripper plate (Original style)	511730	
8 9	Open guide (Original) & QM stripper plate (Original)	811630	
10	Punch head	901400	
11	Stripping spring	901300	
12	Retainer collar	901200	
13	Spring cover	926220	
14	QS pliers	911910	

PKK die*

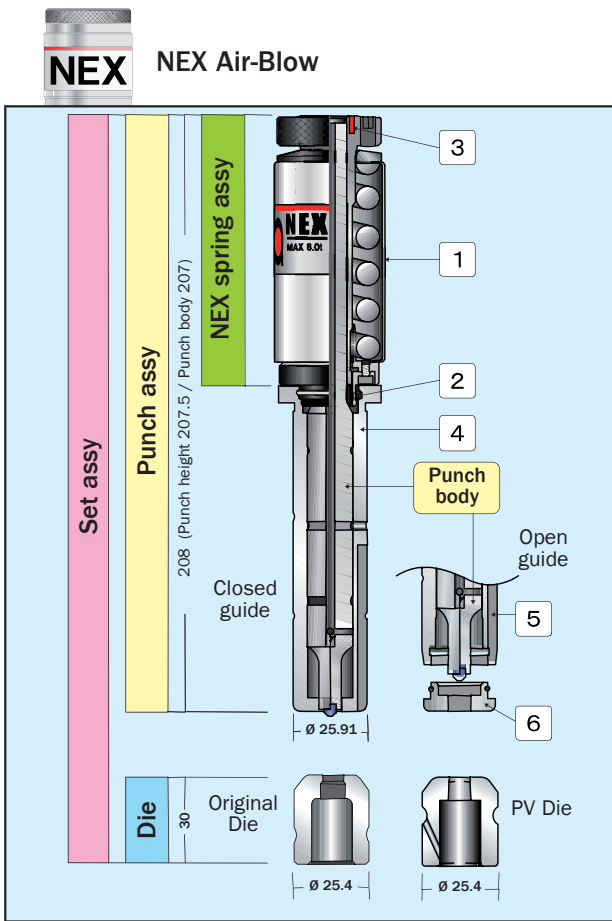


* Retainer slug profile

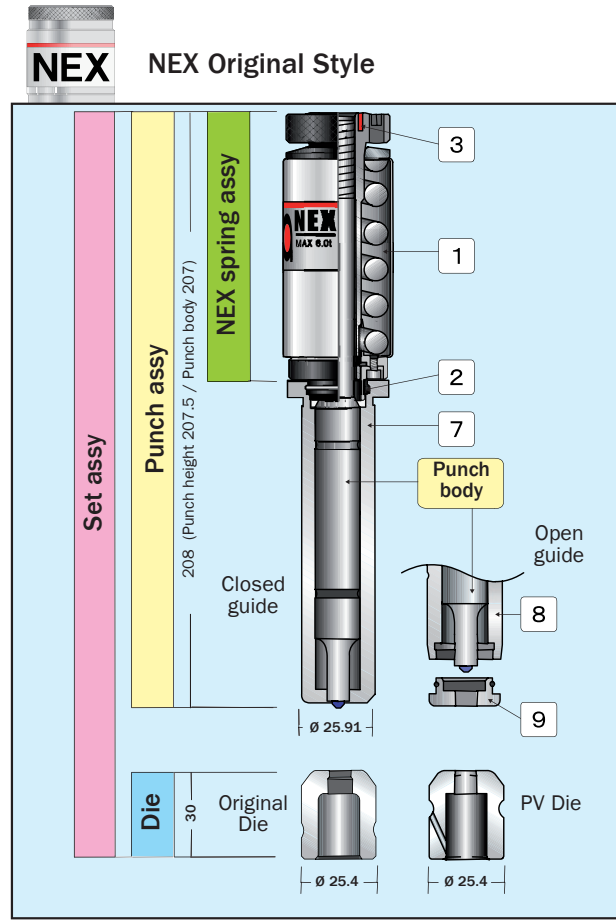
A (1/2") Size

ROUND

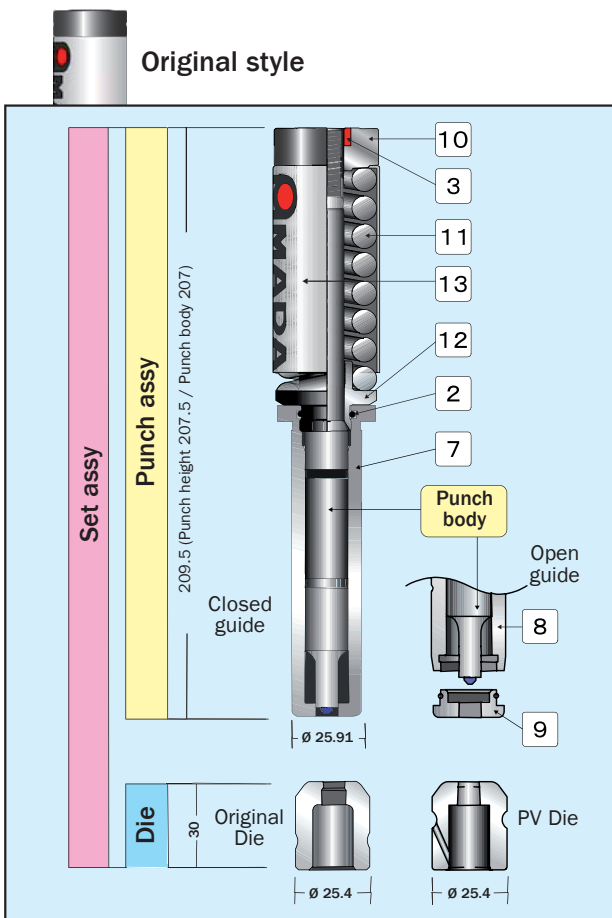
(Ø 3.21 ~ Ø 12.7mm)



* Closed guide is recommended for EM machine.
 * Punch bigger than 6.0mm diameter has a center hole.



* Punch bigger than 6.0mm diameter has a slug ejector.



* Punch bigger than 6.0mm diameter has a slug ejector.



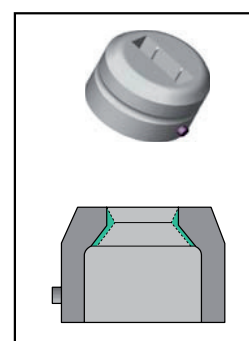
■ Tooling selection and code

Description	Poinçon	Matrice		NEX Air-Blow		NEX Original style		Original style	
	Material	Grade	Material	Closed guide	Open guide	Closed guide	Open guide	Closed guide	Open guide
Set assy	APH	APV	HSS	36HV30	36HZ30	36XV30	36XZ30		
		Original	HSS	36HY30	36HX30	36XY30	36XX30	36X030	36X630
			HWS	31HY30	31HX30	31XY30	31XX30	31X030	31X630
	HSS + TiCN	APV	HSS	36GV30	36GZ30	366V30	366Z30		
		Original	HSS	36GY30	36GX30	366Y30	366X30	366030	366630
			HWS	31GY30	31GX30	316Y30	316X30	316030	316630
	HSS	APV	HSS	36FV30	36FZ30	362V30	362Z30		
		Original	HSS	36FY30	36FX30	362Y30	362X30	362030	362630
			HWS	31FY30	31FX30	312Y30	312X30	312030	312630
Punch assy	APH			11HY30	11HX30	11XY30	11XX30	11X030	11X630
	HSS+TiCN			11GY30	11GX30	116Y30	116X30	116030	116630
	HSS			11FY30	11FX30	112Y30	112X30	112030	112630
Punch body	APH			41H030	41H030	41X030	41X030	41X030	41X030
	HSS+TiCN			41G030	41G030	416030	416030	416030	416030
	HSS			41F030	41F030	412030	412030	412030	412030
Die		Original	HSS	261020	261020	261020	261020	261020	261020
			HWS	211020	211020	211020	211020	211020	211020
		APV	HSS	261V20	261V20	261V20	261V20		
		PKK die Ø 2.0mm or more	HSS	261420	261420	261420	261420	261420	261420
			HWS	211420	211420	211420	211420	211420	211420
		ARX	HSS	26142X	26142X	26142X	26142X	26142X	26142X
HWS	21142X	21142X	21142X	21142X	21142X	21142X			

■ Component parts list

Fig N°	Description	Code N°	
1	NEX spring assy	980000	
2	O-ring	Closed guide	910060
		Open guide	910150
3	Urethane tube (10pcs.)	-	
4	Closed guide (AB)	51F020	
5	Open guide (AB)	51F320	
6	QM stripper plate (AB)	51F730	
5 6	Open guide (AB) & QM stripper plate (AB)	81F630	
7	Closed guide (Original style)	511020	
8	Open guide (Original style)	511320	
9	QM stripper plate (Original style)	511730	
8 9	Open guide (Original) & QM stripper plate (Original)	811630	
10	Punch head	901400	
11	Stripping spring	901300	
12	Retainer collar	901200	
13	Spring cover	926220	
14	QS pliers	911910	

PKK die*

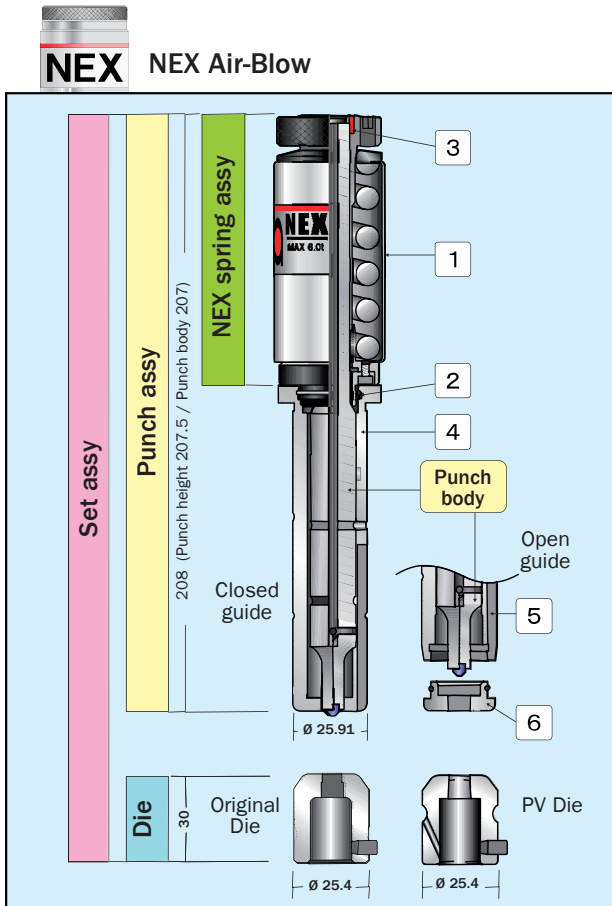


* Retainer slug profile

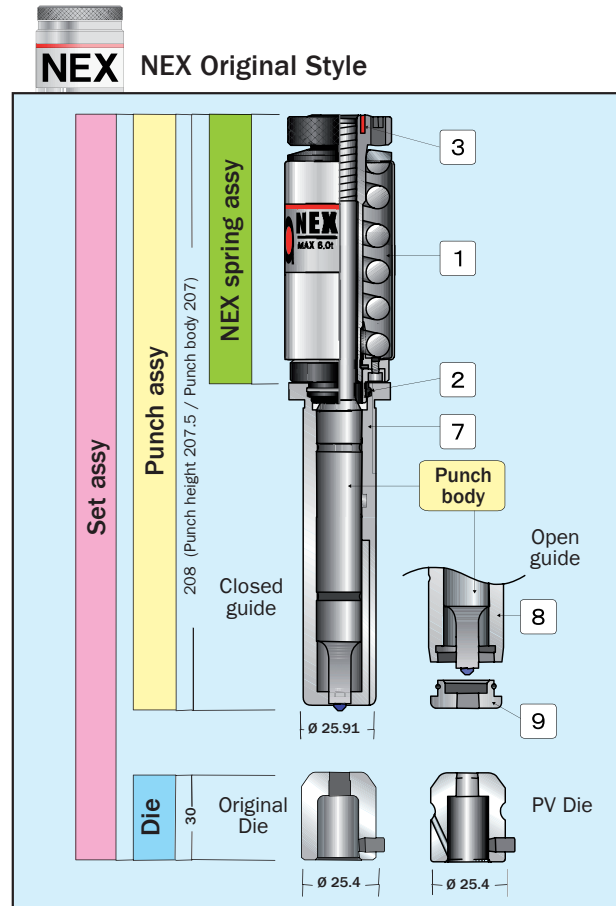
A (1/2") Size

SHAPE

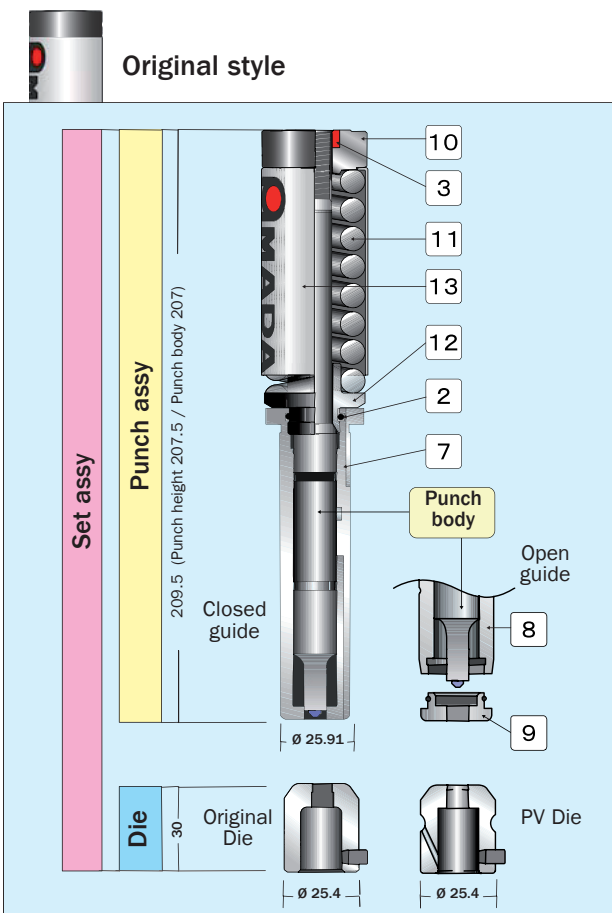
Inscribed 12.7mm



* Closed guide is recommended for EM machine.
* Punch bigger than 6.0mm diameter has a center hole.



* Punch bigger than 6.0mm diameter has a slug ejector.



* Punch bigger than 6.0mm diameter has a slug ejector.



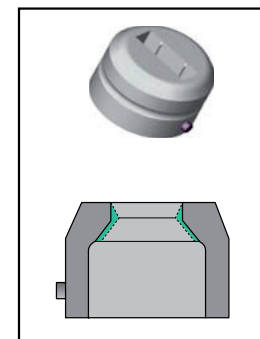
■ Tooling selection and code

Description	Poinçon	Matrice		NEX Air-Blow		NEX Original style		Original style	
	Material	Grade	Material	Closed guide	Open guide	Closed guide	Open guide	Closed guide	Open guide
Set assy	APH	APV	HSS	37HV20	32HZ20	37XV20	37XZ20		
		Original	HSS	37HY20	37HX20	37XY20	37XX20	37X020	37X720
			HWS	32HY20	32HX20	32XY20	32XX20	32X020	32X720
	HSS + TiCN	APV	HSS	37GV20	32GZ20	376V20	376Z20		
		Original	HSS	37GY20	37GX20	376Y20	376X20	376020	376630
			HWS	32GY20	32GX20	326Y20	326X20	326020	326630
	SKH	APV	HSS	37FV20	32FZ20	372V20	372Z20		
		Original	HSS	37FY20	37FX20	372Y20	372X20	372020	372630
			HWS	32FY20	32FX20	322Y20	322X20	322020	322630
Punch assy	APH			12HY20	12HX20	12XY20	12XX20	12X020	12X720
	HSS + TiCN			12GY20	12GX20	126Y20	126X20	126020	126630
	HSS			12FY20	12FX20	122Y20	122X20	122020	122630
Punch body	APH			42H020	42H020	42X020	42X020	42X020	42X020
	HSS + TiCN			42G020	42G020	426020	426020	426020	426020
	HSS			42F020	42F020	422020	422020	422020	422020
Die		Original	HSS	271020	271020	271020	271020	271020	271020
			HWS	221020	221020	221020	221020	221020	221020
		APV	HSS	271V20	271V20	271V20	271V20		
			PKK die Ø 2.0mm or more	HSS	271420	271420	271420	271420	271420
		HWS		221420	221420	221420	221420	221420	221420
		ARX	HSS	27142X	27142X	27142X	27142X	27142X	27142X
HWS	22142X		22142X	22142X	22142X	22142X	22142X		

■ Component parts list

Fig N°	Description	Code N°	
1	NEX spring assy	980000	
2	O-ring	Closed guide	910060
		Open guide	910150
3	Urethane tube (10pcs.)	-	
4	Closed guide (AB)	52F020	
5	Open guide (AB)	52F320	
6	QM stripper plate (AB)	52F730	
5 6	Open guide (AB) & QM stripper plate (AB)	82F630	
7	Closed guide (Original style)	521020	
8	Open guide (Original style)	521320	
9	QM stripper plate (Original style)	521820	
8 9	Open guide (Original) & QM stripper plate (Original)	821630	
10	Punch head	901400	
11	Stripping spring	901300	
12	Retainer collar	901200	
13	Spring cover	926220	
14	QS pliers	911910	

PKK die*



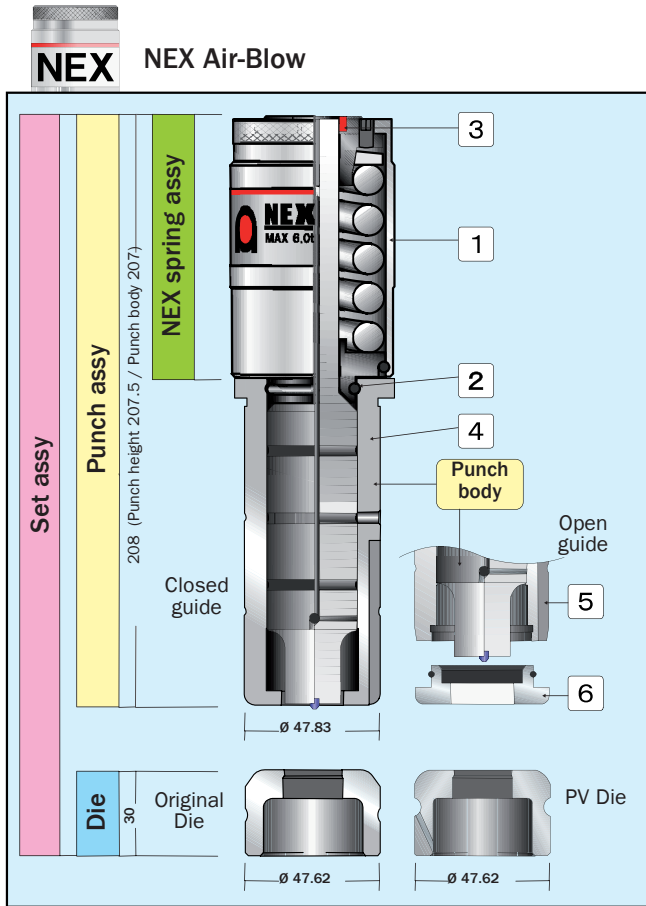
* Retainer slug profile

Additional cost

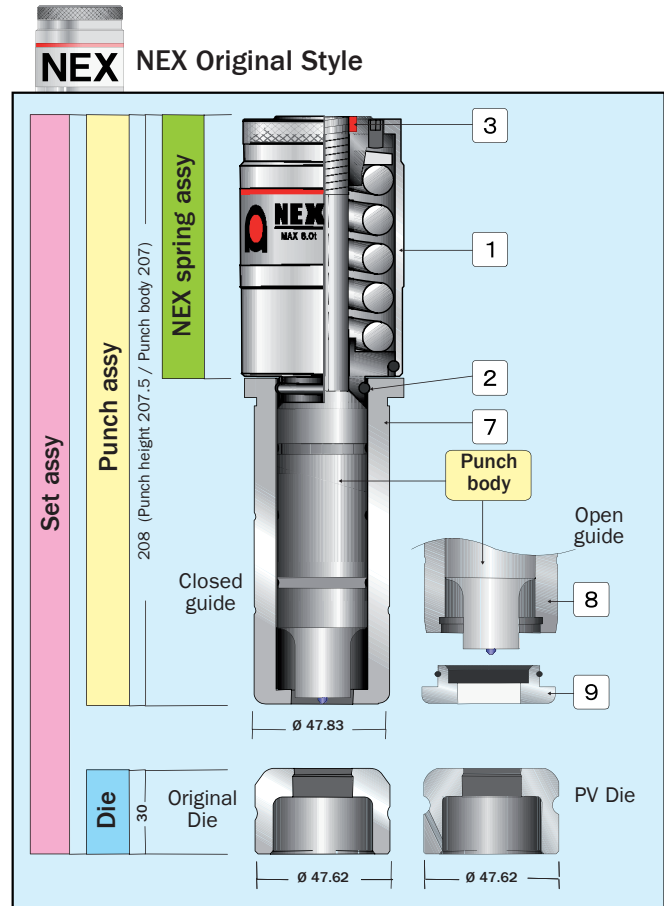
- * Additional keyway (Standard keyway : 0° ,90°)
- * Roof top 2° for A/B/C/D Station (E Station Standard)
- * Narrow type (Stubby punch): Shape under 2.4 mm for A & B St, under 4 mm for C, D & E St.

B (1^{1/4}" Size) ROUND

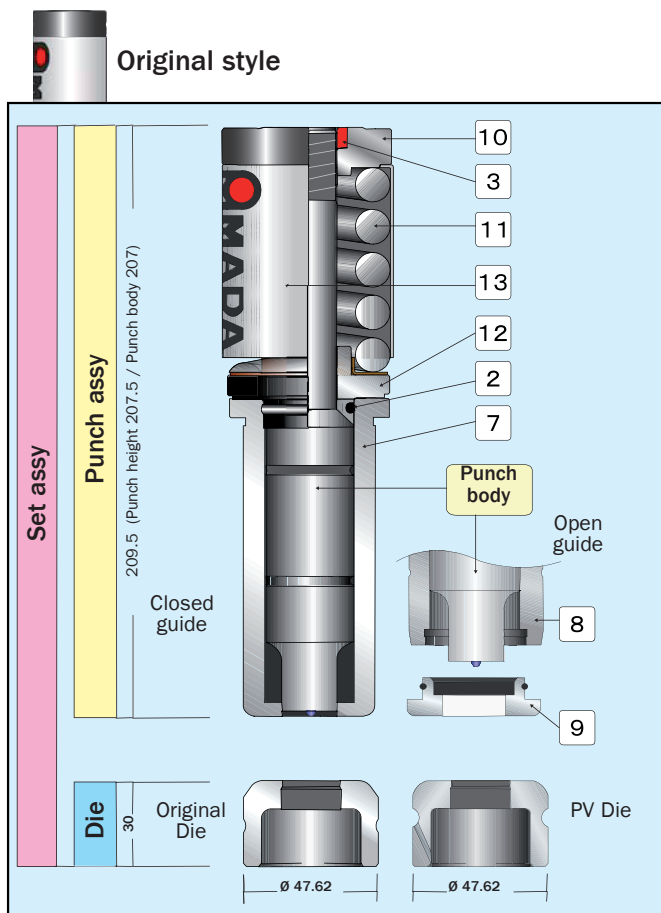
Air-Blow : Ø 12.71 ~ Ø 30.0mm
Original style : Ø 12.71 ~ Ø 31.7mm



* Closed guide is recommended for EM machine.
* Punch bigger than 6.0mm diameter has a center hole.



* Punch bigger than 6.0mm diameter has a slug ejector.



* Punch bigger than 6.0mm diameter has a slug ejector.



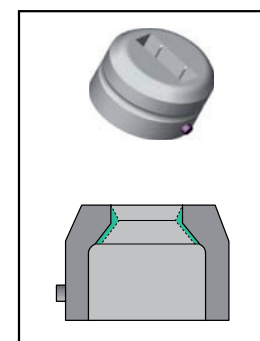
■ Tooling selection and code

Description	Poinçon	Matrice		NEX Air-Blow		NEX Original style		Original style	
	Material	Grade	Material	Closed guide	Open guide	Closed guide	Open guide	Closed guide	Open guide
Set assy	APH	APV	HSS	36HV40	36HZ40	36XV40	36XZ40		
		Original	HSS	36HY40	36HX40	36XY40	36XX40	36X040	36X640
			HWS	31HY40	31HX40	31XY40	31XX40	31X040	31X640
	HSS + TiCN	APV	HSS	36GV40	36GZ40	366V40	366Z40		
		Original	HSS	36GY40	36GX40	366Y40	366X40	366040	366640
			HWS	31GY40	31GX40	316Y40	316X40	316040	316640
	HSS	APV	HSS	36FV40	36FZ40	362V40	362Z40		
		Original	HSS	36FY40	36FX40	362Y40	362X40	362040	362640
			HWS	31FY40	31FX40	312Y40	312X40	312040	312640
Punch assy	APH			11HY40	11HX40	11XY40	11XX40	11X040	11X640
	HSS +TiCN			11GY40	11GX40	116Y40	116X40	116040	116640
	SKH			11FY40	11FX40	112Y40	112X40	112040	112640
Punch body	APH			41H040	41H040	41X040	41X040	41X040	41X040
	HSS +TiCN			41G040	41G040	416040	416040	416040	416040
	HSS			41F040	41F040	412040	412040	412040	412040
Die		Original	HSS	261040	261040	261040	261040	261040	261040
			HWS	211040	211040	211040	211040	211040	211040
		APV	HSS	261V40	261V40	261V40	261V40		
		PKK die Ø 2.0mm or more	HSS	261440	261440	261440	261440	261440	261440
			HWS	211440	211440	211440	211440	211440	211440
		ARX	HSS	26144X	26144X	26144X	26144X	26144X	26144X
HWS	21144X	21144X	21144X	21144X	21144X	21144X			

■ Component parts list

Fig N°	Description	Code N°
1	NEX spring assy	981000
2	O-ring	910080
3	Urethane tube (10pcs.)	-
4	Closed guide (AB)	51F040
5	Open guide (AB)	51F440
6	QM stripper plate (AB)	51F740
5 6	Open guide (AB) & QM stripper plate (AB)	81F640
7	Closed guide (Original style)	511040
8	Open guide (Original style)	511340
9	QM stripper plate (Original style)	511740
8 9	Open guide (Original) & QM stripper plate (Original)	811640
10	Punch head	901430
11	Stripping spring	901310
12	Retainer collar	901210
13	Spring cover	926240
14	QS pliers	911910

PKK die*

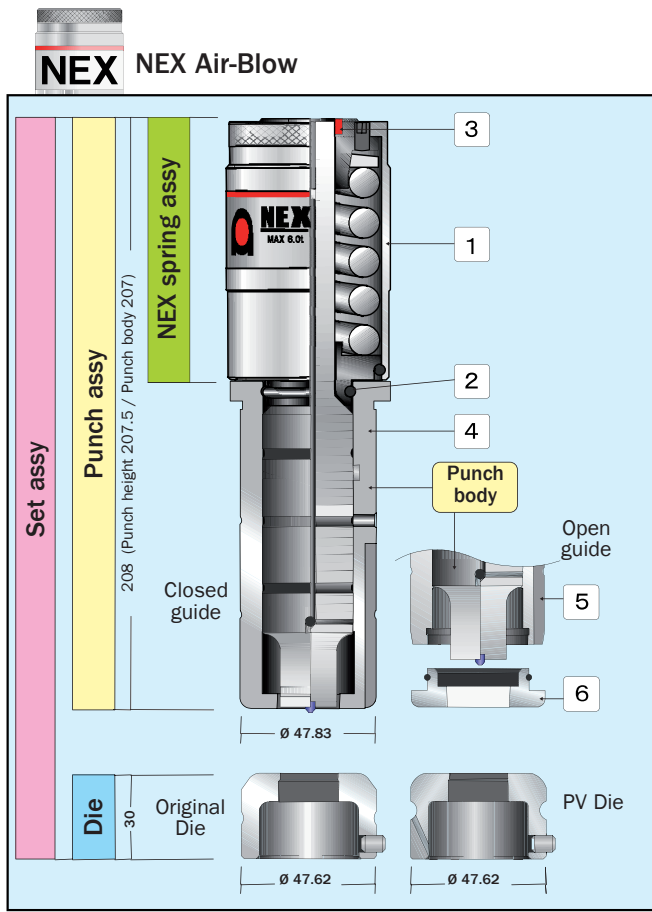


* Retainer slug profile

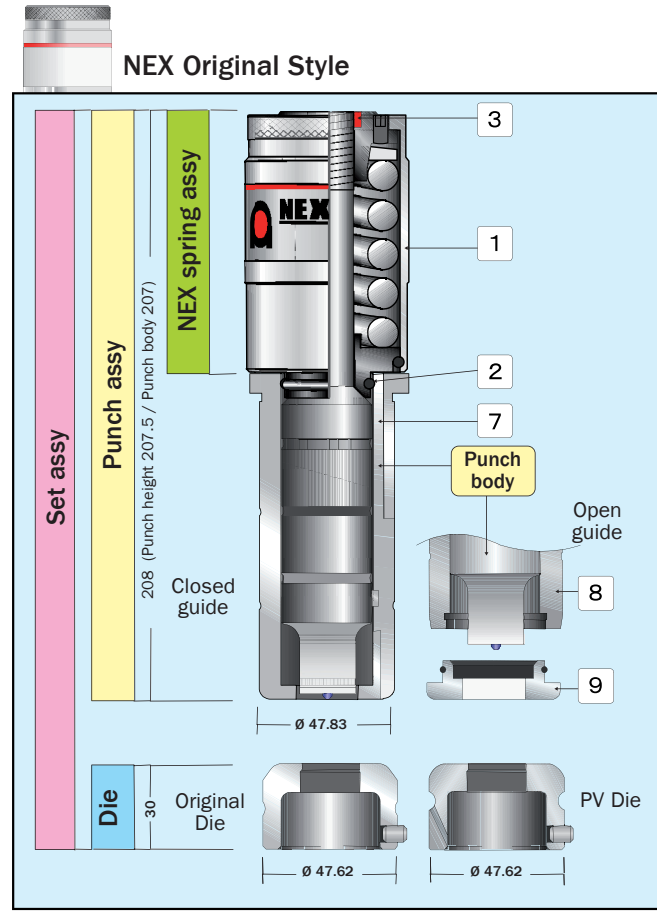
B (1 1/4") Size

SHAPE

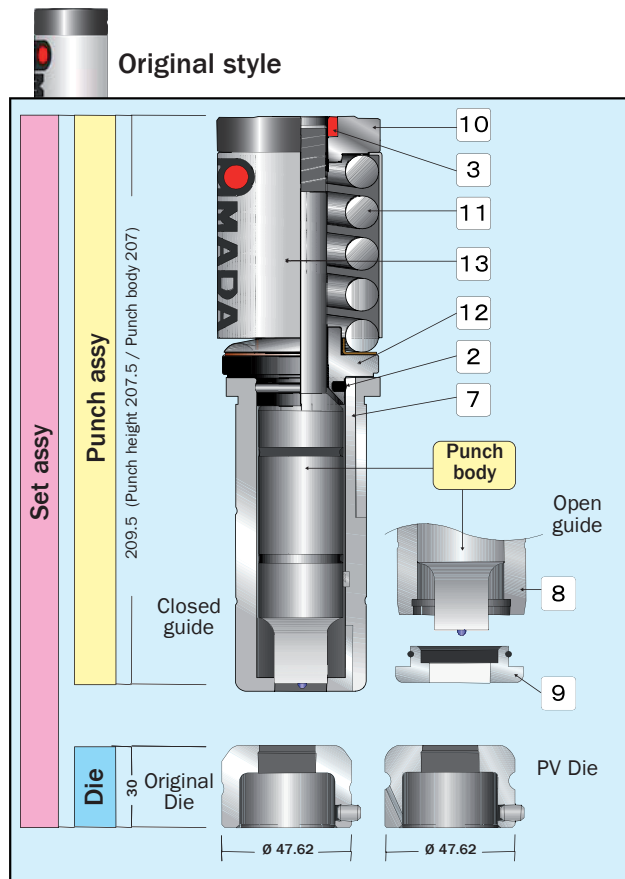
Air-Blow : inscribed Ø 30.0mm (rectangle less than 10x30mm)
 Original style : Ø 12.71 ~ Ø 31.7mm



* Le guide fermé est recommandé pour la machine EM.
 * Un poinçon supérieur à Ø 6 mm a un perçage central.



* Punch bigger than 6.0mm diameter has a slug ejector.



* Punch bigger than 6.0mm diameter has a slug ejector.



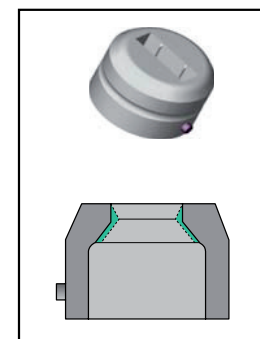
■ Tooling selection and code

Description	Punch		Die		NEX Air-Blow		NEX Original style		Original style	
	Material	Grade	Material		Closed guide	Open guide	Closed guide	Open guide	Closed guide	Open guide
Set assy	APH	APV	HSS		37HV40	37HZ40	37XV40	37XZ40		
		Original	HSS		37HY40	37HX40	37XY40	37XX40	37X040	37X640
			HWS		32HY40	32HX40	32XY40	32XX40	32X040	32X640
	HSS + TiCN	APV	HSS		37GV40	37GZ40	376V40	376Z40		
		Original	HSS		37GY40	37GX40	376Y40	376X40	376040	376640
			HWS		32GY40	32GX40	326Y40	326X40	326040	326640
	HSS	APV	HSS		37FV40	37FZ40	372V40	372Z40		
		Original	HSS		37FY40	37FX40	372Y40	372X40	372040	372640
			HWS		32FY40	32FX40	322Y40	322X40	322040	322640
Punch assy	APH			12HY40	12HX40	12XY40	12XX40	12X040	12X640	
	HSS +TiCN			12GY40	12GX40	126Y40	126X40	126040	126640	
	HSS			12FY40	12FX40	122Y40	122X40	122040	122640	
Punch body	APH			42H040	42H040	42X040	42X040	42X040	42X040	
	HSS +TiCN			42G040	42G040	426040	426040	426040	426040	
	HSS			42F040	42F040	422040	422040	422040	422040	
Die		Original	HSS	271040	271040	271040	271040	271040	271040	
			HWS	221040	221040	221040	221040	221040	221040	
		APV	HSS	271V40	271V40	271V40	271V40			
		PKK die Ø 2.0mm or more	HSS	271440	271440	271440	271440	271440	271440	
			HWS	221440	221440	221440	221440	221440	221440	
		ARX	HSS	27144X	27144X	27144X	27144X	27144X	27144X	
HWS	22144X	22144X	22144X	22144X	22144X	22144X				

■ Component parts list

Fig N°	Description	Code N°
1	NEX spring assy	981000
2	O-ring	910080
3	Urethane tube (10pcs.)	-
4	Closed guide (AB)	52F040
5	Open guide (AB)	52F440
6	QM stripper plate (AB)	52F840
5 6	Open guide (AB) & QM stripper plate (AB)	82F640
7	Closed guide (Original style)	521040
8	Open guide (Original style)	521340
9	QM stripper plate (Original style)	521640
8 9	Open guide (Original) & QM stripper plate (Original)	821640
10	Punch head	901430
11	Stripping spring	901310
12	Retainer collar	901210
13	Spring cover	926240
14	QS pliers	911910

PKK die*



* Retainer slug profile

Additional cost

- * Additional keyway (Standard keyway : 0° ,90°)
- * Roof top 2° for A/B/C/D Station (E Station Standard)
- * Narrow type (Stubby punch): Shape under 2.4 mm for A & B St, under 4 mm for C, D & E St.

C (2"), D (3¹/₂"), E (4¹/₂")

Large station Alpha guide series

Realize the time reduction for tooling maintenance!
 The tooling cost of large-size punches is sharply reduced.
 The punch tip can be more easily changed and adjusted.
 Air-blow effect is substantially improved.

— Tooling recommended for EM machines series —

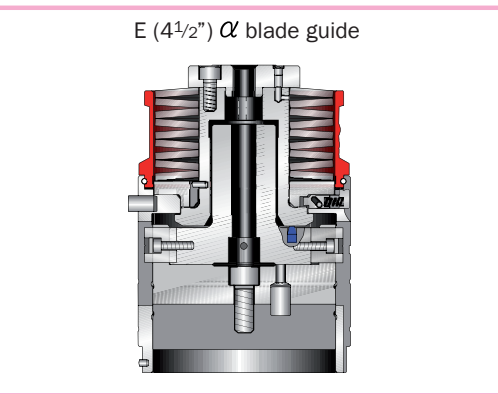
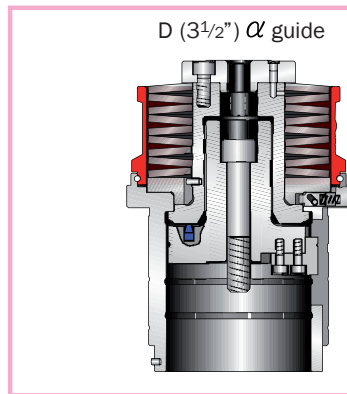
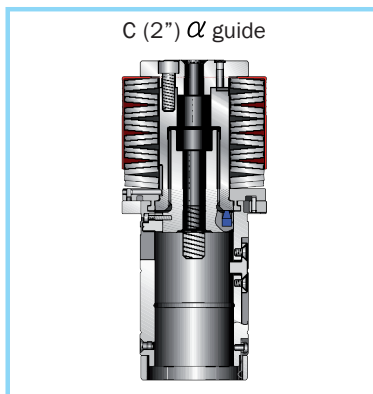
α (Alpha) guides

α (Alpha) blade guides

For long tooling D (3¹/₂"), E (4¹/₂")

α (Alpha) guides

For long tooling C (2")



► **Tooling cost reduction**

α guide and α blade guide have a dual structure, the punch driver can slide internally and make easy height adjustment without shim. Therefore maximum tool grinding value become 2.5 times longer to maximum 5mm.
 Combination use of α blade guide and α blade punch reduce the tooling cost for rectangle and obround shape punch body.

► **One touch punch height adjustment**

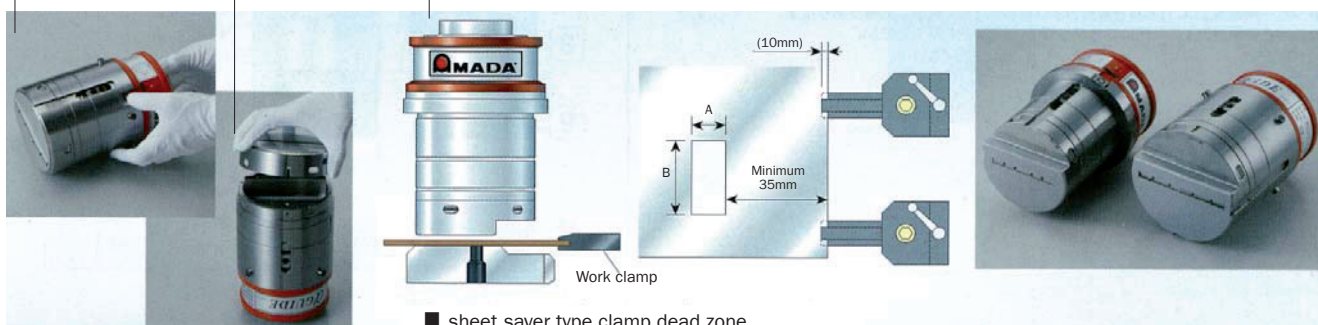
Easy adjustment by pushing the adjustment button and rotating the punch head. No additional hand tools are required.

► **Easy stripper plate replacement**

Stripper plates can be easily removed without the need for hand tools.

α Stripper plates can be easily removed without the need for hand tools.

Note : Torques wrench is needed for the removal of Z style stripper from α guide adapter..



■ sheet saver type clamp dead zone

α guide combination

α guide

Punch body and punch tip can be loaded

Air-blow punch

M14 bolt

Punch body

Punch holder

Punch tip

Original style punch

M12 bolt + Collar

Punch body

Punch holder

Punch tip

α blade guide

Specified guide for α blade punch

α blade punch

B

A

Punch type	α blade punch			
Tool size	D (3½")		E (4½")	
A	1.5~1.8mm			
B (max)	85mm		110mm	
Max diagonal	Air-Blow	Original style	Air-Blow	Original style
	Ø 85.6mm	Ø 88.9mm	Ø 110.5mm	Ø 114.0mm

* Max dimension is A size α size diagonal.
 * α blade punch is deferent from the tip type punch for large size.
 * α blade punch is only loaded on α blade guide.
 * Jig is required for punch tip regrinding on TOGU III.

α guide adapter

Z style air-blow stripper

Original style stripper

Current stripper plate can be used

α sheet saver stripper
(Air-Blow or Original style)

1 side escape

2 sides escape

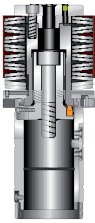
Material utilization ratio increases

α solid stripper
(Air-blow or Original style)

Easy replacement of stripper.
 Can be used for cluster punch

Thick Turret C (2") Size Large station guides

N°1
α guide



N°2
Air-blow guide



N°3
Original style guide



■ Component parts list

Type	Description	N°	Code
Alpha guide	Alpha guide assy	1	90743E
Air-blow guide	Air-blow guide assy	2	900190
Original style guide	Original style guide assy	3	900120

Thick Turret D (3 1/2") Size Large station guides

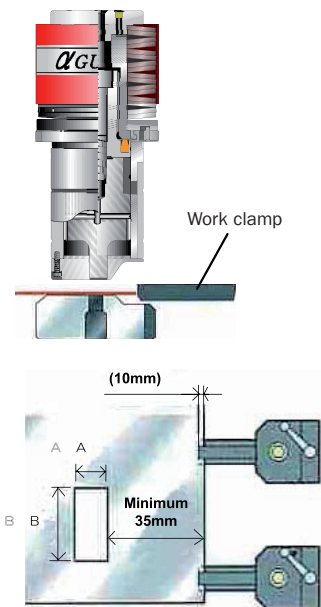
■ List of components

α guide	N°1	N°2
α blade guide	N°3	N°4
Air-blow guide, Original style guide	N°5	N°6
	Air-Blow guide	Original style guide

■ Component parts list

Type	Description	N°	Code
Alpha guide	Alpha guide assy without adapter	1	90713E
	Alpha guide assy with adapter	2	90719E
	Alpha guide adapter		907170
Alpha blade guide	Alpha blade guide assy without adapter	3	90715E
	Alpha blade guide assy with adapter	4	90721E
Air-Blow guide	Air-blow guide assy	5	900190
Original syle guide	Original style guide assy	6	900130

C (2"), D (3 1/2"), E (4 1/2") Size Sheet saver guide, stripper & die



■ Tooling selection and code

Tool size	Description	Code
C (2")	Alpha sheet saver guide assy	90744E
	Original style sheet saver stripper plate	900205EU
	Air-blow sheet saver stripper plate	900275EU
	Sheet saver die	220060
D (3 1/2")	Alpha blade guide assy	90713E
	Original style sheet saver stripper plate	900210
	Air-blow sheet saver stripper plate	900280
	Sheet saver die	220080
E (4 1/2")	Alpha blade guide assy	90714E
	Original style sheet saver stripper plate	900310
	Air-blow sheet saver stripper plate	900290
	Sheet saver die	220090

Thick Turret E (4 1/2") Size Large station guides

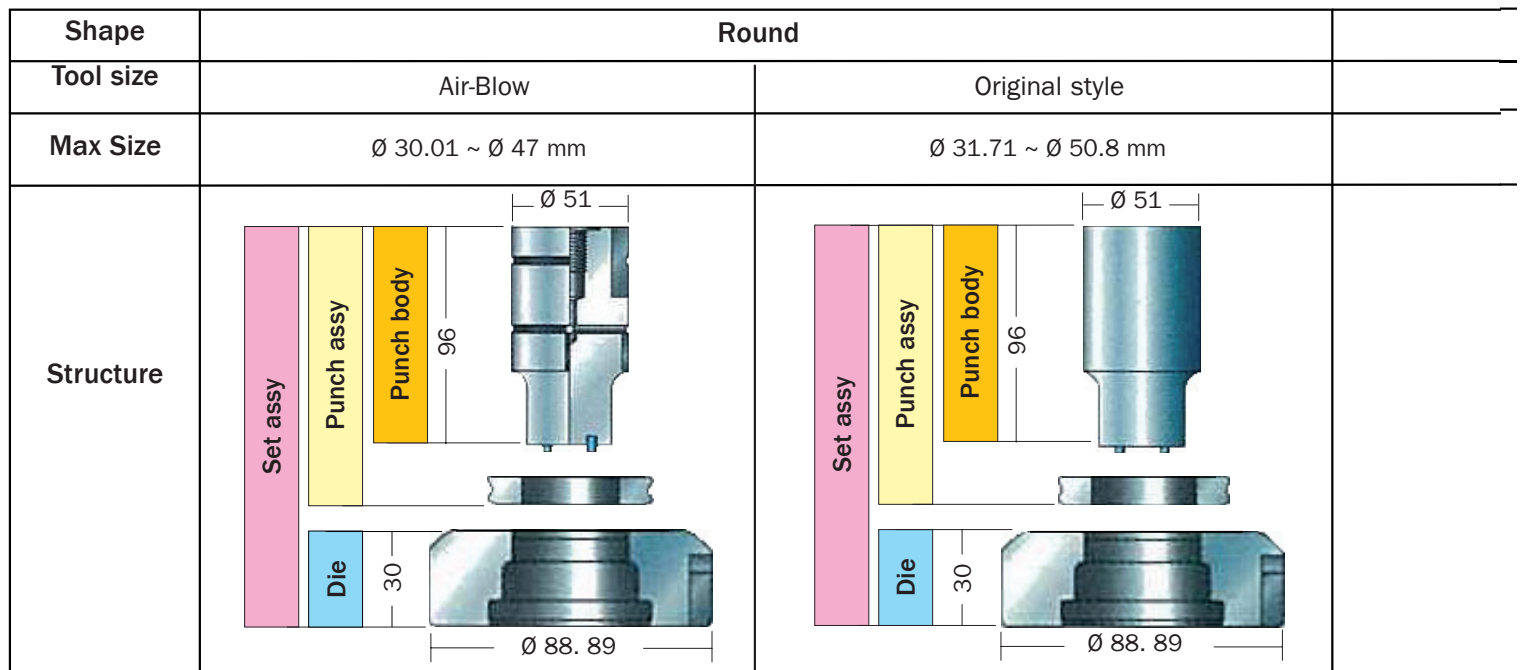
■ Tooling selection and code

α guide	N°1	N°2
α blade guide	N°3	N°4
Air-blow guide, Original style guide	N°5	N°6
	Air-Blow guide	Original style guide

■ Component parts list

Type	Description	N°	Code
Alpha guide	Alpha guide assy without adapter	1	90714E
	Alpha guide assy with adapter	2	90720E
	Alpha guide adapter		907180
Alpha blade guide	Alpha blade guide assy without adapter	3	90716E
	Alpha blade guide assy with adapter	4	90722E
Air-Blow guide	Air-blow guide assy	5	900200
Original syle guide	Original style guide assy	6	900140

Thick Turret C (2") Size Punch-Die



■ Tooling selection and code

Description	Punch		Die		Round		Shape	
	Material	Grade	Material	Air-Blow	Original	Air-Blow	Original	
Set Assy	APH	Original	HWS	31HZ60	31X060	32HZ60	32X060	
	HSS+TiCN	Original	HWS	31GZ60	316060	32GZ60	326060	
	HSS	Original	HWS	31FZ60	312060	32FZ60	322060	
Punch Assy	APH			11HZ60	11X060	12HZ60	12X060	
	HSS+TiCN			11GZ60	116060	12GZ60	126060	
	HSS			11FZ60	112060	12FZ60	122060	
Punch body	APH			41H060	41X060	42H060	42X060	
	HSS+TiCN			41G060	416060	42G060	426060	
	HSS			41F060	412060	42F060	422060	
Stripper plate	Z style air-blow stripper plate			51FZ60	511060	52FZ60	521060	
	Sheet saver					52F160	520160	
Die		Original	HSS	215060	215060	225060	225060	
			HWS	211060	211060	221060	221060	
		Sheet saver die	HSS			22506Z	22506Z	
			HWS			220060	220060	
		PKK die Round Ø 2.0mm or more Shape 2.0mm width or more	HSS	215460	215460	225460	225460	
			HWS	211460	211460	221460	221460	
		ARX	HSS	21546X	21546X	22546X	22546X	
			HWS	21146X	21146X	22146X	22146X	

Shape	
Air-Blow	Original
Inscribed 47mm diagonal Rectangle less 10mm X less 50mm	Inscribed 50.8mm
Sheet saver stripper plate	Sheet saver die

▪ Notes

- * Additionnal keyway
- * Roof top 2° for A/B/C/D Station (E Station Standard)
- * Narrow type (Stubby punch): Shape under 2.4 mm for A & B St, under 4mm for C, D & E St

Thick Turret D (3 1/2") Size Large station Punch-Die

■ Solid type punch

Type	Round		Shape	
Tool type	Air-Blow	Original style	Air-Blow	Original style
Max size	Ø 47.01 ~ Ø 85.6 mm	Ø 50.81 ~ Ø 88.9 mm	Inscribed 85.6 mm	Inscribed 88.9 mm
Structure				
α guide stripper type	Air-blow round solid stripper α guide adapter (Z style stripper separate be available)		α sheet saver stripper α air-blow shape solid stripper α guide adapter Sheet saver die	

■ Tooling selection and code

Description	Punch	Die		Round		Shape	
	Material	Grade	Material	Air-Blow	Original	Air-Blow	Original
Set assy	HSS+TiCN	Original	HWS	31GZ80	316080	32GZ80	326080
	HSS	Original	HWS	31FZ80	312080	32FZ80	322080
Punch assy	HSS+TiCN			11GZ80	116080	12GZ80	126080
	HSS			11FZ80	112080	12FZ80	122080
Punch body	HSS+TiCN			41G080	416080	42G080	426080
	HSS			41F080	412080	42F080	422080
Stripper plate	Z style air-blow stripper plate			51FZ80	511080	52FZ80	521080
	α guide adapter (Z style air-blow stripper plate is not included)			907170	907170	907170	907170
	α guide solid stripper			51F480	511480	52F480	521480
	α guide sheet saver stripper					52F280	520280
Die		Original	HSS	215080	215080	225080	225080
			HWS	211080	211080	221080	221080
		Sheet saver die	HSS			22508Z	22508Z
			HWS			220080	220080
		Matrice PKK Round Ø2.0mm or more Shape 2.0mm width or more	HSS	215480	215480	225480	225480
			HWS	211480	211480	221480	221480
		ARX	HSS	21548X	21548X	22548X	22548X
			HWS	21148X	21148X	22148X	22148X

■ Notes

- * Additionnal keyway
- * Roof top 2° for A/B/C/D Station (E Station Standard)
- * Narrow type (Stubby punch): Shape under 2.4 mm for A & B St, under 4mm for C, D & E St

D (3 1/2") Size Large station Punch-Die

Tip type punch & α blade punch

Type	Rectangle Shape only		
Tool type	Air-Blow	Original style	α blade
Max size	Rectangle less 10mm X less 85mm		Rectangle less 10 X less 85
Structure			
α guide stripper type			

Tooling selection and code

Description	Punch	Die		Tip type (Round)		α blade punch (Shape)	
	Material	Grade	Material	Air-Blow	Original	Air-Blow	Original
Set assy	APH	Original	HWS	32HY80			
	HSS	Original	HWS	32FY80			
Punch assy	APH			12HY80	12X280		
	HSS			12FY80	122280		
Punch body assy	APH			72H280	72X280		
	HSS			72F280	722280		
Punch holder				72F380	721380		
Punch tip α blade punch	APH			42X280	42X280	42X480	42X480
	HSS			422280	422280	422480	422480
Stripper plate	Z style air-blow stripper plate			52FZ80	521080	52FZ80	521080
	α guide adapter (Z style air-blow stripper plate is not included)			907170	907170	907170	907170
	α guide solid stripper			52F480	521480	52F480	521480
	α guide sheet saver stripper			52F280	520280	52F280	520280
Die		Original	HSS	225080	225080	225080	225080
			HWS	221080	221080	221080	221080
		Sheet saver die	HSS	22508Z	22508Z	22508Z	22508Z
			HWS	220080	220080	220080	220080
		PKK Die Shape 2.0mm width or more	HSS	225480	225480	225480	225480
			HWS	221480	221480	221480	221480
ARX	HSS	22548X	22548X	22548X	22548X		
	HWS	22148X	22148X	22148X	22148X		

Thick Turret E (4^{1/2}") Size Large station Punch-Die

■ Solid type punch

Type	Round		Shape	
Tool type	Air-Blow	Original style	Air-Blow	Original style
Max Size	Ø 85.61 ~ Ø 110.5 mm	Ø 88.91 ~ 114.0 mm	Inscribed 110.5 mm	Inscribed 114.0 mm
Structure				

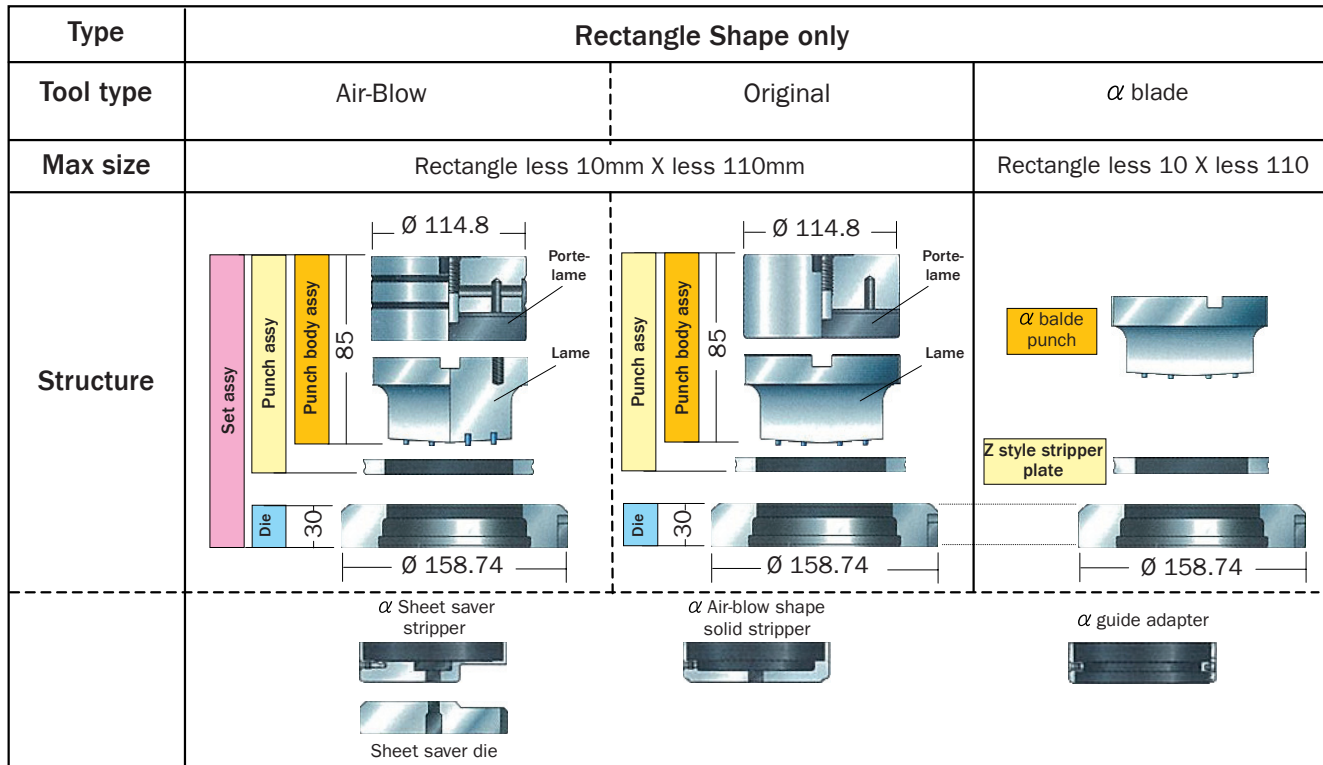
■ Tooling selection and code

Description	Poinçon	Die		Round		Shape	
	Material	Grade	Material	Air-Blow	Original	Air-Blow	Original
Set assy	HSS+TiCN	Original	HWS	31GZ90	316090	32GZ90	326090
	HSS	Original	HWS	31FZ90	312090	32FZ90	322090
Punch assy	HSS+TiCN			11GZ90	116090	12GZ90	126090
	HSS			11FZ90	112090	12FZ90	122090
Punch body	HSS+TiCN			41G090	416090	42G090	426090
	HSS			41F090	412090	42F090	422090
Stripper plate	Z style air-blow stripper plate			51FZ90	511090	52FZ90	521090
	α guide adapter (Z style air-blow stripper plate is not included)			907180	907180	907180	907180
	α guide solid stripper			51F490	511490	52F490	521490
	α guide sheet saver stripper					52F290	520290
Die	Original		HSS	215090	215090	225090	225090
			HWS	211090	211090	221090	221090
	Sheet saver die		HSS			22509Z	22509Z
			HWS			220090	220090
	PKK die round Ø 2.0mm or more Shape 2.0mm width or more		HSS	215490	215490	225490	225490
			HWS	211490	211490	221490	221490
	ARX		HSS	21549X	21549X	22549X	22549X
			HWS	21149X	21149X	22149X	22149X

■ Notes

- * Additionnal keyway
- * Roof top 2° for A/B/C/D Station (E Station Standard)
- * Narrow type (Stubby punch): Shape under 2.4 mm for A & B St. under 4mm for C,D & E St

■ Tip type punch & α blade punch



■ Tooling selection and code

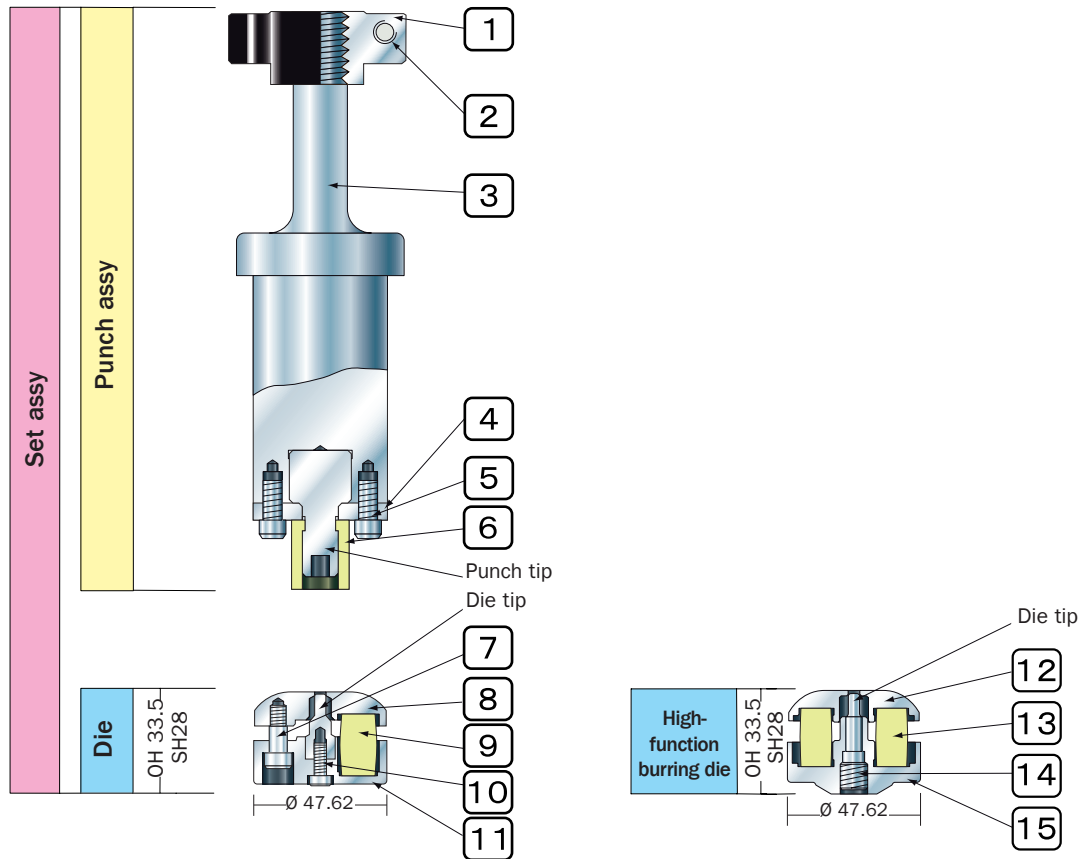
Description	Punch		Die		Tip type (Shape)		α blade punch (Shape)	
	Material	Grade	Material	Air-Blow	Original	Air-Blow	Original	
Set assy	APH	Original	HWS	32HY90				
	HSS	Original	HWS	32FY90				
Punch assy	APH			12HY90	12X290			
	HSS			12FY90	122290			
Punch body assy	APH			72H290	72X290			
	HSS			72F290	722290			
Punch holder				72F390	721390			
Lame	APH			42X290	42X290	42X490	42X490	
	HSS			422290	422290	422490	422490	
Stripper plate	Z style air-blow stripper plate			52FZ90	521090	52FZ90	521090	
	α guide adapter (Z style air-blow stripper plate is not included)			907180	907180	907180	907180	
	α guide solid stripper			52F490	521490	52F490	521490	
	α guide sheet saver stripper			52F290	520290	52F290	520290	
Die	Original		HSS	225090	225090	225090	225090	
			HWS	221090	221090	221090	221090	
	Sheet saver die		HSS	22509Z	22509Z	22509Z	22509Z	
			HWS	220090	220090	220090	220090	
	ARX		HSS	225490	225490	225490	225490	
			HWS	221490	221490	221490	221490	
	PKK die Shape 2.0mm width or more		HSS	22549K	22549K	22549K	22549K	
			HWS	22149K	22149K	22149K	22149K	

B (1^{1/4}") Size

Upform burring

Two operation type
M2.6~M6: for forming taps & cutting taps

Air Blow buring tools are also available as long life type



Pre-pierced hole diameters for Tap burring tooling (Reference)

Unit: mm

Tap type	Material		M2.5	M2..6	M3	M4	M5	M6	M8	
Forming tap	Mild steel Aluminum	Burring tip diameter	Ø 2.28 (Multi tap Ø 2.30)	Ø 2.37 (Multi tap Ø 2.40)	Ø 2.75	Ø 3.65	Ø 4.6	Ø 5.50 (Multi tap Ø 5.55)	(Multi tap Ø 2.30)	
		t								
		Ø A								
		Prepierced hole diameter	0.8	Ø 1.3	Ø 1.3	Ø 1.3	Ø 2.0			
		1.0	Ø 1.3	Ø 1.3	Ø 1.3	Ø 2.0	Ø 2.4			
	Stainless steel 304 430	Burring tip diameter			Ø 2.75	Ø 3.65	Ø 4.6			
		t								
		Ø A								
		Prepierced hole diameter	0.8		(Ø 2.75)	Ø 2.5				
		1.0			Ø 2.5	Ø 3.0				
Cutting tap	Mild steel Aluminum	Burring tip diameter	Ø 2.10	Ø 2.21 (Multi tap Ø 2.20)	Ø 2.57	Ø 3.40	Ø 4.30	Ø 5.10	Ø 6.70 (Multi tap Ø 6.90)	
		t								
		Ø A								
		Prepierced hole diameter	0.8	Ø 1.3	Ø 1.3	Ø 2.0	Ø 2.3			
		1.0	Ø 1.3	Ø 1.3	Ø 2.0	Ø 2.3				
		1.2	Ø 1.3	Ø 1.6	Ø 2.0	Ø 2.3	Ø 3.0			
		1.5	Ø 1.6	Ø 1.6	Ø 2.3	Ø 2.8	Ø 3.0			
		1.6	Ø 1.6	Ø 1.6	Ø 2.3	Ø 2.8	Ø 3.0			
	Stainless steel 304 430	Prepierced hole diameter	2.0			Ø 2.3	Ø 2.8	Ø 3.8		
		2.3 (excl. AL)				Ø 2.5	Ø 3.0	Ø 3.8		
		0.6		Ø 1.3	Ø 1.3					
		0.8		(Ø 1.3)	(Ø 1.3)	Ø 2.0				
		1.0		(Ø 1.3)	(Ø 1.6)	Ø 2.0	Ø 2.3	Ø 3.0		

* Amada standard burring tools for pre pierced holes meet Amadas specifications.

* The ØA value (burring inner diameter) in the tables above are Amadas standard dimensions. Tools for other dimensions are ordered as special.

* The pre-pierced hole diameter is the reference diameter of the hole to be pre-pierced in the first of flue two burring operations.

The forming height=H varies with this pre-piärced hole diameter.

* This table is applicable to Multi tap on the turret punch press (cutting and forming tap)

B (1^{1/4}" Size) Upform burring

■ Tooling selection and code

Description	Standard (Mild steel)	High function (Mild steel)	High function (Stainless steel)
Set assy	301000	305000	305100
Punch assy	101000	101000	105100
Punch tip	902020	902020	905020
Die assy	201000	205000	205100
Die tip	902220	405000	405100

■ Component parts list

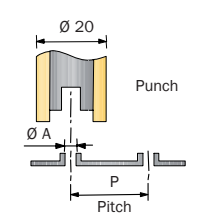
	N°	Description	Code N°	Code N°	Code N°
Punch assy	1	Punch head	901010	901010	901010
	2	Cap screw (1 - M6 x 25)	997710	997710	997710
	3	Punch body	902000	902000	902000
	4	Punch plate	902030	902030	902030
	5	Cap screw (4 - M4 x 20)	998900	998900	998900
	6	Urethane spring (Ø20x22L)	902040	902040	902040
	7	Stripper bolt (3 pcs.)	902070		
Die assy	8	Ejector plate	902060		
	9	Urethane spring (3 pcs.)	998500		
	10	Cap screw (M5 x 12)	901970		
	11	Die block	902210		
High function burring die	12	Ejector plate		905090	905090
	13	Urethane spring		905080	905080
	14	Setscrew (M10 x 10)		905110	905110
	15	Die block		905100	905100

■ Specification

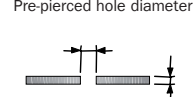
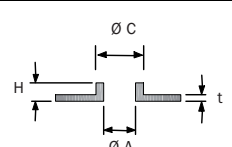
Type	Standard burring	High-function burring	
		Mild steel and Aluminum	Stainless steel
Specification	Standard • Air-blow		
Material	Mild steel and Aluminum	Mild steel and Aluminum	Stainless steel
Max thickness	2.3t	2.3t	1.2t
Tap size	M2.6~M6		

- * Specified tool is applied to PDC series.
- * Ensure pre pierce hole is sharp before use
- * Use each tool only for its intended material type and thickness.
- * High-function burring die has increased stripping force compared with conventional burring tools
- * Chrome plating reduces marking on the backside of the material when traversing. (Option)
- * Punch tip s common for Standard and Air-blow.

■ Minimum burring pitch

Minimum pitch	Calculation
	$P = 10 + 1.2 \frac{\varnothing A + t}{2}$

■ Burring pre-pierced hole diameter and tip diameter calculation

First operation: perçage		Pre-pierced hole diameter = (0.56 ~ 0.59) Ø A
Second operation: extrusion		$\varnothing C = \varnothing A + 1.3 t$

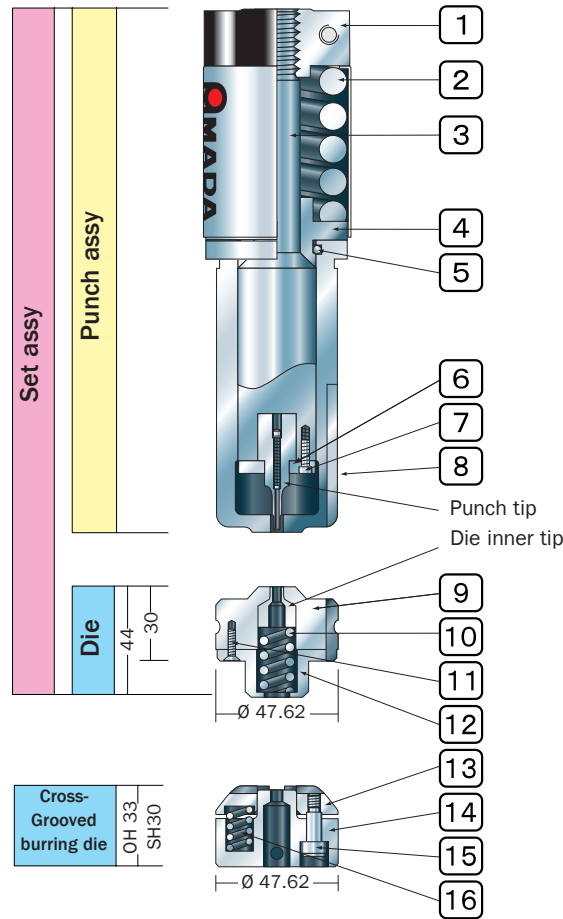
Material: Mild steel, Aluminum

B (1 1/4") Size

Downform burring

M2.5~M6: for forming taps
& cutting taps

* Air Blow burring tools are also available as log life type



■ Pre-pierced hole diameters for Tap burring tool (Reference)

Unit: mm

Tap type	Material		M2.5	M2..6	M3	M4	M5	M6	M8	
Forming tap	Mild steel Aluminium	Burring tip diameter Ø A	Ø 2.28 (Multi tap Ø 2.30)	Ø 2.37 (Multi tap Ø 2.40)	Ø 2.75	Ø 3.65	Ø 4.6	Ø 5.50 (Multi tap Ø 5.55)	Multi tap Ø 7.40	
		Material thickness	Pre-pierced hole diameter	Ø 1.3	Ø 1.3	Ø 1.3	Ø 2.0			
				Ø 1.3	Ø 1.3	Ø 1.3	Ø 2.0	Ø 2.4		
						Ø 1.6	Ø 2.0	Ø 2.4	Ø 3.2	
							Ø 2.4	Ø 3.0		
							Ø 2.4	Ø 3.0		
	Stainless steel 304 Stainless steel 430	Burring tip diameter Ø A			Ø 2.75	Ø 3.65	Ø 4.6			
			Material thickness							
							(Ø 2.75)	Ø 2.5	Ø 3.0	
							(Ø 1.8)	Ø 2.5	Ø 3.0	
			Cutting tap	Mild steel Aluminium	Burring tip diameter Ø A	Ø 2.10	Ø 2.21 (Multi tap Ø 2.20)	Ø 2.57	Ø 3.40	Ø 4.30
Material thickness	Diameter hole diameter	Ø 1.3			Ø 1.3	Ø 1.3	Ø 2.0			
		Ø 1.3			Ø 1.3	Ø 1.3	Ø 2.0	Ø 2.3		
		Ø 1.3			Ø 1.6	Ø 1.6	Ø 2.0	Ø 2.3	Ø 3.0	
		Ø 1.6			Ø 1.6	Ø 1.6	Ø 2.3	Ø 2.8	Ø 3.0	
		Ø 1.6			Ø 1.6	Ø 1.6	Ø 2.3	Ø 2.8	Ø 3.0	
							Ø 2.3	Ø 2.8	Ø 3.8	
							Ø 2.5	Ø 3.0	Ø 3.8	
Stainless steel 304 Stainless steel 430				Ø 1.3	Ø 1.3					
				(Ø 1.3)	(Ø 1.3)	Ø 2.0				
				(Ø 1.3)	(Ø 1.6)	Ø 2.0	Ø 2.3	Ø 3.0		
					(Ø 1.8)	(Ø 2.3)	(Ø 2.3)	Ø 3.0		

* Amadas standard burring tools for pre-pierced holes meet Amadas specifications.

* The ØA value (burring inner diameter) in the tables above are Amadas standard dimensions. Tools for other dimensions are ordered as special.

* The pre-pierced hole diameter is the reference diameter of the hole to be pre-pierced in the first of flue two burring operations

The forming height=H varies with this pre-pierced hole diameter.

* This table is applicable to Multi tap on the turret punch press (cutting and forming tap)

■ **Tooling selection and code**

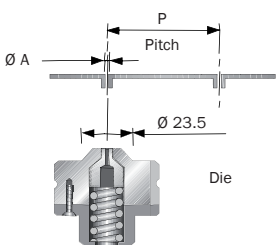
Description	Standard	Cross groved buring die
Set assy	301100	301400
Punch assy	101100	101400
Punch tip	902120	902120
Die assy	201200	201300
Die inner tip	903010	501400

■ **Component parts list**

	N°	Description	Code N°
Punch assy	1	Punch head	901010
	2	Spring	901410
	3	Stripping srping	902010
	4	Punch body	901210
	5	O-ring	910080
	6	Punch plate	901960
	7	Cap screw M4 x 12 (x3)	901940
	8	Burring guide	501100
Die assy	9	Die block	901920
	10	Spring (Ø 2x15 x L31)	902910
	11	Flush screw M3 x 12 (x3)	901990
	12	Die plate	901980
Cross groved buring die	13	Ejector plate	902920
	14	Die body	902940
	15	Stripper bolt	902930
	16	Spring	902950

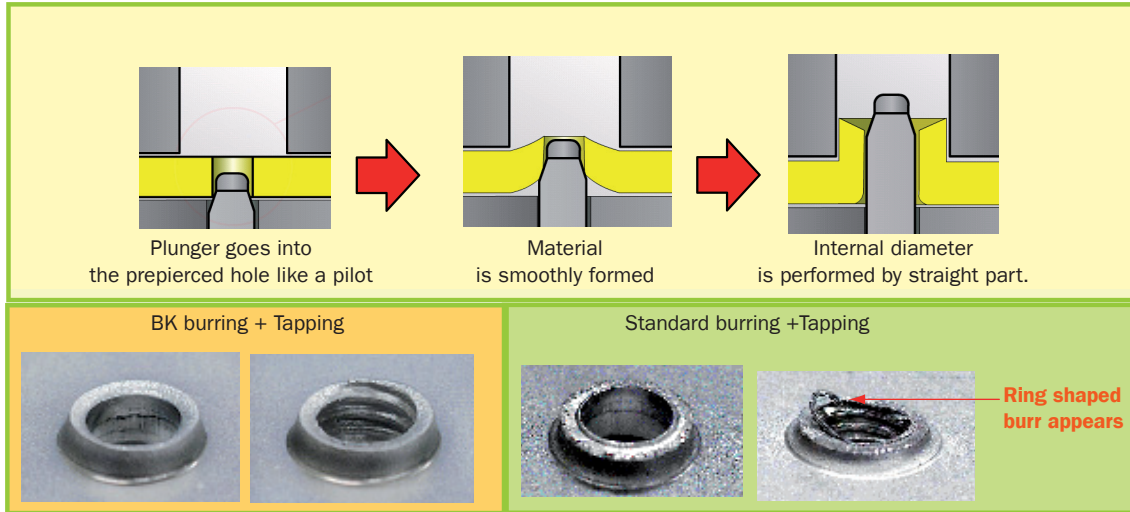
- * Specified tool is applied to PDC Series
- * Two-operation type performs higher precision burring
- * Use each tool only for its intended material type and thickness
- * The ejector pin of the punch tip is attached to M3 and larger burring tools
- * Ensure pre pierce hole is sharp before use
- * Chrome plating reduces marking on the backside of the material when traversing (Option)
- * Punch tip is common for Standard and Air-blow

■ **Burring size**

Minimum pitch	Burring size
	$P = 11.75 + 1.2 \frac{\text{Ø } A + t}{2}$

B (1 1/4") Size BK burring tool

Burring tool without tapped swarf (Ring shaped burr)



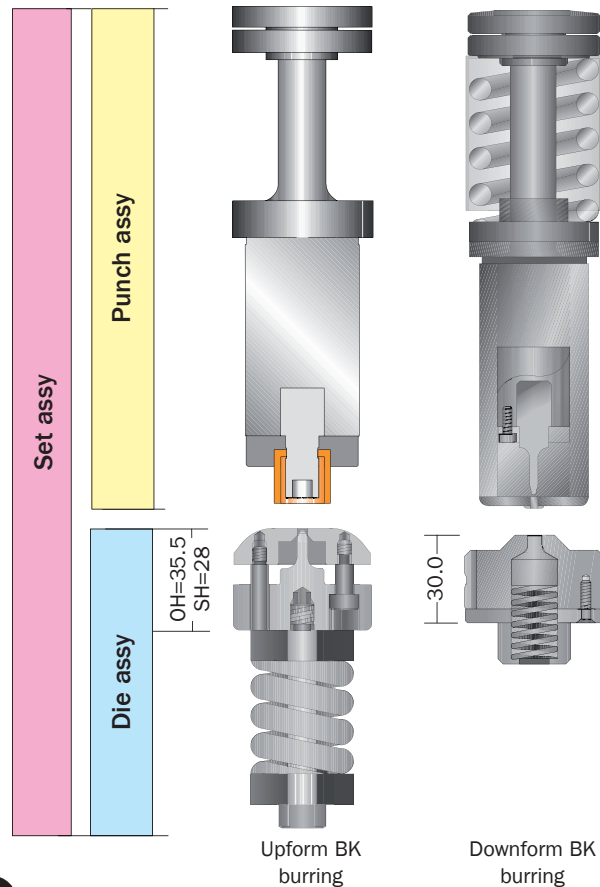
Specifications

	Upform BK burring	Downform BKburring
Operation	Two-operation	
Material	Mild steel and Aluminum (Stainless steel need consultant)	
Thickness	0.8t ~ 1.6t	0.8t ~ 2.3t

BK burring pre-pierced hole inner diameter (Mild steel - Aluminum)

Tap type	Diamètre	M 2.6	M 3	M 4	M 5	M 6
Forming tap	Br inner diameter	Ø 2.37	Ø 2.75	Ø 3.65	Ø 4.60	Ø 5.50
	Pre-pierced hole diameter	Ø 1.3	Ø 1.6	Ø 2.0	Ø 2.5	Ø 3.0
Cutting type	Br inner diameter	Ø 2.21	Ø 2.57	Ø 3.40	Ø 4.30	Ø 5.10
	Pre-pierced hole diameter	Ø 1.3	Ø 1.6	Ø 2.0	Ø 2.5	Ø 3.0

- * Upform die height of BK burring has 2mm higher than Standard burring die because of larger shoulder radius, so pay attention for backside marking or deformation of the material.
- * BK burring has only two-operation type. Pre-pierced hole diameter is specified by AMADA.
- * Burring height cannot be altered because of fixed pre-pierced hole diameter.
- * Upper table shows pre-pierced hole diameter for two-operation BK burring . (fixed size for all material thickness.)
- * M6 tapping tool is for Ø5.55.



Tooling selection and code

Type	Description	Code N°
Upform	Set Assy	-
	Punch Assy	-
	Die Assy	-
Downform	Set Assy	-
	Punch Assy	-
	Die Assy	-

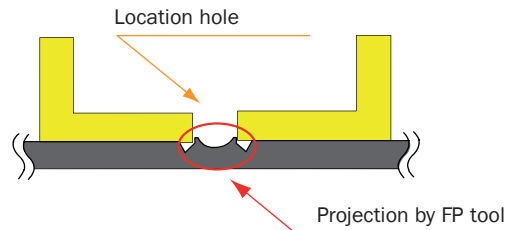
Request for Air-blow

Type	Description	Code N°
Upform	Set Assy	-
	Punch Assy	-
	Matrice assemblée	-
Downform	Set Assy	-
	Punch Assy	-
	Die Assy	-

B (1^{1/4}") Size FP (Flat Positioning) tool

Time saving for locating parts!

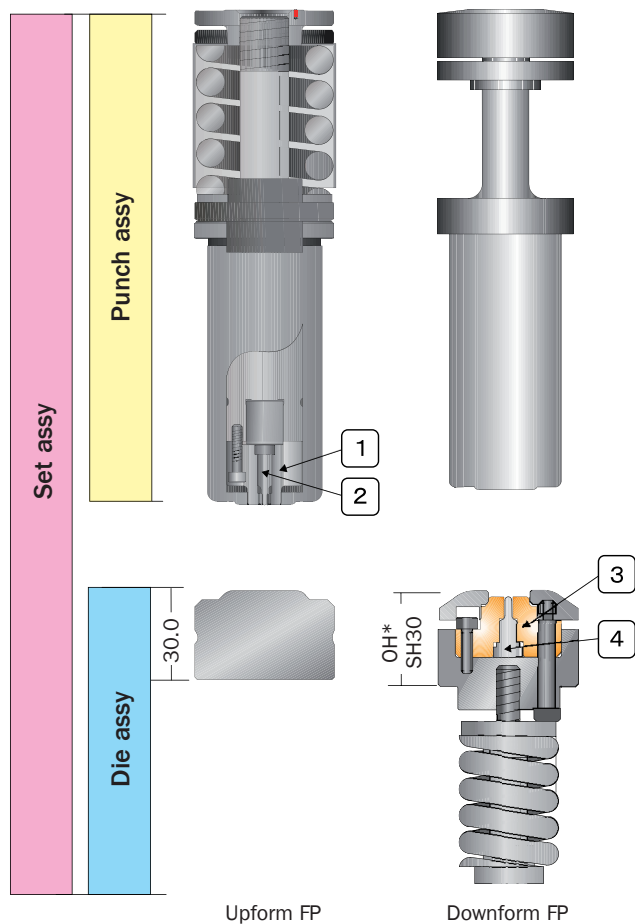
Conventional parts location method by half shear punch needed additional surface finish for concaved surface repair. This FP tool avoids surface finish process because no concaved mark appears.



Specifications

	Upform FP tool	Downform FP tool
Process	Upform (appears on the face)	Downform (appears on the backside)
Projection size	Ø 1.9 ~ Ø 4.0mm	
Projection height	0.2 ~ 0.4 (varies by machine, material thickness and material type)	
Thickness	0.8t (1.0t common), 1.0t (1.2t common), 1.6t (specified), 2.0t (2.3t common)	
Material	Mild steel (not applicable for more than 441kN / mm ² tensile strength)	
Minimum pitch	15 mm	17 mm

- * Projection size is determined by specified size, if different size is required, die tip or punch tip must be replaced. (additional parts are needed to replace.)
- * Common type has different projection height by material thickness.
- * Smaller unevenness may remain on rear side of the material projected by FP tool (less than ±0.02mm).
- * Not applicable for stainless steel and Aluminum protected by vinyl sheet.



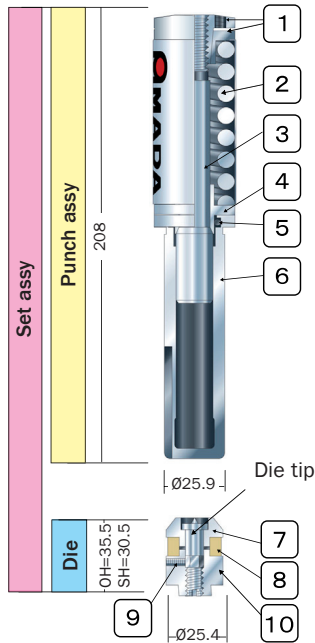
Tooling selection and code

Type	Description	Code N°
Upform	Set assy	-
	Punch assy	-
	Die assy	-
	1 Punch Tip	-
	2 Ejector tip	-
Downform	Down form set assy	-
	Punch assy	-
	Die assy	-
	3 Die tip	-
	4 inner ejector	-

- * Overall die height
 OH = 31mm Thickness 0.8mm ~ 1.5mm
 OH = 32.2mm Thickness 2.0mm ~ 2.5mm

A (1/2") Size Upform center punch

(Maximum material thickness 3.2mm)
Material thickness non-adjustment type
(fine adjustment possible)



■ Tooling selection and code

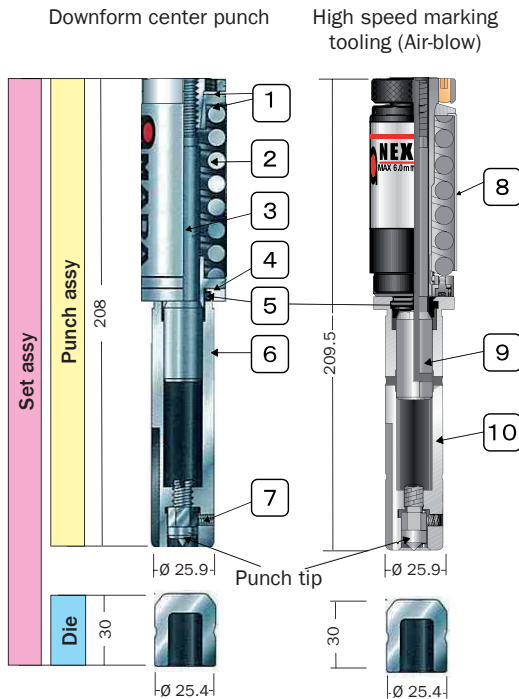
Description	Code N°
Set assy	381110
Punch assy	181110
Die assy	281010
Die tip	918210

■ Liste des composants

N°	Description / Specification	Code N°
1	Punch head	901400
2	Stripping spring	901300
3	Punch body	918310
4	Retainer collar	901200
5	O-ring (Closed guide)	910060
6	Punch guide	581010
7	Ejector plate	918320
8	Urethane spring	918720
9	Lock screw (2-M4X4)	918340
10	Die holder	918330

A (1/2") Size Downform center punch High speed marking tool

(Maximum material thickness 6.0 t)
Material thickness non-adjustment type
(fine adjustment possible)
For EM machine series



■ Tooling selection and code

	Description	
	Upform center punch	High speed marking
Set assy	381100	-
Punch assy	181100	-
Punch tip	918110	918110
Die	281000	281000

■ Liste des composants

N°	Description / Specification	Code N°	
1	Punch head	901400	
2	Stripping spring	901300	
3	Punch body	918410	
4	Retainer collar	901200	
5	O-ring	Closed guide (Downform center punch)	910060
		Open guide (High-speed marking)	910150
6	Punch guide (Downform center punch)	918420	
7	Lock screw (M5X6)	999960	
8	NEX spring assy	980000	
9	Punch body (High speed marking)	501100	
10	Punch guide (High speed marking)	901920	



- * Indication for part's name, lot number, bending line, and welding position on the component.
- * Only applicable for downform type.
- * Recommended for EM, EML and AC.

■ Specifications

Tool type	Air-Blow
Tool size	A (1/2")
Process speed	Maximum 1800 hit/min

Slotting tool III

Parts can be punched with high quality edges and without tooling overlap marks on NCT.

- No accumulation of work-in-process. Smooth transfer to next process.
- Clean punched edge. Added value of parts (high-quality processing) .
- Manual labour reduction for joint mark filing.
- AI station (option) enables to slot at any direction.
- Sheet saver type improves the material utilization

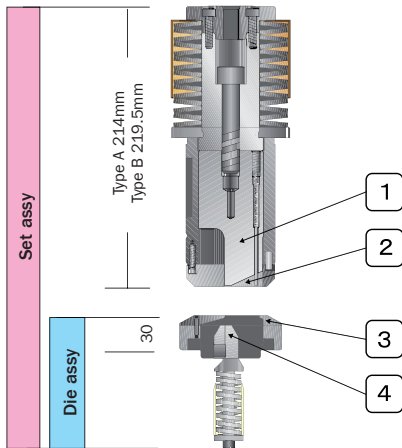


Slotting



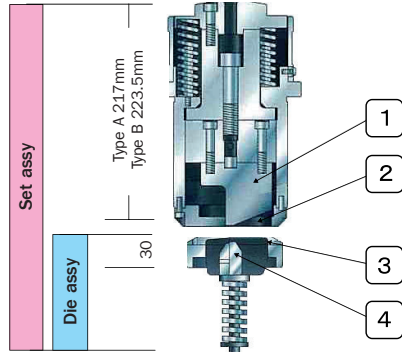
Conventional incremental shearing

C (2")

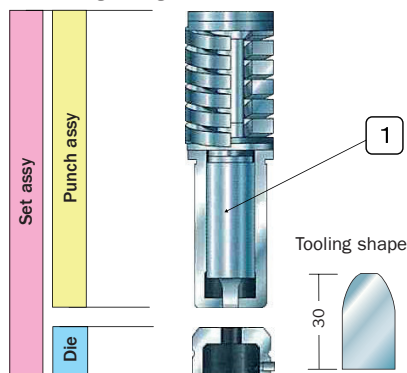


D (3 1/2"), E (4 1/2")

Punch and Die height are same



Terminating tooling



Specifications

Slotting tool III Type A (Other than EM) · B (EM)			
Tool name	Slotting tool III Type A (Other than EM) · B (EM)		
Tooling size	C (2")	D (3 1/2")	E (4 1/2")
Maximum feed pitch	15mm	1.6mm<t:20mm t ≤ 1.6mm: 25mm	1.6mm<t: 30mm t ≤ 1.6mm: 25mm
Cut width	6~10 mm		
Maximum material thickness	Mild steel: 1.6mm	Mild steel: 2.3mm	
	Stainless steel: 1.5mm	Stainless steel: 1.5mm (2.0mm for APH punch tip)	
	Aluminium: 1.5mm	Aluminium: 3.0mm	

Component tooling list of C (2") station slotting tool III

Description		Matériel	Type A autre que EM	Type B EM
Set assy (including guide assy)			-	-
Die assy			-	-
1	Punch tip (APH)	Mild steel	-	-
2	Stripper plate	Stainless steel	-	-
3	Die plate	Aluminium	-	-
4	Die tip (APH)		-	-

Component tooling list of D (3 1/2") and E (4 1/2") station slotting tool III

Description		Matériel	A(3 1/2")	E (4 1/2")
Set assy (including guide assy)			-	-
Die assy			-	-
1	Punch tip (APH)	Mild steel	-	-
2	Stripper plate	Stainless steel	-	-
3	Die plate	Aluminium	-	-
4	Die tip (APH)		-	-

List of Terminating tool for slotting

Description		Original style	Air-Blow
Set assy		-	-
Punch assy		-	-
Die		-	-
1	Punch body	-	-

Notes

- * Some processing methods (e.g., window shape punch out) may produce tool overlap marks in several positions.
- * These tools are of the air-blow specification. Air-blow unit is essential on the machine.
- * These tools cannot be used on the VIPROS-500kN {50 tonf}.
- * The end-point tool is required for mechanical presses.
- * Cannot be automatically changed on the VIPROS-ZPDC1.
- * The optional AP100 program software is required.
- * Contact AMADA for further question and operational note.

C (2") Size Cartridge-type Tapping tool III



NCT Tapping tools have advanced further

- Coordinates are programmed to eliminate the "missed tapped hole" problem. Avoiding miss tapping by program coordination.
- Different M size holes can be tapped on a single machine.
- Chipless forming taps.



Specifications

Tooling size		Long tooling (type H) C (2")					
Tool type		Ball screw type				Roller screw type	
		Standard	PDC			Standard	PDC
Tapping oil Tank capacity		200 mL (about 2,000 hits)	160 mL (about 1,600 hits)			200 mL (about 2,000 hits)	160 mL (about 1,600 hits)
Lead of main shaft		3mm / revolution				4mm / revolution	
Guaranteed hit number for main shaft		about 300,000 hits				about 500,000 hits	
Tapping die (Common Flat sheet, Upform & Downform burring)		Hole diameter \varnothing 8.5 M2.5 (M2.6) · M3 · M4 · M5				Hole diameter \varnothing 10 M5 · M6	
Cartridge type	Screw size	M2.5*1 (M2.6)	M3	M4	M5	M5	M6
	Pitch	0.45mm	0.5mm	0.7mm	0.8mm	0.8mm	1.0mm
Tap to use		AMADA recommendation, Specified tap for tapping tool (forming tap)					
Between punch and die	EM VIPROS III	13mm (Feed clearance 25mm)					
	Others	8mm (Feed clearance 20mm)					
Tap breakage prevention mechanism		Yes (Safety mechanism against missing pre-pierced hole)					
Change method		One-touch method					
Applied material		Mild steel*1 · Aluminium (Hardness : less than HV120) Stainless steel 204 · 430 (EM · VIPROS series limited for size of M3 · M4 · M5*2)					
Applied material thickness		0.8~3.2mm (Limited to tap size and material type)					
Safety clamp distance		Y co-ordinate: more than 120mm (distance not going into the turret)					
Tapping oil		AMADA tapping oil AM557(non-chlorine based)					

*1. Specify material specification for the several type of material. Hardness and strength may differ by material manufacture of hot rolled sheet and surface finish sheet other than mild steel, aluminum. M5 on PEGA cannot be used for Hot rolled material or material harder than HV120. If required for this application, choose main shaft roller screw type holder.

*2. Specified Stainless parameter and Stainless steel tap are required for stainless steel tapping on EM and VIPROS only. For this application specified pre-pierced hole size is required. (Stainless tap is a special tool.)

*3. Tap cartridge for M2.5 and M2.6 is common.

*4. Continues tapping results in the high temperature. Rest the machine for 10 minutes during the refuel the oil for continuous tapping.

Applicable machine models

Tool type	Ball screw type Roller screw type	
	Standard	PDC
Applicable machine models · PEGA · COMA · ARIES245	0	0
· EM · ACUTE · VIPROS III · VIPROS-K · VIPROS-Q · VIPROS-Z · VIPROS-255 · VIPROS-50	0	0
· EM-Z · PDC · VIPROS · PDC · VIPROS-Z · NT · PDC	X	0

*1. Use of other than specification or on no applicable machine lead to main shaft break or poor tapping quality. Follow the instruction of applicable machine table.

*2. Machine option interfere the tapping work.

*3. Contact AMADA when special tapping application is needed.

No applicable machine

- Combination machine (EML · APELIO series)
There is the risk of catching fire from tapping oil through laser beam.
- PEGA king · ATC-PEGA · PEGA-S · ARIES-245 II
- ARIES-224AIS · ARIES-2210AIS · ARIES-224NT
- ARIES-2210NT
- No correspondence for press speed to the tap main shaft, and shorter tap life
- OCTO
Different turret structure.

Tap selection

Screw size	M2.5	M2.6	M3	M4	M5	M6	
Pitch	0.45	0.45	0.5	0.7	0.8	1.0	
Standard tap	Maximum material thickness						
	2.0						
Standard tap	Tap replacement hits	EM · VIPROS series					
		28,000					
Standard tap	Tap replacement hits	COMA · PEGA series					
		7,000					
Plated tap	Maximum material thickness						
	2.0						
Plated tap	Applicable tap size						
	×						
Stainless tap	Maximum material thickness						
	1.5						
Stainless tap	Tap replacement hits (EM · VIPROS series only)						
	×						

*1. Layer film : 5~10 μ m

*2. Specified Stainless parameter and Stainless steel tap are required for stainless steel tapping on EM and VIPROS only. For this application specified pre-pierced hole size is required. (Stainless tap is a special tool.)

■ Pre-pierced hole diameter (Reference)

Unit:mm

Application	Material	Tap type	Tap size						Dimension
			M2.5	M2.6	M3	M4	M5	M6	
Flat plate	Mild steel	Standard tap	Max thickness						
			2.0	Ø2.27	Ø2.37				
		2.3			Ø2.75				
		Pre-pierced hole diameter			Ø3.65	Ø4.60	Ø5.55		
	Plated tap	2.3			Ø2.77	Ø3.68	Ø4.64		
		Pre-pierced hole diameter							
Stainless steel 304 Stainless steel 430	Stainless tap	1.5		Ø2.70					
		2.0			Ø3.60				
		3.0				Ø4.55			
Minimum pitch between tap holes			20.0						
Mild steel	Standard tap	Finish size							
		Thickness							
		1.6			Ø2.90				
		2.0			Ø2.87	Ø3.90	Ø4.95		
		2.3			Ø2.85	Ø3.87	Ø4.91		
		Pre-pierced hole diameter			Ø3.80	Ø4.80			
	Stainless steel 304	Stainless steel tap	Finish size						
			Thickness						
			1.5			Ø2.70	Ø3.60		Ø4.55
			2.0			Ø2.85	Ø3.65		Ø4.65
			2.5				Ø4.60		
			Pre-pierced hole diameter				Ø4.55		
Stainless steel 430	Stainless steel tap	Finish size							
		Thickness							
		1.5			Ø3.00				
		2.0				Ø3.80	Ø4.80		
		2.5				Ø4.75			
		Pre-pierced hole diameter				Ø4.75			
Minimum pitch between Upform and Downform burring taps			2.0						
Mild steel Aluminum	Standard tap	Burring tip diameter							
		Thickness							
		0.8	Ø2.27	Ø2.37	Ø2.75	Ø3.65	Ø4.60		
		1.0	Ø1.30	Ø1.30	Ø1.30	Ø2.00			
		1.2	Ø1.30	Ø1.30	Ø1.60	Ø2.00	Ø2.40		
		Pre-pierced hole diameter			Ø2.00	Ø3.00	Ø3.20		
	Stainless steel 304 Stainless steel 430	Stainless steel tap	Burring tip diameter						
			Thickness						
			0.8			Ø2.75	Ø3.65		Ø4.60
			1.0			Ø2.70	Ø3.60		Ø4.55
			1.2			Ø1.50	Ø2.50		
			Pre-pierced hole diameter			Ø1.50	Ø2.50		Ø3.00
Maximum burring height=H			2.0						
Minimum pitch between Upform and Downform burring taps			2.0						

- *1. Pre-pierce hole diameter, Chamfered diameter and Burring diameter ØA are so important for the tap finish. Too small size gives excessive torque to main shaft and result in the shaft break.
- *2. Slightly smaller size is chosen for the flat plate of stainless steel because of work elongation.
- *3. Avoid additional work around the formed tap area where material deformation is made. Be careful for smallest pitch between the taps.
- *4. Burring pre-pierced hole is for your guidance.
- *5. Slightly bigger burring tip is required for stainless steel, because burring diameter ØA will shrink after being punched.
- *6. Surface decollated finish steel or Hot rolled plate has bigger surface hardness and this result in shorter tap life and main shaft damage. therefore pay attention for the surface hardness : less than HV120 is required.
- *7. Tapping tool requires precise pre-pierced hole diameter, even 0.05mm different size leads to tool damage or poor quality of product.
- *8. In above table chamfering tool is specific tool for each material thickness. (Please look at page 35 & 36 for both-sided chamfering tool)

■ Component tooling list of Tapping tool set assy

Description	Size	Q'ty	Code No.	Remarks
Tapping tool set assy	M2.5~M5	1 set	642100	Tapping tool (Punch holder) 1pc. Tap cartridge (with Adjustment jig) 1pc. Tap (Standard or Plated type) 10pcs.
Tapping tool set assy PD.C.	M2.5~M5	1 set	643100	Tapping downform burring common die (Ø8.5) 1pc.
Tapping tool set assy (Roller screw type)	M5, M6	1 set	645000	Tapping tool (Punch holder) 1pc. Tap cartridge (with Adjustment jig) 1pc.
Tapping tool set assy PD.C. (Roller screw type)	M5, M6	1 set	647000	Tap (Standard or Plated type) 10pcs. Tapping downform burring common die (Ø10) 1pc.

■ List of Consumable parts for Tapping tool

Description	Size	Q'ty	Code No.	Remarks
Tapping tool III (Punch holder)	M2.5~M5	1	642000	Ball screw type (M2.5~M5)
Tapping tool III PD.C. (Punch holder)	M2.5~M5	1	644000	Ball screw type (M2.5~M5)
Tapping tool III (Punch holder)	M5~M6	1	646000	Ball screw type (M5~M6)
Tapping tool III PD.C. (Punch holder)	M5~M6	1	648000	Ball screw type (M5~M6)
Tap cartridge	M2.5 (M2.6)	1	-	M2.5 (M2.6) Tap Common
	M3	1	632000	
	M4	1		
	M5	1		
	M6	1		
	M6	1		-
Tapping downform burring common die (Ø8.5mm)	M2.5~M5	1	622000	Ball screw type (M2.5~M5)
Tapping downform burring common die (Ø10mm)	M5, M6	1	-	Roller screw type (M5, M6)
Tapping tool Standard tap (OSG)	M2.5	10	612000	Forming tap
	M2.6	10		
	M3	10		
	M4	10		
	M5	10		
	M6	10		
Tapping tool Plated tap (OSG)	M3	10	615110	Slightly bigger tap because of plating
	M4	10		
	M5	10		
	M6	10		
Tapping tool Stainless steel tap (OSG)	M3	10	612200	EM·ACUTE·VIPROS series only
	M4	10		
	M5	10		
Maintenance kit		1 set	625560	Piston oiler (Lubrication) Piston oiler (Air drain) Tapping oil AM557 (4L) Oil jug Grease gun Lubrication grease SRL (400g) Lubrication oil #32 (4L)

■ List of tapping oils

Description	Size	Q'ty	Code No.
Tapping oil AM558 (Non-chlorine-based)	20L	1 can	94013E
	4L	1 can	94012E
AMADA grease SRL	400g	1	616050

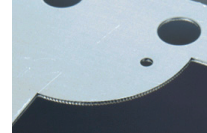
A (1/2") Size Contouring tool For EM series

No special tool is required!
Same quality as laser beam for special and radius shape!



Nibbling pitch is less than material thickness. This avoids the filing finish work and special shaped tooling.
Production time is greatly reduced by higher hit rate even if hit number is increased.

Contact AMADA for further application



■ Specifications

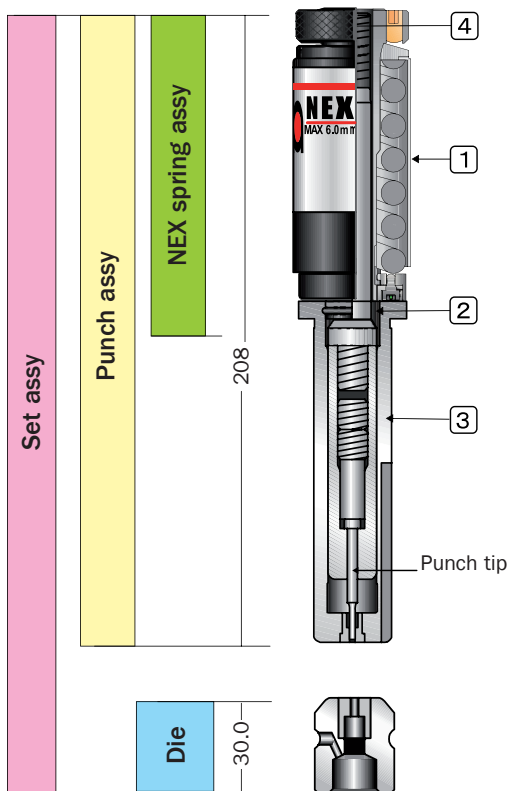
Tooling size		A (1/2")
Punch assy		Air-Blow (Switch on Air-blow unit)
Die assy		Power vacuum
Punch tip type		APH, Carbide (No grinding available)
Diameter of punch tip		Ø 2.0
Die tip type	APH	use for APH or Carbide punch tip : regrind 0.5mm (MAX)
Maximum thickness (punch tip)	APH	Mild steel 1.6t , Stainless steel 1.0t, Alu 1.0t
	Carbide	Mild steel 2.3t, Not applicable for Stainless steel and Aluminum

Die cannot be replaced by customer. (Press insert) If necessary contact AMADA.
Contouring tool is specified by material type and thickness, use appropriate punch tip and die when material is changed.
Contouring kit is recommended for various types of application.

■ Spécifications

	0.8t	1.0t	1.2t	1.6t	2.3t
Mild steel	0.15	0.15	0.15	0.2	0.3
Stainless steel	0.15	0.15			

- 1 Use this contouring tool with Power vacuum unit or Air jet vacuum unit.
Be sure to activate Power vacuum unit of same diameter turret or Air jet vacuum unit of Z turret.
2. Use the punch mode "NEX tool punching mode" (M696).
(M696 default set at 2.5mm as bottom position, so alter the value as 1.0mm.)
M500 (Bottom position 2.5mm) has a risk of tooling damage for 2.3mm material thickness.



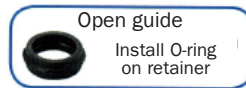
■ Tooling selection and code

Description	Code N°
Set Assy Carbide punch Carbide die Assy	35K220
Set Assy APH punch, HSS die Assy	35X220
Carbide punch Assy	15K220
APH punch Assy	15X220
Carbide punch tip	45K220
APH punch tip	45X220
Contouring HSS die Assy	251020

■ Component parts list

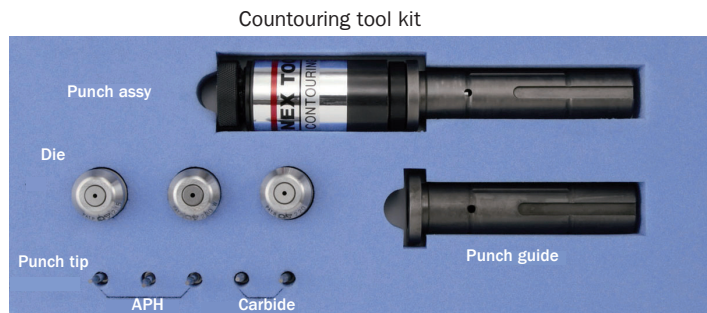
N°	Description	Code N°
1	NEX spring Assy (with O-ring)	980000
2	O-ring (Open guide)	910150
3	Contouring guide Assy (with bush)	551020
4	Urethane tube (10pcs.)	-

* O-ring for Contouring tool is same as open guide.



■ Contents of Contouring tool kit

Description	Quantity	Code N°
Contouring tool kit		37E030
Punch Assy	1	
Carbide punch tip (Ø2)	2	
APH punch tip (Ø2)	4	
Spare guide	1	
CL 0.15 die Assy (HSS)	1	
CL 0.2 die Assy (HSS)	1	
CL 0.3 die Assy (Carbide)	1	



3 When using the contouring tool pay your attention for the following cases.

1) Minimum pitch for contouring tool is 0.5mm. Set the Radius size more than twice of material thickness. (When the values smaller than above the tool life become shorter.)

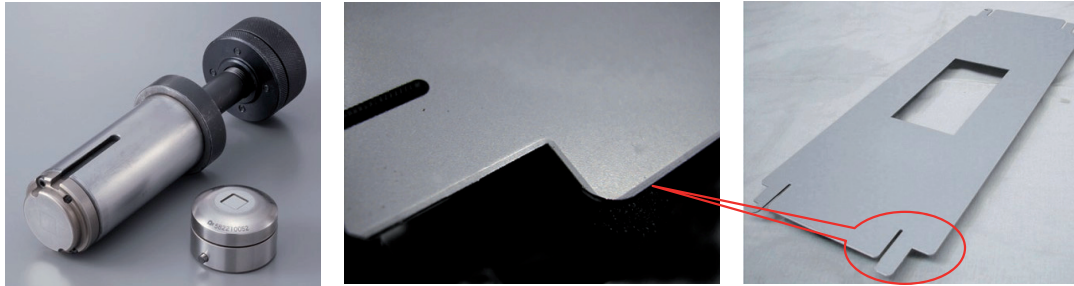
2) Do not use the contouring tool for the case below. (Red colour area is the clinical for the tool.)

3) Give the priority to the contouring tool before normal punch. (like a case of yellow colour below). (Finish the contouring works prior to punch out the material because punch tip receive off load from the pre-punched hole.)

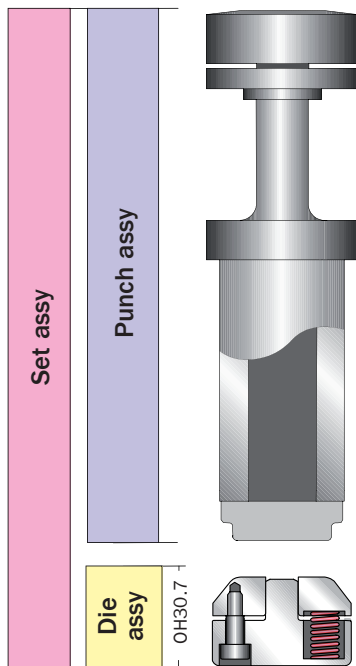
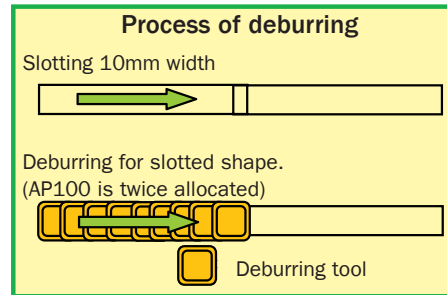
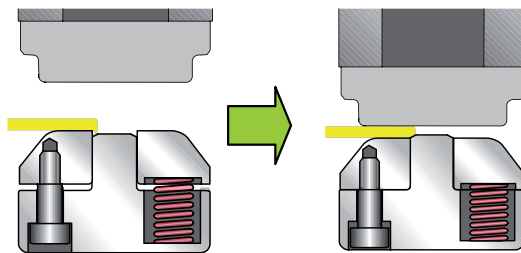
B (1 1/4") size Deburring tool

Awkward and time consuming operation becomes easier by
Deburring tool automatically and speedy

Burs appeared on the backside is chamfered by this deburring tool after slotting or pending.



Mechanism of deburring tool



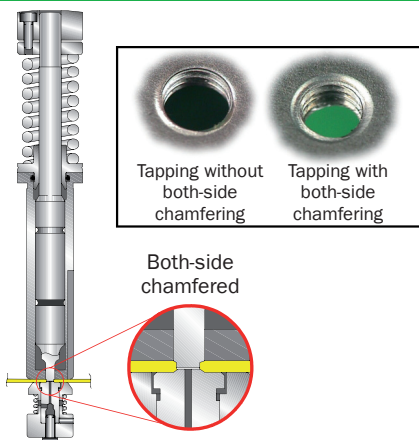
Specifications

Thickness	0.5t~3.2t
Material	Mild steel, Stainless steel, Aluminium

	Size	Shape
Tool	S ^t A (1/2")	Ø 2, 5x5
	S ^t B (1 1/4")	CR 5 X 5
		RE 5 X 20
		RE 6 X 20
		RE 10 X 24
	10 x 10	
	6 x 6	

- * Recommended for EM and VIPROS series. (Work time takes longer by other machine.)
- * Deburring tool performs as forming tool for the burr. (Burr cannot be eliminated completely.)
- * Quality of deburring is influenced by thickness or strength of frame.
- * Specify the tool for PDC.

A (1/2") size Both-side chamfered tool for tapping tool

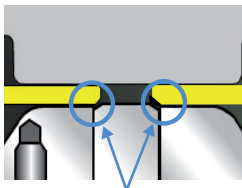
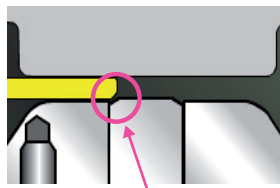


- No necessity for the pitch attention.
 - Good tapping performance for the closer to the edge.
 - No gap exists between the tapped sheets bolted by screw.
- * Attention for the weakening of the tightening torque for chamfered tapping

List of both-side chamfered tool (M3~M5)

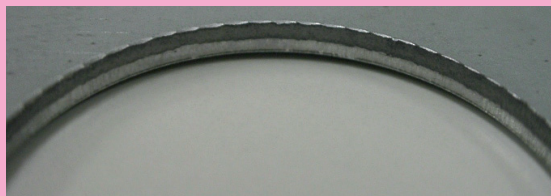







Description	S ^t A (1/2")	Code N°
Set assy	-	-
Punch assy	-	-
Die	-	-

Explanation of deburring process

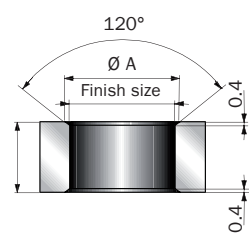
Type	Same width Deburring	One side Deburring
Explanation	<p>Burr is deformed by deburring tool on both-side at same time.</p>  <p>Deburring both-side by one process.</p>	<p>Formed burr may appear from along the punched side if deburred too much.</p>  <p>Deburring one-side</p>

Recommended pitch for deburring tool \varnothing 2.0mm : 0.5mm~1.0mm
 The bigger pitch is the quicker process but deburring becomes rough.
 (Burr disappears)

Material : Mild steel 1.6t
 Tool : Deburring tool : \varnothing 2.0
 Punched tool : \varnothing 20.0 CL0.3

Pitch	Pitch 1.0mm	Pitch 0.7mm
Picture		
Magnified		
Pitch	Pitch 0.5mm	Without deburring
Picture		
Magnified		

Pre-pierced hole diameter of Both-side chamfered tool for tapping tool (Reference)

Application	Material	Tap type	Screw size	M3	M4	M5	Dimension	
Chamfered	Mild steel	Standard tap	Finish size	\varnothing 2.75	\varnothing 3.65	\varnothing 4.60		
			Thickness	\varnothing 4.00	\varnothing 5.20	\varnothing 6.20		
			Pre-pierced hole diameter	1.6	\varnothing 2.90	\varnothing 3.90		\varnothing 4.95
				2.0	\varnothing 2.87	\varnothing 3.87		\varnothing 4.91
				2.3	\varnothing 2.85	\varnothing 3.80		\varnothing 4.80
				3.2	\varnothing 3.60	\varnothing 4.55		\varnothing 6.20
	Stainless steel 304	Stainless steel tap	Finish size	\varnothing 2.70	\varnothing 3.60	\varnothing 4.55		
			Thickness	\varnothing 4.00	\varnothing 5.20	\varnothing 6.20		
			Pre-pierced hole diameter	1.5	\varnothing 2.85	\varnothing 3.65		\varnothing 4.65
				2.0	\varnothing 3.00	\varnothing 4.60		\varnothing 4.55
				2.5	\varnothing 3.80	\varnothing 4.80		\varnothing 4.75
				3.0	\varnothing 4.75	\varnothing 4.75		\varnothing 4.75
Stainless steel 430	Pre-pierced hole diameter	1.5	\varnothing 3.00	\varnothing 3.80	\varnothing 4.80			
2.0		\varnothing 3.80	\varnothing 4.75	\varnothing 4.75				
			3.0	\varnothing 4.75	\varnothing 4.75			

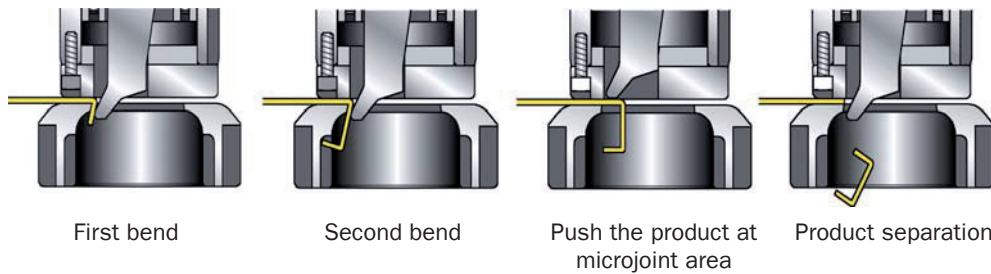
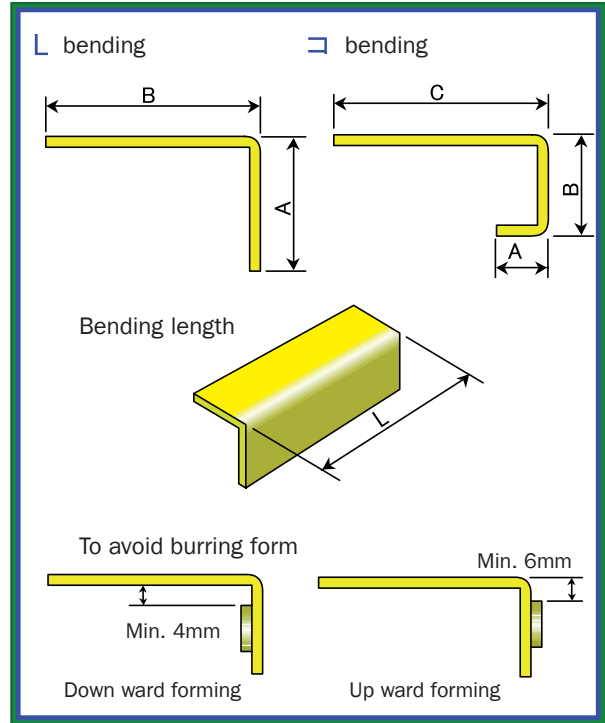
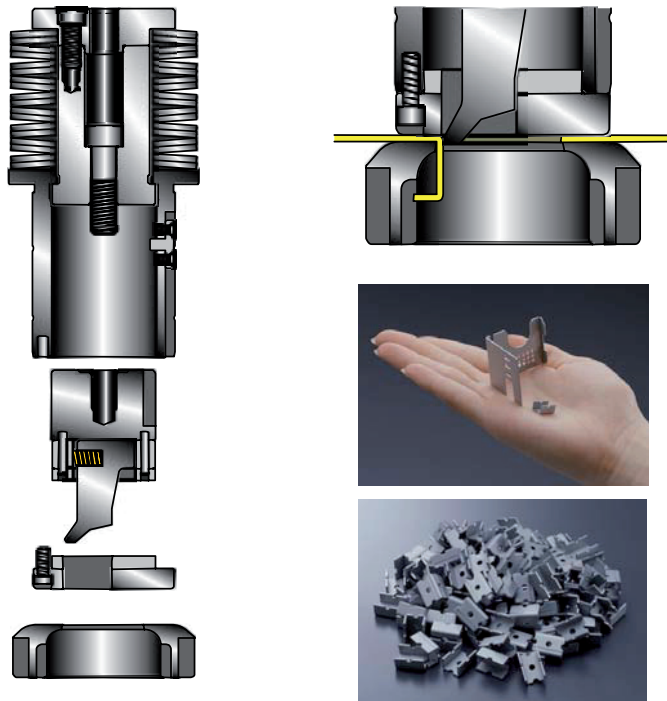
EM-VIPROS series only

C (2") Size

Inch bend tool

Small bent parts can be completed within NCT process.

Available in D and E Size to fold longer size. Please contact us.



Tool Size	C 2"			
Bending direction	Down ward			
Bending accuracy	± 30			
Thickness	0.5	0.8	1.0~1.2	1.5~1.8
Material	SPC, AL, SUS			
Max bending length	L=30			
Punch tip width	10, 15, 20, 25, 30			
Application work size	$\sqrt{A^2 + B^2 + L^2} < 52$ Either A or C, the longer one will be chosen on C bending.			
Bending flange length	Min		Max	
L bending (A)	2.0 et 3 x t		35t	
L bending (B)	5.0		35.0	
C bending (A)	2.0 and 3 x t		7.0 (B-2t ≥ 7) 5.0 (B-2t < 7)	
C bending (B)	3.5+t		35.0	
C bending (C)	5.0		35.0	

D (3¹/₂"), E (4¹/₂") Size

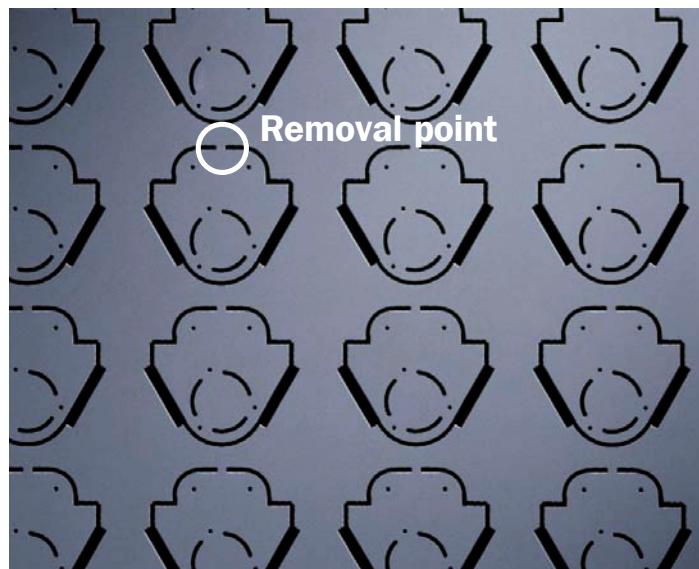
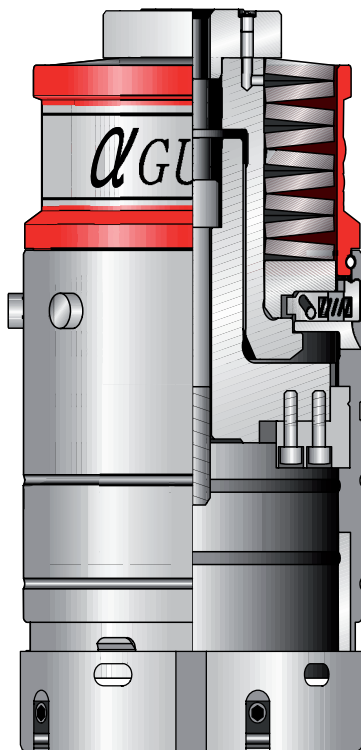
Work chute tool

Micro-joint separation and sorting of small parts can be performed

The microjoint breaking of small parts (about 65mm square), manually done in the past, can be now performed within the NC turret punch press. The ejected parts can be separated from the slugs by the work selector function.

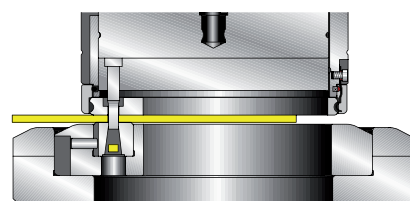
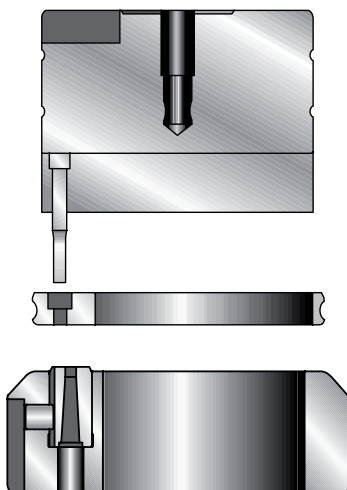


Tool size	D (3 ¹ / ₂ ")	E (4 ¹ / ₂ ")
Max. size of components	Max.65 SQ	Max.85 SQ
Joint cut tool	5mm SQ	5mm SQ

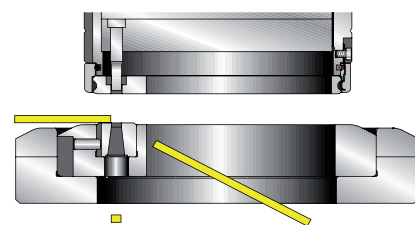


Slug

Products



5mm SQ punch separates the components



Slug

Component

A (1/2") Size

Downform countersink tool set

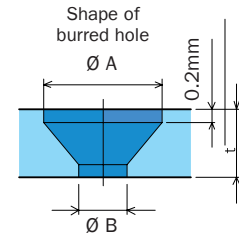


Benefits

- The punch height can be adjusted by one touch.
- The punch tip can be changed with a single wrench.

Specifications

- Tooling size : A(1/2")
- Processing direction : Downform
- Die : A to J (10pcs.)
- Punch tip : M2, M2.5, M2.6, M3, M4, M5, M6
- Material thickness : 1.0 to 3.2mm (Mild steel)
(Holes in vinyl-covered aluminum cannot be countersunk)



Downform countersink tool set

Description	Code N°
Downform countersink tool set	36E030

Punch tip and die selection table

M2X0.4(Ø A = 4.3)				M2.5X0.45(Ø A = 5.3)				M2.6X0.45(Ø A = 5.5)				M3X0.5(Ø A = 6.4)				M4X0.7(Ø A = 8.6)				M5X0.8(Ø A = 10)				M6X1.0(Ø A = 12.8)							
t	Die	Ø B	Pp	t	Die	Ø B	Pp	t	Die	Ø B	Pp	t	Die	Ø B	Pp	t	Die	Ø B	Pp	t	Die	Ø B	Pp	t	Die	Ø B	Pp				
1.0	B	3.2	3.5	1.0	E	4.2	4.5	1.0	E	4.4	4.7	1.0	F	5.5	5.7																
1.2	A	3.2	3.5	1.2	D	4.2	4.5	1.2	D	4.4	4.7	1.2	F	5.1	5.5	1.2	H	7.2	7.5												
1.5	A	2.6	3.0	1.5	B	3.6	4.0	1.5	C	3.8	4.2	1.5	E	4.6	5.0	1.5	G	6.8	7.2	1.5	I	9.1	9.5								
1.6	A	2.6	3.0	1.6	B	3.6	4.0	1.6	B	3.8	4.2	1.6	E	4.6	5.0	1.6	G	6.8	7.2	1.6	I	9.1	9.5								
2.0	A	2.6	3.0	2.0	A	3.2	3.8	2.0	B	3.4	4.0	2.0	C	4.0	4.8	2.0	G	6.7	7.2	2.0	I	8.8	9.3	2.0	J	10.6	11.0				
2.3	A	2.6	3.0	2.3	A	3.3	3.8	2.3	B	3.5	4.0	2.3	C	4.2	4.8	2.3	F	5.7	6.5	2.3	H	7.9	8.5	2.3	J	10.6	11.0				
												2.5	C	4.1	4.7	2.5	E	5.6	6.4	2.5	G	7.8	8.4	2.5	J	10.4	10.8				
												3.0	C	3.7	4.5	3.0	E	4.8	5.7	3.0	G	7.0	8.0	3.0	I	9.4	10.0				
												3.2	C	3.7	4.5	3.2	E	4.8	5.7	3.2	F	7.0	8.0	3.2	I	9.4	10.0				

B (1 1/4") Size

Burring tool set

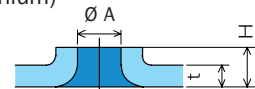


Benefits

- The punch height can be adjusted by one touch.
- The punch tip can be changed by one touch.
- The die tip can be changed easily.

Specifications

- Tooling size : B(1 1/4") (common for long, air-blow, and standard specifications)
- Processing direction : Upform
- Applicable thread size (for cutting tap) : M2.6, M3, M4, M5, M6
- Die height : 33.5mm
- Material Thickness : 0.8~2.3mm (Mild steel, Aluminium)



Burring tool set

Description	Code N°
Burring tool set (forming tap)	-
Burring tool set (cutting tap)	37E040

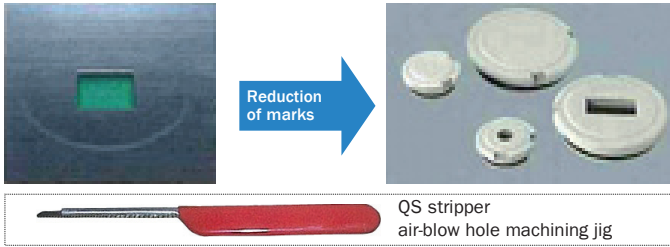
Punch tip selection table - Mild steel • Aluminium (for Forming taps • Cutting taps)

Type	Max size	t	0.8				1.0			1.2			1.6(AL1.5)			2.0			2.3(Not for AL)		
			Ø A	Punch tip hole dia.	Reference value Pp	Reference value H	Punch tip hole dia.	Reference value Pp	Reference value H	Punch tip hole dia.	Reference value Pp	Reference value H	Punch tip hole dia.	Reference value Pp	Reference value H	Punch tip hole dia.	Reference value Pp	Reference value H	Punch tip hole dia.	Reference value Pp	Reference value H
Mild steel	M2.6	2.37	3.7	1.3	1.5	3.9	1.3	1.8	4.2	1.3	2.0	4.5	1.6	2.2							
	M3	2.75	3.9	1.3	1.7	4.2	1.3	2.0	4.5	1.6	2.1	5.0	1.6	2.4							
	M4	3.65	4.8	2.0	1.8	5.0	2.0	2.1	5.3	2.0	2.3	6.0	2.4	2.6	6.3	2.4	3.1	6.3	2.8	3.3	
	M5	4.60				6.0	2.4	2.4	6.3	2.4	2.6	6.8	3.0	2.9	7.3	3.0	3.3	7.3	3.2	3.6	
	M6	5.55							7.3	3.2	2.7	7.8	3.2	3.2	8.4	4.0	3.3	8.4	4.0	3.5	
Aluminium	M2.6	2.21	3.3	1.3	1.5	3.6	1.3	1.8	3.6	1.3	2.0	3.6	1.6	2.2							
	M3	2.57	3.6	1.3	1.7	4.0	1.3	2.0	4.0	1.6	2.0	4.0	1.6	2.4							
	M4	3.40	4.8	2.0	1.8	4.8	2.0	2.0	4.8	2.0	2.2	5.1	2.3	2.5	5.1	2.3	3.0	5.1	2.5	3.2	
	M5	4.30				6.0	2.3	2.3	6.0	2.3	2.5	6.3	2.8	2.8	6.6	2.8	3.2	6.6	3.0	3.5	
	M6	5.10							7.0	3.0	2.6	7.2	3.0	3.1	7.4	3.8	3.2	7.4	3.8	3.4	

* Pd : Pre-pierced hole diameter

* Pre-pierced hole diameter and burred hole height H are reference value. Burred hole height H decreases with increasing pre-pierced hole diameter and increase with decreasing pre-pierced hole diameter. The bigger size for pre-pierced hole diameter is, the lower the height is. The smaller size for pre-pierced hole diameter is, the higher the height is.

QS stripper A (1/2") and B (1 1/4")
QS stripper air-blow hole machining jig



The QS stripper is used in place of the QM stripper (made of metal) for materials likely to be dented, such as aluminium and decorative sheets. Made of plastic, it is effective in reducing dents.

■ List of QS stripper

Description	Code N°
A (1/2") QS stripper (12 in pack)	911620
B (1 1/4") QS stripper (12 in pack)	911640

Brush die de A (1/2") to E (4 1/2")



Dummy dies with brushes that can be inserted in die stations of respective sizes in the lower turret

- Pass line : About 2mm above normal pass line
- Maximum material thickness : 3.2mm (Mild steel)

■ List of brush die

Description	Code N°
A (1/2")	Brush die assy 80EF30
	Brush only 90EF30
B (1 1/4")	Brush die assy 80EF40
	Brush only 90EF40
C (2")	Brush die assy 80EF60
	Brush only 90EF60
D (3 1/2") (Specify your dimensions)	Brush die assy 80EF80
	Brush only 90EF80
E (4 1/2") (Specify your dimensions)	Brush die assy 80EF90
	Brush only 90EF90

Felt (FS oil) de A (1/2") à E (4 1/2")



Felt impregnated with lubricating oil (FS oil). It is installed in the bottom of a punch guide (or in the upper part of a stripper plate). It is effective in reducing the punching resistance of the punch edge, preventing the temperature rise, and preventing the entry of foreign body like metal powder. It also helps to extend the life of the punch.

- * Be sure to use the high-load oil FS.
- * Change the felt when the punch is reground.

■ List of felt

Description	Code N°
FS oil (1L)	940500
A (1/2") Felt (set of 10)	940020
B (1 1/4") Felt (set of 10)	940040
C (2") Felt (set of 10)	940060
D (3 1/2") Felt (set of 10)	940080
E (4 1/2") Felt (set of 10)	940090

Roller die and flat die A (1/2") to E (4 1/2")



Free roller bearing dies and flat dummy dies that can be installed in die stations in the lower turret. They can be installed in unused stations to prevent an extremely thin sheet from drooping, to protect the bottom surface of the sheet against scratch, or to prevent jamming during downform forming.

■ List of roller die and flat die

Tooling size	Code N°	
	Roller die	Flat die
A (1/2")	89EK30	29EJ30
B (1 1/4")	89EK40	29EJ40
C (2")	89EK60	29EJ60
D (3 1/2")	89EK80	29EJ80
E (4 1/2")	89EK90	29EJ90

Conversion sleeve B (1 1/4") -> A (1/2")



If a turret station is not available for a particular size of tooling, a special sleeve can be installed in a one-size larger turret station as adapter for the tooling.

- * The sleeve shown in the photo is used to install a A(1/2") tool in a B(1 1/4") station.)
- * These special sleeves cannot be used in triple holder, and OCTO and APELIO II 200kN{20tonf}.

- Station size : B(1 1/4")
- Tooling size : A(1/2")
- Press capacity : Tonnage for A(1/2")

■ List of special sleeve

Description	Code N°
Punch and die set	913500
Punch sleeve	913600
Die sleeve	913700

Belleville spring Standard B (1 1/4")



Belleville springs have larger holding and stripping forces than coil springs. When a heavy-gauge sheet is punched, a Strip-miss phenomenon may occur. Belleville springs are effective in preventing the jamming phenomenon. When you use belleville springs for a punch, change the punch head and retainer collar for those compatible with the belleville springs.

- * "Weak spring" is also available for reducing the marking of light-gauge aluminium sheets.

■ List of Belleville spring & other springs

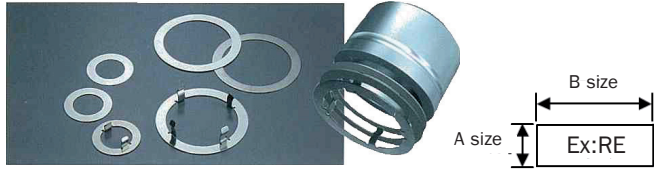
Description	Code N°
B (1 1/2") Belleville spring assy (including belleville retainer)	942140
B (1 1/4") Retainer assy (including head)	942040
B (1 1/4") Belleville spring (15 required for assy)	942240
A (1/2") Std Al weak type spring	99E030
B (1 1/4") Std Al weak type spring	99E040
C (2") Std Al weak type spring including head	99E060
D (3 1/2") Std Al weak type spring including head	99E080
E (4 1/2") Std Al weak type spring including head	99E090

- * The punch head and the upper and lower retainers are available as unit.
- * The guide and punch shown in the photo above are not included.

Shim keepers

A (1/2") to E (4 1/4")

The Shim keeper is used to secure shims to the bottom of a reground die. Fitted with an appropriate height of shims, the shim keepers can be installed in the turret, removed from the turret, or stored on a shelf.



■ Spécifications

Taille	Maximum die hole diameter	
A (1/2")	Inscribed Ø 11	
B (1 1/4")	Inscribed Ø 11	
Size	Except Rectangle	Rectangle
C (2")	Diagonal Ø 47.5	B size max 50mm
D (3 1/2")	Diagonal Ø 77.5	B size max 85mm
E (4 1/2")	Diagonal Ø 97.5	B size max 110mm

■ List of shim keepers

Description	Code N°
A (1/2") Shim keeper set as pack of 5 Contents : (Shim keeper 0.5mm + Spacer 0.2mm, 0.4mm) x 5	911100
B (1 1/4") Shim keeper set as pack of 5 Contents : (Shim keeper 0.5mm + Spacer 0.2mm, 0.4mm) x 5	913300
C (2") Shim keeper set Contents : (Shim keeper 0.5mm + Spacer 0.2mm, 0.4mm) x 2	914100
D (3 1/2") Shim keeper set Contents : (Shim keeper 0.5mm + Spacer 0.2mm, 0.4mm) x 2	915100
E (4 1/2") Shim keeper set Contents : (Shim keeper 0.5mm + Spacer 0.2mm, 0.4mm) x 2	916100

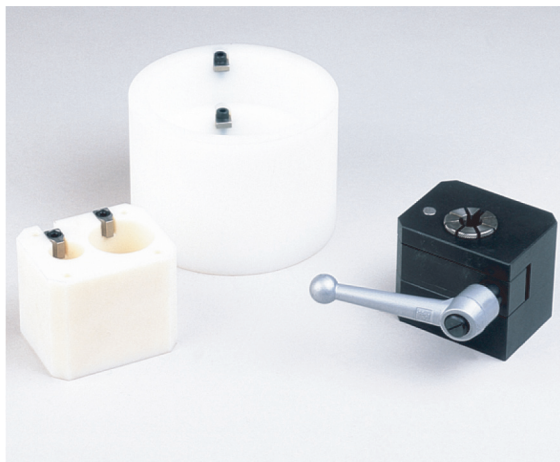
- * Apply the glue to the nail of shim keeper when Shim keeper is used on PDC machine or PV die to avoid the fall or the rotation of shim keeper from the die.
- * Do not use Large size shim keeper on the PDC machine because shim keeper may drop from the die during the auto change.

Assembly / Desassembly Device

A (1/2") et B (1 1/4")

For an excellent quality of cutting, the maintenance of the tools is an important condition. We propose to you:

- * The device of assembly / desassembling of tools. This system allows the assembly and the fast desassembling of the tools and tool holders.



■ Liste

Description	Code N°
Guide assy S ^t C, D & E	900206EU
Tool assy S ^t A & B	900097EU
Punch assy S ^t A & B	900095EU

Shims

A (1/2") to E (4 1/2")

Shims are available for A(1/2") to E(4 1/2") dies and C(2") to (4 1/2") punches. They are used to adjust the height of reground tools and the forming of parts.



■ List of shims

Die shim		Code N°
A (1/2")	Set of 5	911000
B (1 1/4")	Set of 5	913000
C (2")	Set of 5	914000
D (3 1/2")	Set of 5	915000
E (4 1/2")	Set of 5	916000

Thickness : 0.4mm, 0.6mm, 0.8mm and 1.0mm.

Punch shim		Code N°
C (2")	Lot de 5	914400
D (3 1/2")	Lot de 5	915500
E (4 1/2")	Lot de 5	916600

Thickness : 0.4mm, 0.6mm, 0.8mm, 1.0mm, 1.2mm, 1.6mm and 2.0mm

Slug ejectors

A (1/2") to E (4 1/2")

The slug ejector is plastic part attached to the punch tip to prevent slug pulling.



■ List of slug ejectors

Description	Ø A (mm)	H (mm)	Code N°
N°1 (set of 30)	3.3	6.5	910010
N°2 (set of 30)	6.3	10	910020
N°3 (set of 30)	10.3	16	910030

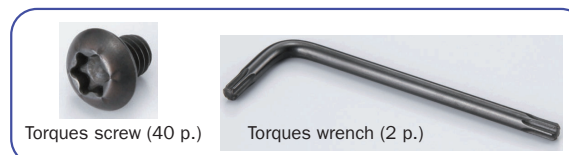
Torques screw

A (1/2") to E (4 1/2")

The torques screws are used to fasten the stripper plate of standard guides.

■ List of torques screw

Description	Code N°
Long M4 SK03 (set of 40 screws and 2 wrenches)	998750
Long M3 SK17 (set of 40 screws and 2 wrenches)	998650
Long M4 SK17 (set of 40 screws and 2 wrenches)	998750



Torques screw (40 p.)

Torques wrench (2 p.)

Slug ejector replacement kit



■ Description

This kit enables to replace the slug ejector on the punch easily, which prevents from the slug pulling.

■ Features

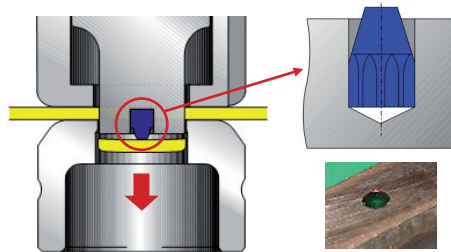
- One push installation of slug ejector!
- Three head types for three kinds of slug ejectors!
- Catching the worn ejector by drill-shape-tip!

Description		Code N°
Removal jig	1	910160
Insert jig	1	
Replacement head N°1 - N°2 - N°3	each size	
Slug ejectors N°1 - N°2 - N°3	each size 5 pcs	

■ Slug ejector is indispensable items for slug pull prevention and needs replacement

The punch bigger than $\varnothing 6\text{mm}$ or 6mm width has slug ejector. The slug ejector pushes down the slug while punching and makes the separation of the slug from the punch. And this results in the slug pulling prevention.

- * Slug ejector is consumable item and needs periodical replacement
- * The punch which was ground more than 2mm must be re-drilled for the ejector holes.



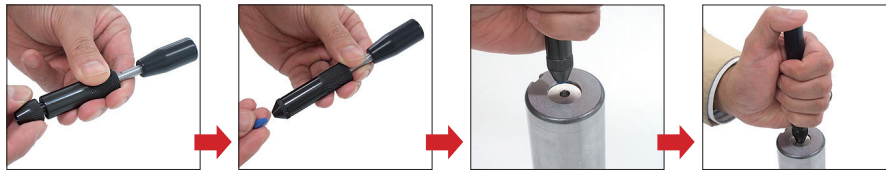
Ejector's end has to come out from the surface
Slug ejector replacement* when punch is reground* when ejector was weakened or damaged

The picture shows that the punch was reground without removing the ejector.

■ Slug ejector insert or removal method

Picture shows the work is done without safety gloves for explanation. But in practice please wear the gloves for the work.

Slug ejector insert method by jig



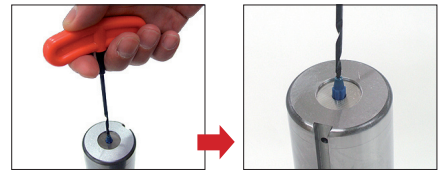
Install the appropriate replacement jig to suit to the size.

Insert the slug ejector into the head

Face the slug ejector against the punch hole

Push the cap by keeping pressing

Slug ejector removal method by jig



Screw in the removal jig on to the ejector

Pull the slug ejector slowly and remove it from the tool

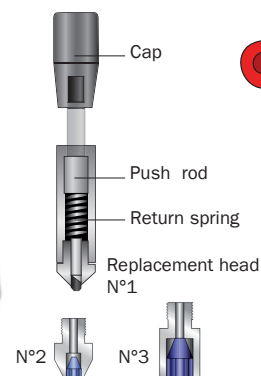
* Removed ejector was not used again.

■ Specification

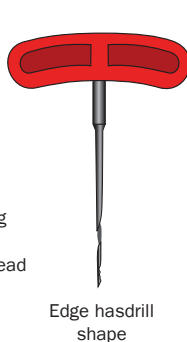
Picture of the set of slug ejector jig



Ville tire-éjecteur



Removal jig (image)



Edge hasdrill shape

● Insert jig

Usage	Specified slug ejector insert jig for Amada tool		
Type	Slug ejector insert jig by head change		
Applicable	Head type N°1	Head type N°2	Head type N°3
Slug ejector	N°1 (green)	N°2 (blue)	N°3 (dark blue)

● Removal jig

Usage	Specified slug ejector removal jig for Amada tool
Type	Tip has drill shape

Caution

1. Carry the work on the stable bench
2. Wear the gloves when insert or removal work is carried out.

Automatic tool grinding machine TOGU EU

Small to large NCT tools of any shapes can be automatically ground, so that sharp edges can always produce the high quality components.

Grinding feed by a high-performance AC servo motor can effortlessly grind even small-diameter punches at high speed and with high accuracy without breaking them. Grinding of almost any tool can be completed in a matter of a few minutes, including setup.

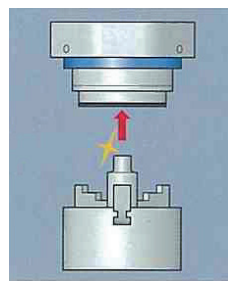
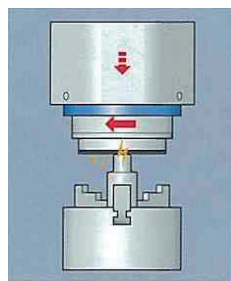
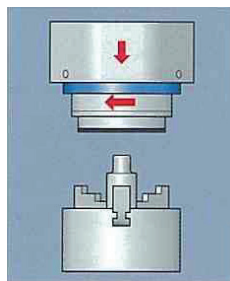
- Automatic detection of grinding position by contact of conductive wheel.
- Setting of grinding amount in 0.01mm increments by digital switch.
- Rotating beacon light tower for seeing operating condition at glance.
- Large front door for ease of setting.

Automatic operation cycle of TOGU

Set the grinding amount, and press the start button. The grinding wheel starts rotating and lowers at middle speed until it touches the tooling.

When the grinding wheel contacts the tooling, an electrical signal flows to detect the grinding position. The grinding operation is then started.

The grinding wheel grinds the tooling to the amount digitally set from the contact position. When it completes the finish grinding of the tooling, the grinding wheel rises at high speed and stops at the upper end.



A(1/2") to E(4 1/2") die



A(1/2") to B(1 1/4") punch








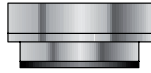
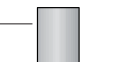

C(2") to E(4 1/2") punch



■ Specifications

Power supply	4.8 kVA - 400 V - 50Hz
Wheel rotation speed	3 000 trs/mn
Approach type	Stepping motor 200V
Resolution	0.01 mm
Pump flow	20 L/mn
Minimum grinding diameter	2 mm
Maximum tooling diameter	160 mm
Fast feed approach	600 mm/mm
Maximum grinding amount	0.99 mm
Vertical wheel travel	200 mm
Grinding wheel	150 mm
Coolant tank capacity	20 L
Mass of machine	480 Kg (excluding transformer)

■ List of accessories jigs (With machine)

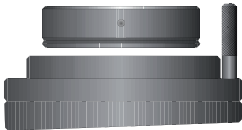
Description	Code N°	
Die jig for A(1½") and B(1¼") station (Long and Short common)	900112EU	
C(2") shear-angles punch body sleeve (Long and Short common)	86200005	
D(3½") shear-angled punch body sleeve (Long and Short common)	86200009	
E(4½") shear-angled punch body jig (Long)	86200008	
Jig for α blade punch (D(3½") and E(4½") common)	900212EU	
Grinding wheel	86279819	
Dresser	86279884	Dresser 
Dresser holder	86091856	Dresser holder 

■ Coolant

REF : 03990001EU. Togu grinding oil (AMADA special oil)

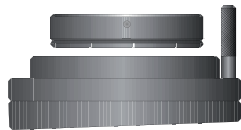
■ Jig combination for shear angle on punch body

Ex.1 : C(2") shear-angled punch
C(2") shear-angled
punch body sleeve



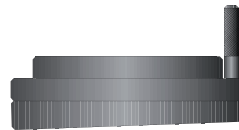
E(4½") shear-angled
punch body jig

Ex.2 : D(3½") shear-angled punch
D(3½") shear-angled
punch body sleeve



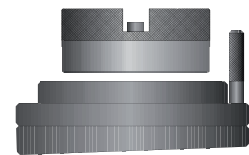
E(4½") shear-angled
punch body jig

Ex.3 : E(4½")
shear-angled punch



E(4½") shear-angled
punch body jig

Ex.4 : D(3½"), E(4½") α blade punch
α blade punch jig



E(4½") shear-angled
punch body jig

QS pliers

for QS stripper

The QS pliers are a convenient dedicated tool for removing a guide from a spring unit and for removing a QS stripper (made of plastic) or QM stripper (made of metal) from the guide.

■ List of QS pliers

Description	Code N°
QS pliers	911910

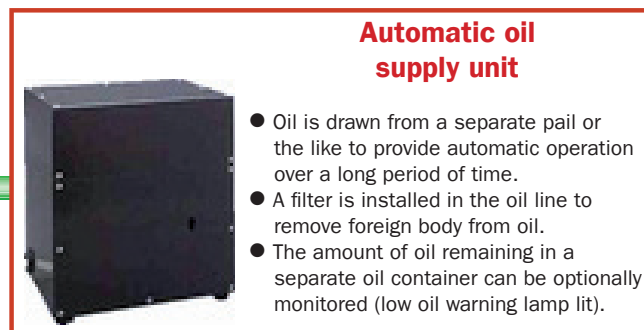
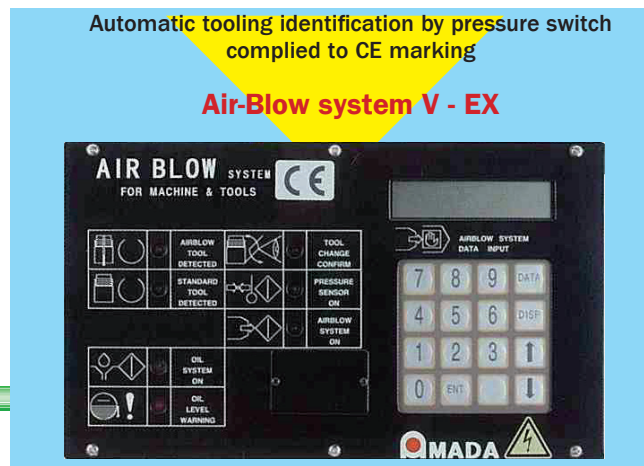


Air-blow system V-EX

Each time the NCT hits the tooling, the air-blow system automatically cleans and lubricates the tooling to prevent any punching problems.

The air-blow system injects air into the tooling as the NCT (NCT turret punch press) punches the material. It also delivers an oil mist in any desired cycle to suit the processing condition of the material. The air-blow system ejects slugs and foreign body, efficiently cools and lubricates the turret bore and tooling, prevents problems, and greatly improves tooling life and part quality.

- Operation mode (Air-blow ON/OFF) is selected as bellow.
- Settable for discharge cycle
- Oil discharge adjustable to optimum amount
- Low oil warning lamp installed



Solenoid unit

Striker



■ Benefits of air-blow system

Prevention of contamination with foreign body



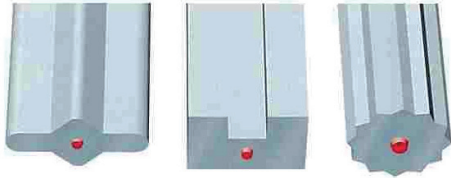
Increase in tooling life by more than 2.5 times longer
Protection for Galling

Reduction of slug pulling
Reduction of strip failures
Reduction of fine needle pulling
Maintenance of hole accuracy
(Reduction of droop and burrs)



Improvement in productivity
Reduction of rejected parts

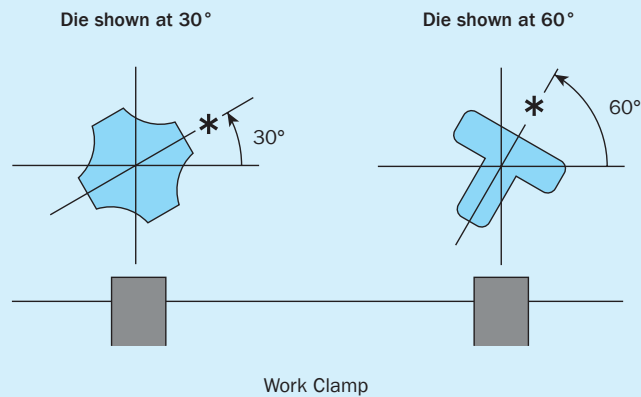
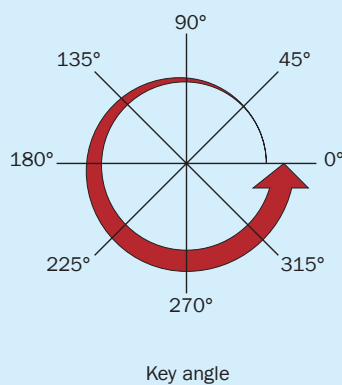
Special shape tooling (Semi-standard tooling)



- A component that is produced by the combination of standard shape tools can be produced by a single special shape tool in shorter time and with higher accuracy.
- If you find in the figures below a shape similar to that of your part, specify your dimensions of the shape.
- When you place an order, attach drawings as much as possible to prevent errors.
- Be sure to specify the key location (processing direction).
- Shear proof (Punch with heel) is recommended for edge notching.

Group I	
Group II	
Group III	


Chart showing key angle and clamp positions:



- * Components of semi-standard tools are the same as standard (round/shape) tooling component assemblies.
- * Semi-standard punches may not be made from HSS+TiCN and APH, depending on their shape.

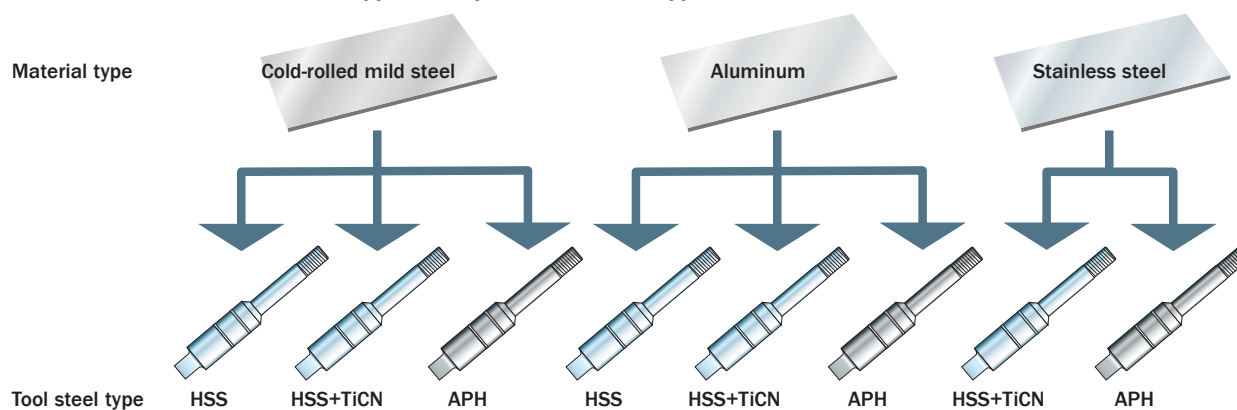
Tooling selection guide

■ Features of tooling by steel type

	Steel type	Feature	Punch	Die
Hi-Potential  Cost Performance	APH	Amada's proprietary tool steel given special coating. Applicable to all worksheet materials and long lasting under all conditions.	X ¹	X ²
	HSS+TiCN	High-speed tool steel with special surface coating to provide higher «deposition» resistance than HSS. Suitable for punching light-gauge sheets of aluminum and stainless steel.	X	
	HSS	High-speed tool steel harder and longer lasting than standard tool steel SKD.	X	X
	HWS	Alloy tool steel. Standard as tool steel and low in cost.		X

1. Square and rectangular APH tools have micro-radiused corners.
2. Die tip APH

■ Recommended tool steel types for specific material types and thicknesses



*Contact Amada when material thickness exceeds 6.0 mm for cold-rolled mild steel and aluminum and 3.0 mm for stainless steel.

Cautions and instructions about tooling



WARNING

Before you use tooling, carefully read the operator's manual of the machine, and tooling as specified in the manual. Unless you observe the cautions described below, the tooling or parts may break, resulting in the risk of personal injury.

1. Use Amada genuine tooling on Amada turret punch press (NCT). Use of other than AMADA made, leads to tool and machine trouble.
2. Before the start of the day's work, be sure to check the tooling. If the tooling is chipped, cracked, deformed, or abnormally worn, do not use it.
3. The tools described in this brochure are manufactured for use on a numerically controlled turret punch press (NCT). Never use them for any other purposes.
4. Never modify or machine the tooling by yourself. Such modification or machining is very dangerous.
5. Do not use the tooling in excess of their maximum allowable tonnage (see the first below). Otherwise the tooling may break.

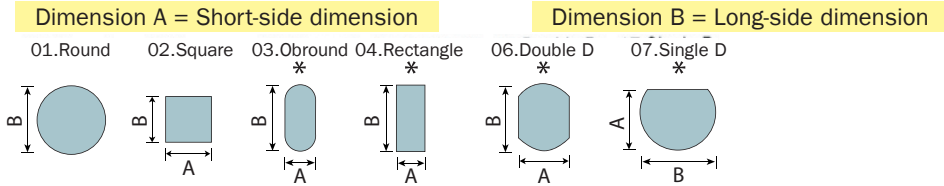
■ Maximum allowable tonnage & tool punch size

	Tool size	A (1/2")				B (1 1/4")			
	Type	Original style		Air-Blow		Original style		Air-Blow	
	Max tonnage	60 kN (6 ton)		45 kN (4.5 ton)		170 kN (17 ton)		160 kN (16 ton)	
	Material	Middle steel	Stainless	Middle steel	Stainless	Middle steel	Stainless	Middle steel	Stainless
Material Thickness (mm)	1.0	Ø 12.7	Ø 12.7	Ø 12.7	Ø 12.7	Ø 31.7	Ø 31.7	Ø 30.0	Ø 30.0
	2.0	Ø 12.7	Ø 12.7	Ø 12.7	Ø 11.5	Ø 31.7	Ø 31.7	Ø 30.0	Ø 30.0
	3.0	Ø 12.7	Ø 10.5	Ø 12.0	Ø 8.0	Ø 31.7	Ø 30.0	Ø 30.0	Ø 28.0
	4.0	Ø 11.5	Ø 8.0	Ø 9.0	NG	Ø 31.7	Ø 22.5	Ø 30.0	Ø 25.0
	5.0	Ø 9.5	NG	Ø 7.0	NG	Ø 27.0	Ø 18.0	Ø 25.5	Ø 17.0
	6.0	Ø 8.5	NG	NG	NG	Ø 23.0	Ø 15.0	Ø 21.0	Ø 14.0

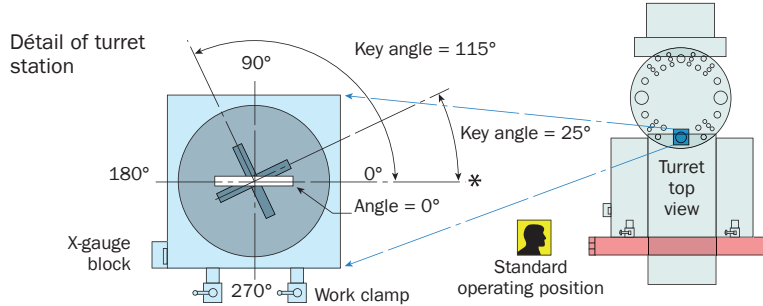
* All calculation is based up on shear strength Mild steel :400N / mm² stainless steel : 600N / mm².

■ Shape, size, and key angle

- Shape reference point (*) of standard tooling



- Reference point (*) for tooling with key angle



■ Table of recommended die clearance (reference values)

Unit: mm

NCT drive type	Material type / Material thickness	0.8	1.0	1.5	2.0	2.5	3.0	3.2	3.5	4.0	4.5	5.0	5.5	6.0
Hydraulic	Cold-rolled mild steel	0.15~0.20	0.20~0.25	0.30~0.38	0.40~0.50	0.50~0.63	0.60~0.75	0.64~0.80	0.70~0.88	0.80~1.00	0.90~1.13	1.00~1.25	1.10~1.38	1.20~1.50
	Aluminium	0.15~0.16	0.15~0.20	0.23~0.30	0.30~0.40	0.38~0.50	0.45~0.60	0.48~0.64	0.53~0.70	0.60~0.80	0.68~0.90	0.75~1.00	0.83~1.10	0.90~1.20
	Stainless steel	0.20~0.24	0.25~0.30	0.38~0.45	0.50~0.60	0.63~0.75	0.75~0.90	0.80~0.96	0.88~1.05	1.00~1.20	1.13~1.35	-	-	-
Mechanical	Stainless steel	0.15	0.15~0.18	0.18~0.27	0.24~0.36	0.30~0.45	0.36~0.54	0.38~0.58	0.42~0.63	0.48~0.72	0.54~0.81	0.60~0.90	0.66~0.99	0.72~1.08
	Aluminium	.15	0.15~0.16	0.15~0.24	0.20~0.32	0.25~0.40	0.30~0.48	0.32~0.51	0.35~0.56	0.40~0.64	0.45~0.72	0.50~0.80	0.55~0.88	0.60~0.96
	Stainless steel	.15~0.18	0.15~0.22	0.21~0.33	0.28~0.44	0.35~0.55	0.42~0.66	0.45~0.70	0.49~0.77	0.56~0.88	0.63~0.99	-	-	-

* Definition of AC servo motor NCT and hydraulic NCT is that the machine of which stroke of striker can be controlled by parameter.
 * Definition of Mechanical NCT is that the machine like PEGA, COMA, ARIES of which stroke of striker is fixed.
 * The values of tooling clearance in the table above are those of two-side clearance. The punch-to-die clearance (one-side clearance) is a half of the corresponding value in the table.

■ Punching force calculation method

$$P = A \times \tau \times t \div 1000$$

P : Punching force (kN)
 A : Cut contour length (mm)
 τ : Tensile strength (N/mm²)
 t : Material thickness (mm)

Material type	Tensile strength (N/mm ²)
Mild steel	400
Aluminium	200
Stainless steel	600

- Tonnage calculation examples

Ex1. Mild steel 2.3t Ø 23.5

$$\text{Required tonnage} = \frac{\text{Ø } 23.5 \times 3.14 \times 400 \times 2.3}{1000} = 67.9\text{kN} = 7.6 \text{ tons}$$

Ex2. Aluminium 1.5t RE 10 x 50

$$\text{Required tonnage} = \frac{(10+10+50+50) \times 200 \times 1.5}{1000} = 36\text{kN} = 3.6 \text{ tons}$$

Ex3. Aluminium 1.5t Oblong 10 x 50

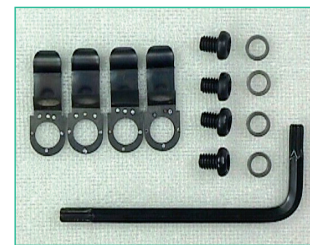
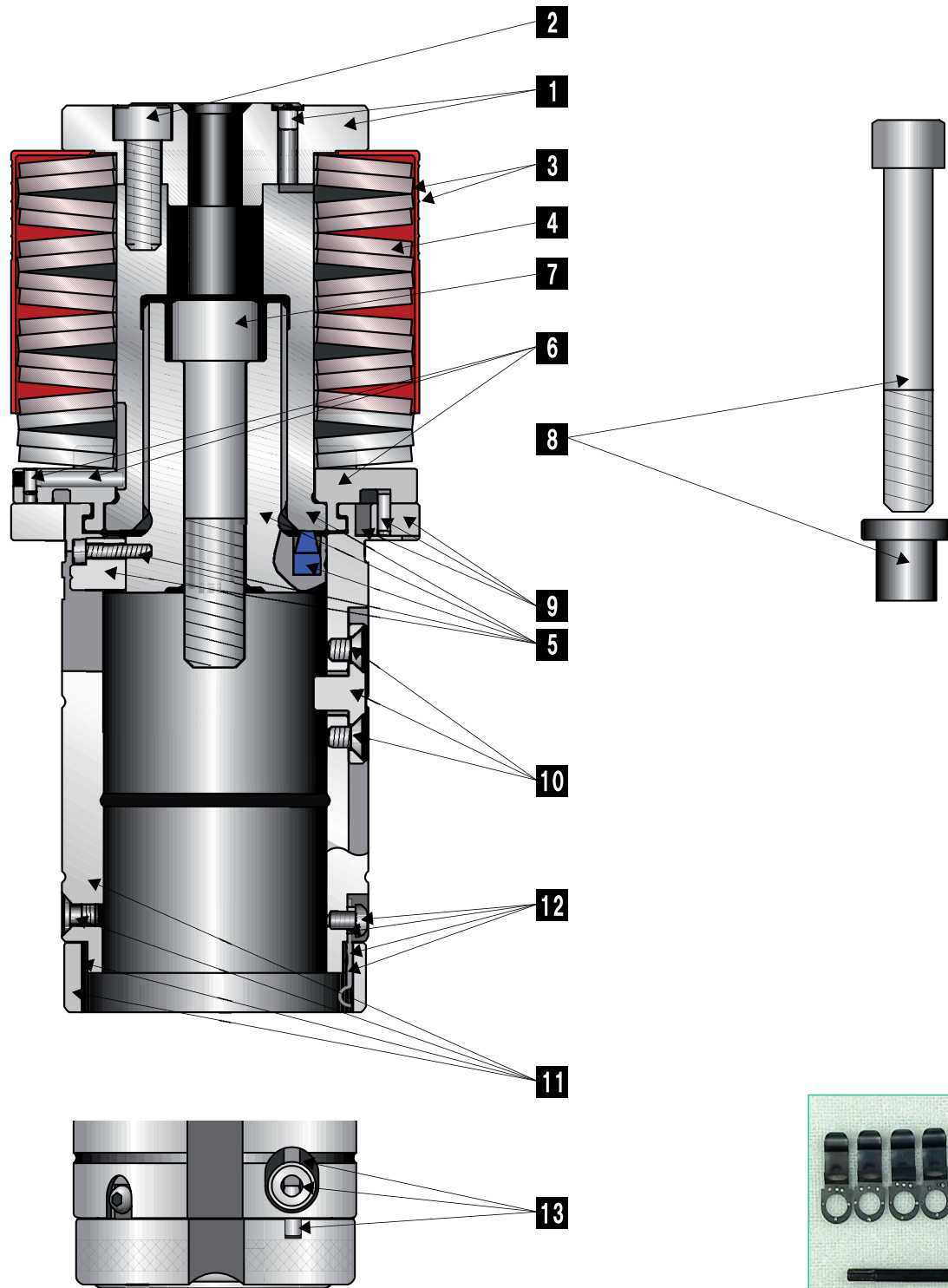
$$\text{Required tonnage} = \frac{(\{3.14 \times \text{Ø } 10\} + \{40 + 50\}) \times 200 \times 1.5}{1000} = 33.4\text{kN} = 3.3 \text{ tons}$$

■ Minimum punchable hole diameter

Minimum diameter size has a smaller proof tonnage on the punch edge and lead to the punch break.

Material type	Garantee
Mild steel	t x 1.0
Aluminium	t x 1.0
Stainless steel	t x 2.0

C (2") Alpha Guide assy



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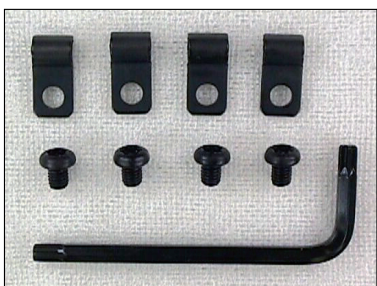
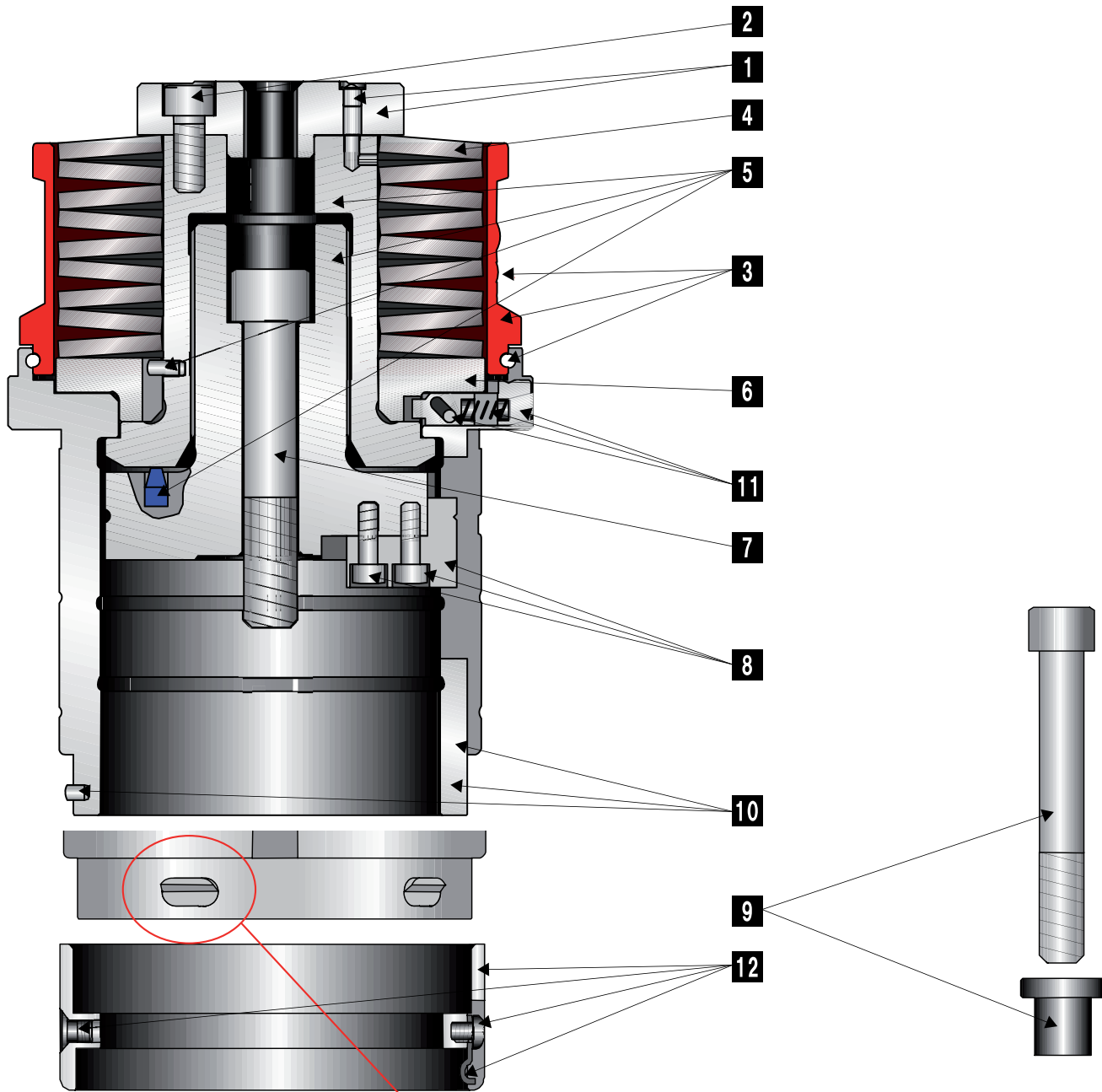
C (2") Alpha Guide assy

Part No.	Description	Code N°	Qté
	2" Alpha Guide assy with cap screw set	90743E	1

2" Alpha Guide Parts

1	Punch Head set	907460	1
	Punch Head		1
	Oil Nipple		1
2	Cap Screw (M8 x 25)	907470	3
3	Spring Cover set	907480	1
	Spring Cover		1
	Name Plate Sticker		1
4	Disk Spring	906090	16
5	Punch Driver set	907500	1
	Punch Driver (A)		1
	Punch Driver (B)		1
	Adjust Mark	910085EU	1
	Cap Screw (M3 x 15)		1
	Ejector Spring N°2		1
6	Retainer Collar set	907510	1
	Retainer Collar		1
	Knock Pin		1
	Spring Pin		1
7	Air-blow Draw Bolt (M14 x 70)	907520	1
8	Cap Screw set	907530	1
	Cap Screw (M12 x 75)		1
	Washer M12		1
1~8	2" Alpha Guide Spring Unit	907540	1
9	Lock Button set	907550	1
	Lock Button		1
	Knock Pin		1
	Coil Spring		2
	Low Head Cap Screw		2
10	2" Guide Key set	907560	1
	2" Guide Key		1
	Set Screw (M5 x 8)		1
11	2" Guide Body set	907570	1
	2" Guide Body		1
	Ring Clamp	910088EU	1
	Steel Ball (3mm)	910084EU	4
	Knock Pin		1
	Coil Spring		1
	Screw Plug	910076EU	2
12	Stripper Clamp Spring set	907450	1
	Stripper Clamp Spring		4
	SP Plate Spring		4
	Washer		4
	Set Screw (M4 x 6)		4
13	Stopper set	907590	1
	Stopper	906620	1
	Coil Spring		1
	Pin		1
9~13	2" Alpha Guide Guide Unit	907600	
14	2" Guide assy SP Plate Spring Package	907450	1

D (3 1/2") Alpha Guide assy



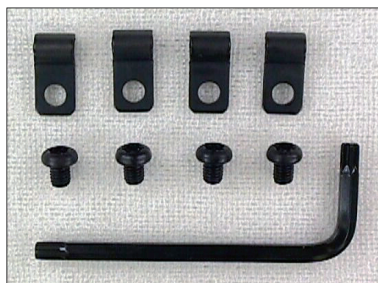
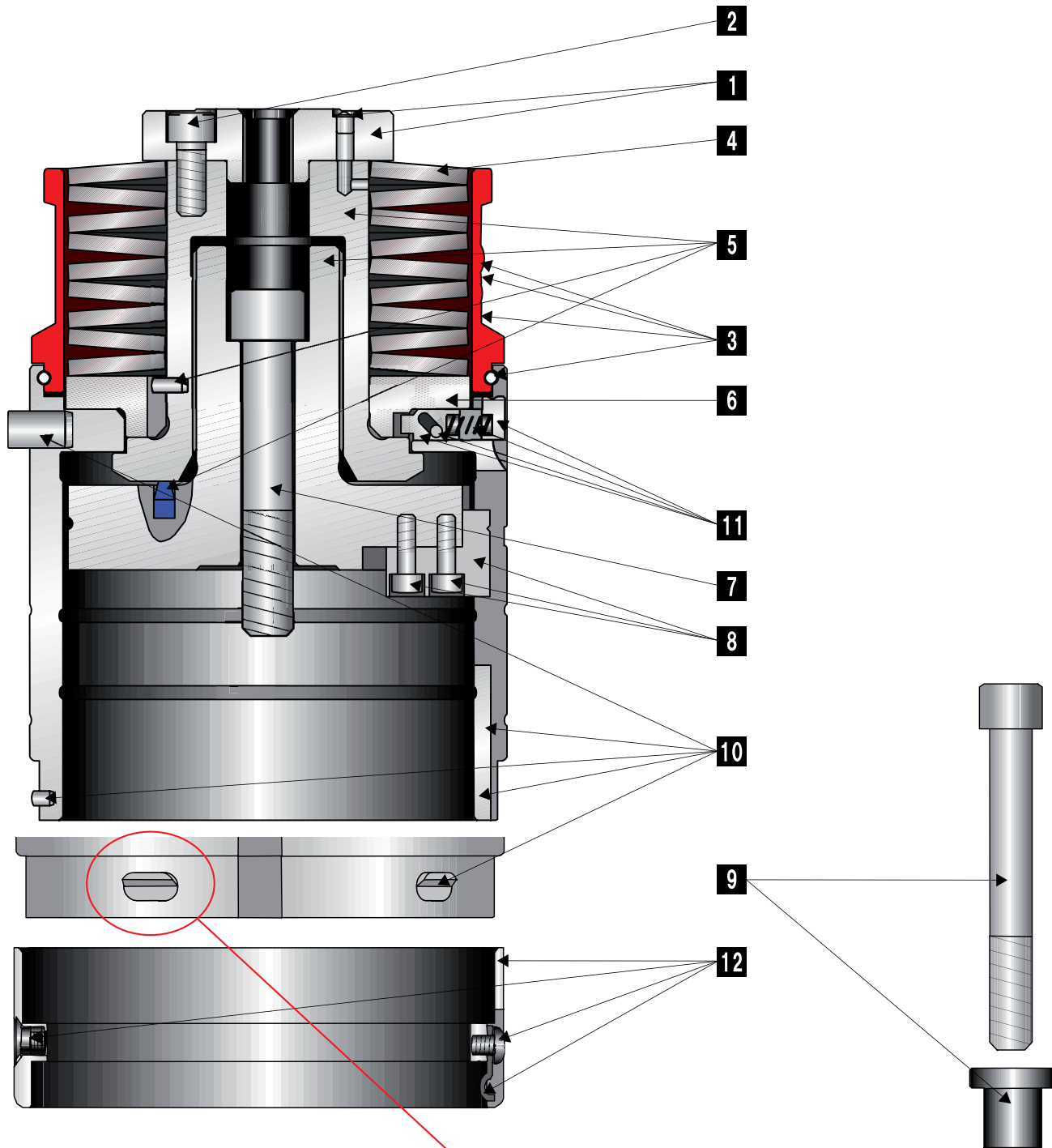
D (3^{1/2}") Alpha Guide assy

Part N°	Description	Code N°	Qty
	3 ^{1/2} " Alpha Guide assy with adapter + cap screw set	90719E	1
	3 ^{1/2} " Alpha Guide assy + cap screw set (without adapter)	90713E	1

3-1/2" Alpha Guide Parts

1	3^{1/2}" & 4^{1/2}" Alpha Guide Punch Head set	907630	1
	3-1/2" & 4-1/2" Alpha Guide Punch Head		1
	Oil Nipple		1
2	Cap Screw (M8 x 20)	907640	1
3	3^{1/2}" & 4^{1/2}" Alpha Guide Spring Cover set	907650	1
	Alpha Guide Spring Cover		1
	Stopper Pin		1
	Lock Ring		1
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Name Plate Sticker		1
4	3^{1/2}" & 4^{1/2}" Alpha Guide Disk Spring	906180	9
5	3^{1/2}" Alpha Guide Punch Driver set	907670	1
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Punch Driver (A)		1
	Knock Pin		1
	3 ^{1/2} " Alpha Guide Punch Driver (B)		1
	Ejector Spring		2
6	Retainer	907680	1
7	Air-blow Drawer Bolt (M14 x 80)	907690	1
8	3^{1/2}" & 4^{1/2}" Alpha Guide Punch Driver Key with screws	910086	1
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Punch Driver Key		1
	Cap Screw (M5 x 15)		2
9	Cap Screw set	907740	1
	Cap Screw (M12 x 85)		1
	Washer M12		1
10	3^{1/2}" Alpha Guide Body set	907750	1
	3 ^{1/2} " Alpha Guide Body		1
	Knock Pin		1
	Button		4
	Release Button		8
	Spring		4
	Spring		4
	Knock Pin		4
	Knock Pin		4
	Plug		4
11	3^{1/2}" Alpha Guide Lock Button set	907760	1
	3 ^{1/2} " & 4-1/2" Alpha Guide Lock Piece		1
	3 ^{1/2} " Alpha Guide Lock But		1
	Spring		1
	Knock Pin		1
12	3^{1/2}" Alpha Guide Adapter set	907170	1
	3 ^{1/2} " Alpha Guide Adapter		1
	Stripper Clamp Spring		4
	Set Screw		4
	Screw Plug		2
13	3^{1/2}" Alpha Guide SP Spring Package	907780	1

E (4 1/2") Alpha Guide assy



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detail of lock & release button



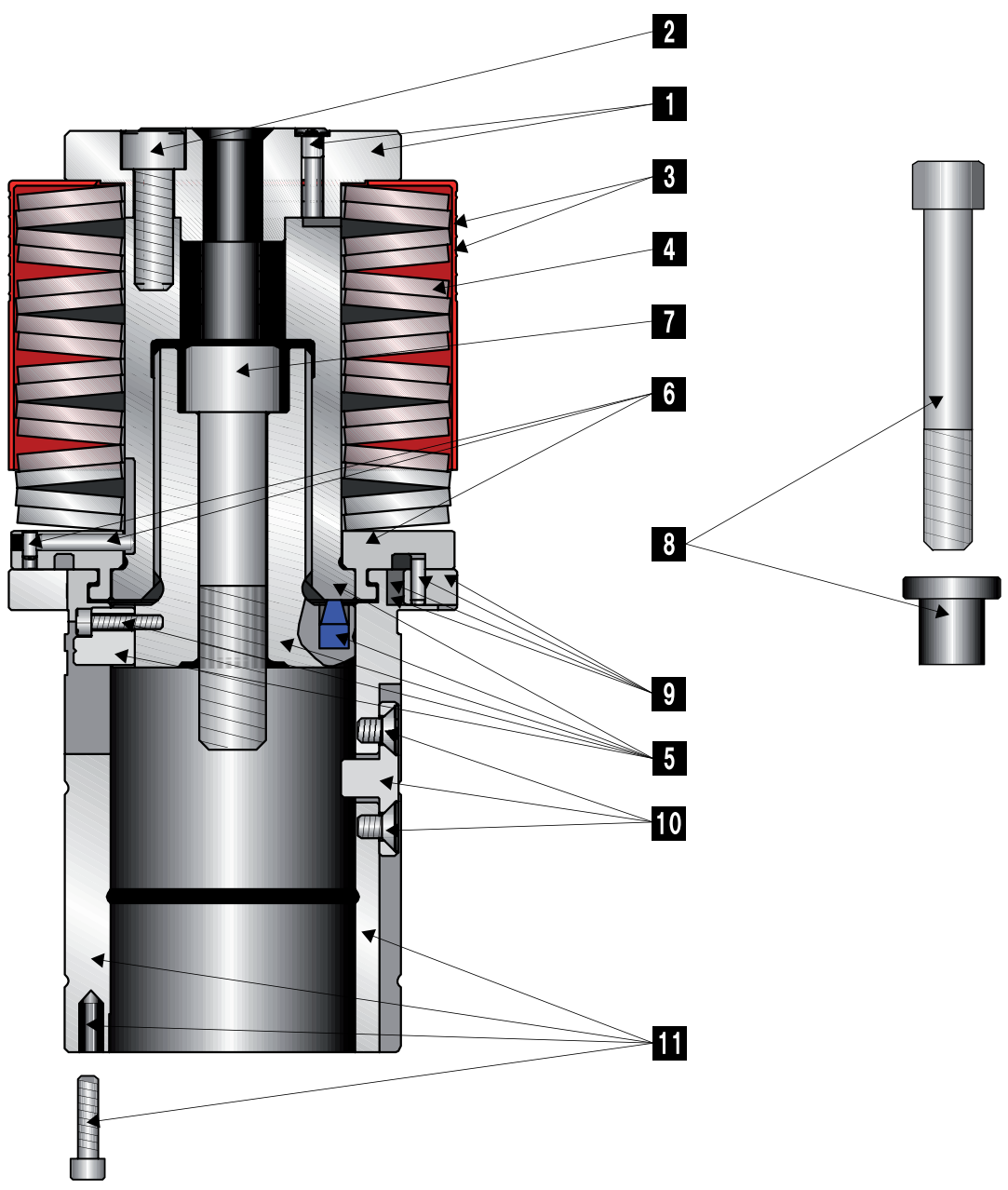
E (4^{1/2}") Alpha Guide assy

Part N°	Description	Code N°	Qty
	4 ^{1/2} " Alpha Guide assy with adapter + cap screw set	90720E	1
	4 ^{1/2} " Alpha Guide assy + cap screw set (without adapter)	90714E	1

4^{1/2}" Alpha Guide Parts

1	3^{1/2}" & 4^{1/2}" Alpha Guide Punch Head set	907630	1
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Punch Head		1
	Oil Nipple		1
2	Cap Screw (M8 x 20)	907640	1
3	3^{1/2}" & 4^{1/2}" Alpha Guide Spring Cover set	907650	1
	Alpha Guide Spring Cover		1
	Stopper Pin		1
	Lock Ring		1
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Name Plate Sticker		1
4	3^{1/2}" & 4^{1/2}" Alpha Guide Disk Spring	906180	9
5	4^{1/2}" Alpha Guide Punch Driver set	907800	1
	4 ^{1/2} " Alpha Guide Punch Driver (A)		1
	Knock Pin		1
	4 ^{1/2} " Alpha Guide Punch Driver (B)		1
	Ejector Spring		2
6	Retainer	907680	1
7	Air-blow Drawer Bolt (M14 x 80)	907690	1
8	3^{1/2}" & 4^{1/2}" Alpha Guide Punch Driver Key with screws	910086	1
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Punch Driver Key		1
	Cap Screw (M5 x 15)		2
9	Cap Screw set	907740	1
	Cap Screw (M12 x 85)		1
	Washer M12		1
10	4^{1/2}" Alpha Guide Body set	907810	1
	4 ^{1/2} " Alpha Guide Body		1
	Knok Pin		1
	Knok Pin		1
	Button		4
	Release Button		8
	Spring		4
	Spring		4
	Knock Pin		4
	Knock Pin		4
	Plug		4
11	4^{1/2}" Alpha Guide Lock Button set	907820	1
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Lock Piece		1
	4 ^{1/2} " Alpha Guide Lock Button		1
	Spring		1
	Knock Pin		1
12	4^{1/2}" Alpha Guide Adapter set	907180	1
	4 ^{1/2} " Alpha Guide Adapter		1
	Stripper Clamp Spring		4
	Set Screw		4
	Screw Plug		2
13	3^{1/2}" & 4^{1/2}" Alpha Guide SP Spring Package	907780	1

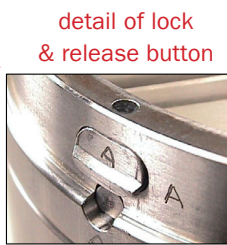
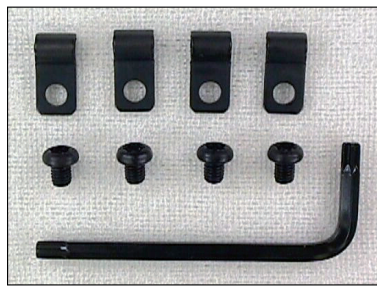
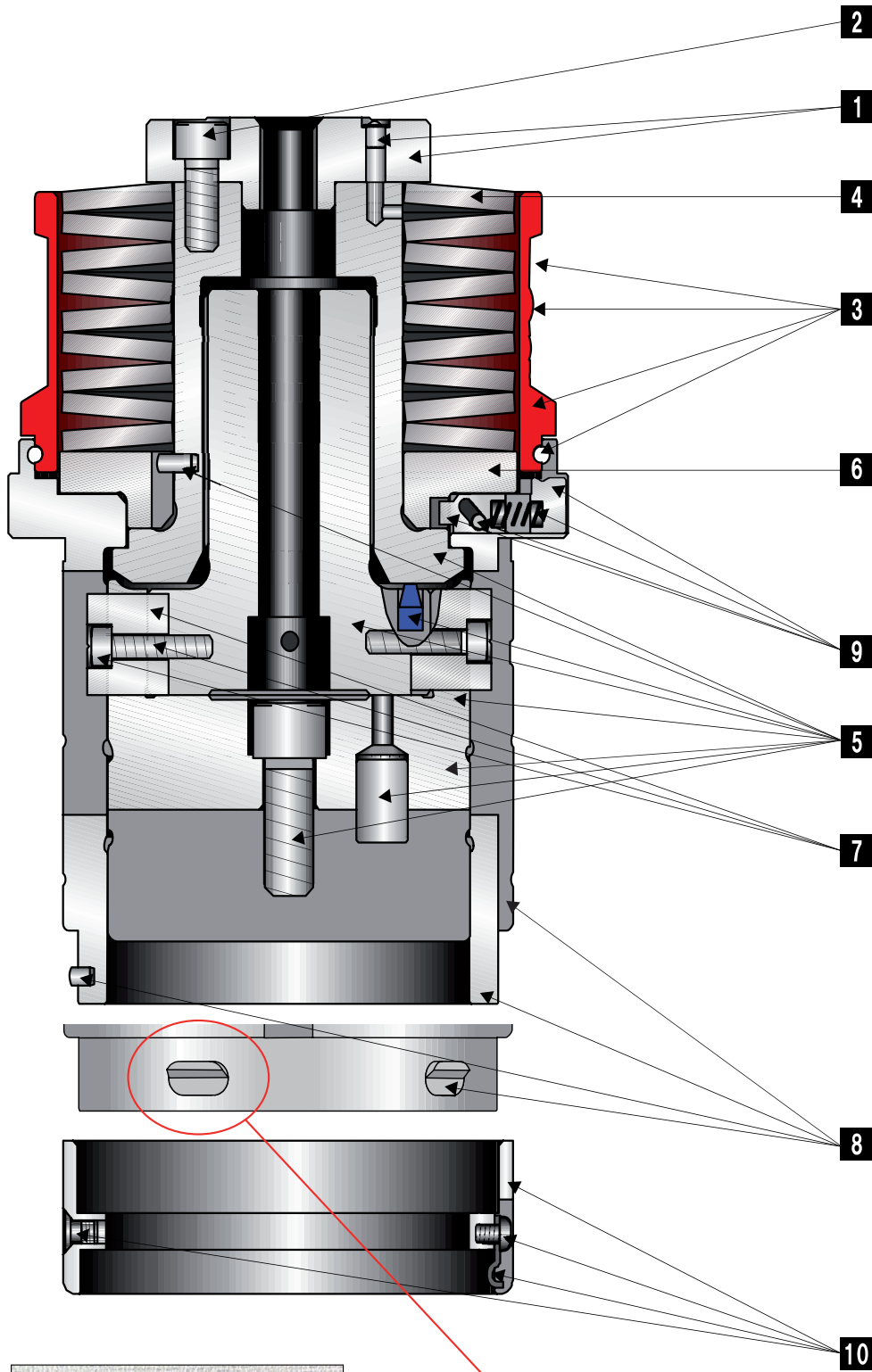
C (2") Alpha Sheet Saver Guide assy



C (2") Alpha Sheet Saver Guide assy

Part N°	Description	Code N°	Qty
	2" Alpha Sheet saver Guide assy + capscrew set #8	90744E	1
2" Apha Sheet Saver Guide Parts			
1	Punch Head set	907460	1
	Punch Head		1
	Oil Nipple		1
2	Cap Screw (M8 x 25)	907470	3
3	Spring Cover set	907480	1
	Spring Cover set		1
	Name Plate Sticker		1
4	Disk Spring	906090	16
5	Punch Driver set	907500	1
	Punch Driver (A)		1
	Punch Driver (B)		1
	Adjust Mark	910085EU	1
	Cap Screw (M3 x 15)		1
	Ejector Spring N°2		1
6	Retainer Collar set	907510	1
	Retainer Collar set		1
	Knock Pin		1
	Spring Pin		1
7	Air-blow Draw Bolt (M14 x 70)	907520	1
8	Cap Screw set	907530	1
	Cap Screw (M12 x 75)		1
	Washer M12		1
1~8	2" Alpha Guide Spring Unit	907540	1
9	Lock Button set	907550	1
	Lock Button		1
	Knock Pin		1
	Coil Spring		2
	Low Head Cap Screw		2
10	Guide Key set	907560	1
	2" Guide Key	908430	1
	Set Screw (M5 x 8)	999300	1
11	2" Alpha Sheet Saver Guide Body set	907610	1
	2" Alpha Sheet Saver Guide Body		1
	Straight Pin		1
	Spring Bolt (M5 x 20)		4
	Screw Plug		2

D (3 1/2") Alpha Blade Guide assy



D (3^{1/2}") Alpha Blade Guide assy

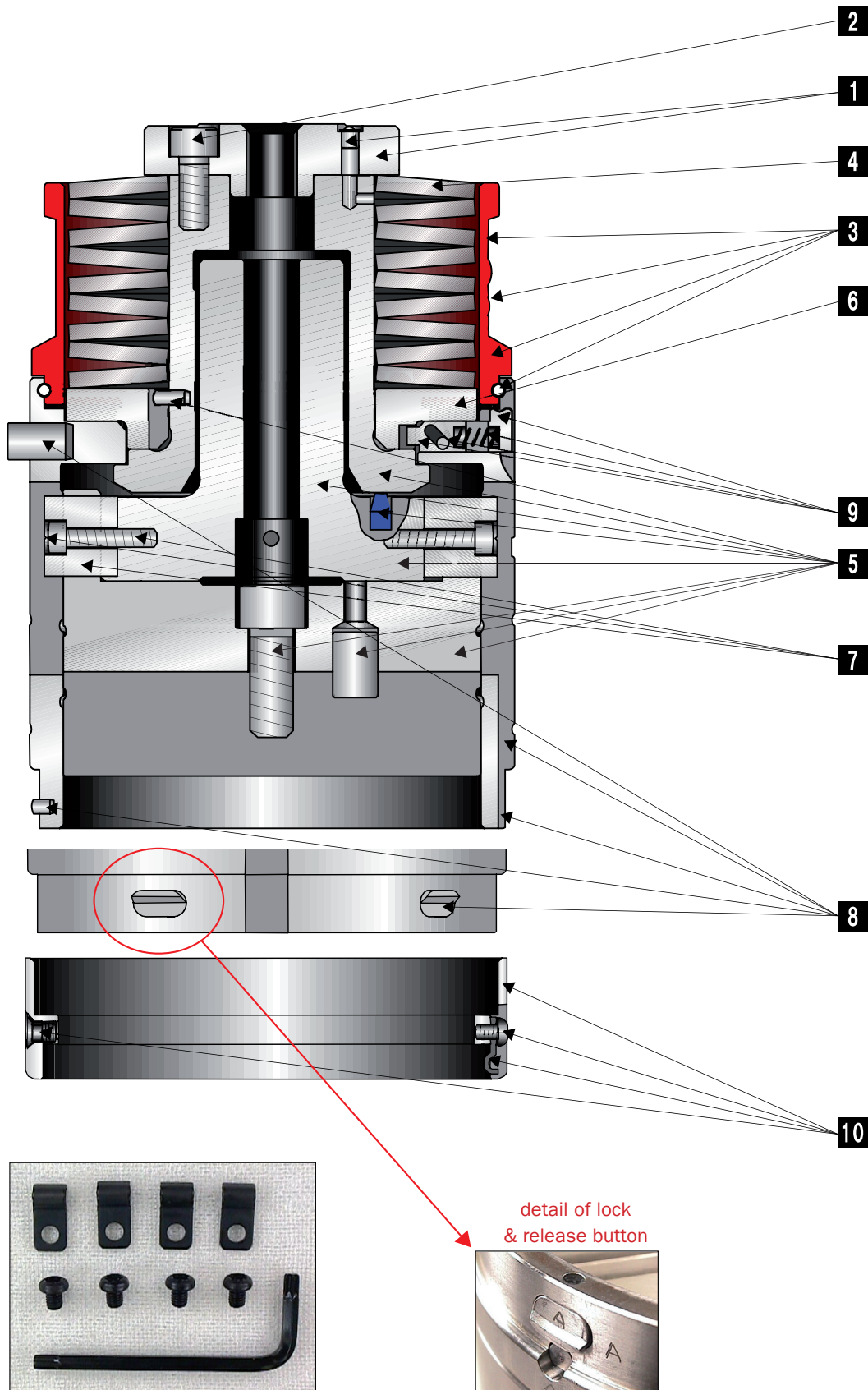
Part N°	Description	Code N°	Qty
	3 ^{1/2} " Alpha Blade Guide assy with adapter	90721E	1
	3 ^{1/2} " Alpha Blade Guide assy (without adapter)	90715E	1

3-1/2» Alpha Blade Guide Parts

1	3^{1/2}" & 4^{1/2}" Alpha Guide Punch Head set	907630	1
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Punch Head		1
	Oil Nipple		1
2	Cap Screw (M8 x 20)	907640	1
3	3-^{1/2}" & 4^{1/2}" Alpha Guide Spring Cover set	907650	1
	Alpha Guide Spring Cover		1
	Stopper Pin		1
	Lock Ring		1
	3 ^{1/2} " & 4 ^{1/2} " Alpha Blade Guide Name Plate Sticker		1
4	3^{1/2}" & 4^{1/2}" Alpha Guide Disk Spring	906180	9
5	3^{1/2}" Alpha Blade Punch Body set	907770	1
	3 ^{1/2} " Alpha Blade Punch Body	900207EU	1
	Pin		1
	Cap Screw (M12 x 30)		1
	Cap Screw (M6 x 25)		4
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Punch Driver (A)	900208EU	1
	Knock Pin		1
	3 ^{1/2} " Alpha Guide Punch Driver (B)	900209EU	1
	Ejector Spring N°2		2
6	Retainer	907680	1
7	3^{1/2}" & 4^{1/2}" Alpha Guide Punch Driver Key set with screw & cap	908720	2
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Punch Driver Key		2
	Cap Screw (M5 x 20)		2
	Cap		2
8	3^{1/2}" Alpha Guide Body set	907750	1
	3 ^{1/2} " Alpha Guide Body		1
	Knock Pin		1
	Button		4
	Release Button		8
	Spring		4
	Spring		4
	Knock Pin		4
	Knock Pin		4
	Plug		4
9	3^{1/2}" Alpha Guide Lock Button set	907760	1
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Lock Piece		1
	3 ^{1/2} " Alpha Guide Lock Button		1
	Spring		1
	Knock Pin		1
10	3^{1/2}" Alpha Guide Adapter set	907170	1
	Adaptateur pour dévêtisseur St D		1
	3 ^{1/2} " Alpha Guide Adapter		4
	Stripper Clamp Spring		4
	Screw Plug		2
11	3^{1/2}" Alpha Guide SP Spring Package	907780	1

E (4^{1/2}")

Alpha Blade Guide assy



E (4^{1/2}") Alpha Blade Guide assy

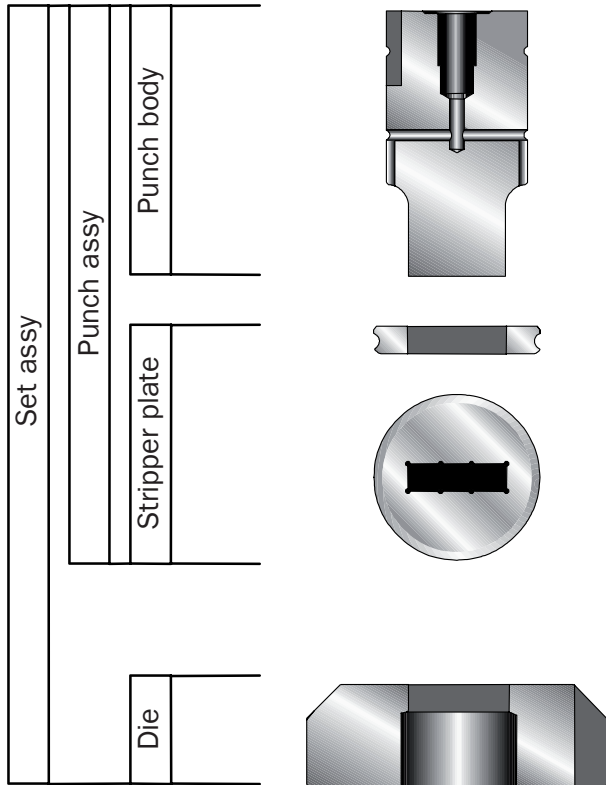
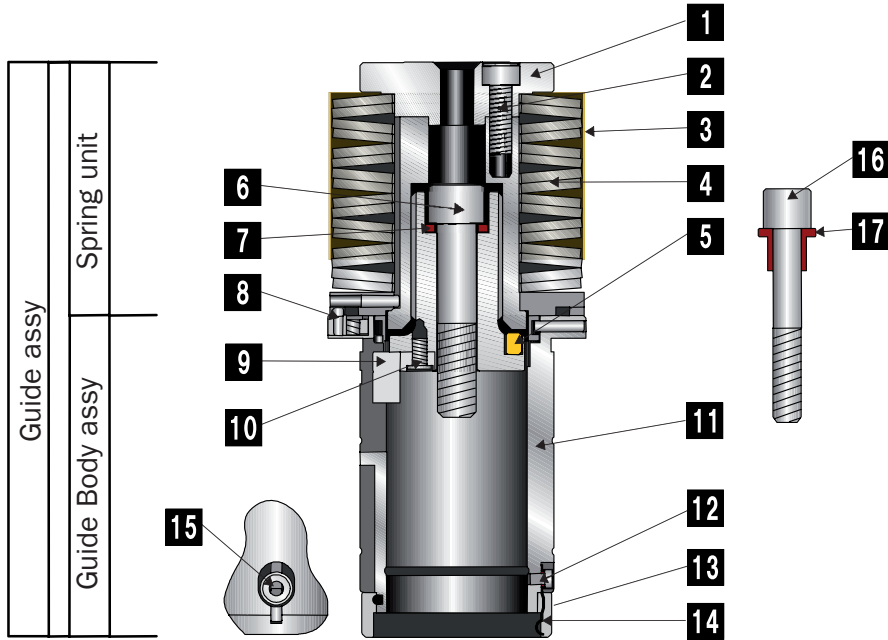
Part N°	Description	Code N°	Qty
	4 ^{1/2} " Alpha Blade Guide assy with adapter	90722E	1
	4 ^{1/2} " Alpha Blade Guide assy (without adapter)	90716E	1

4^{1/2}" Alpha Blade Guide Parts

1	3^{1/2}" & 4^{1/2}" Alpha Guide Punch Head set	907630	1
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Punch Head		1
	Oil Nipple		1
2	Cap Screw (M8 x 20)	907640	1
3	3^{1/2}" & 4^{1/2}" Alpha Guide Spring Cover set	907650	1
	Alpha Guide Spring Cover		1
	Stopper Pin		1
	Lock Ring		1
	3 ^{1/2} " & 4 ^{1/2} " Alpha Blade Guide Name Plate Sticker		1
4	3^{1/2}" & 4^{1/2}" Alpha Guide Disk Spring	906180	9
5	4^{1/2}" Alpha Blade Punch Body set	907830	1
	4 ^{1/2} " Alpha Blade Punch Body	910210EU	1
	Pin		1
	Cap Screw (M12 x 30)		1
	Cap Screw (M6 x 25)		4
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Punch Driver (A)	900211EU	1
	Knock Pin		1
	3 ^{1/2} " Alpha Guide Punch Driver (B)	900209EU	1
	Ejector Spring		2
6	Retainer	907680	1
7	3^{1/2}" & 4^{1/2}" Alpha Guide Punch Driver Key set with screw+cap	908720	2
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Punch Driver Key		2
	Cap Screw (M5 x 20)		2
	Cap		2
8	4^{1/2}" Alpha Guide Body set	907810	1
	4 ^{1/2} " Alpha Guide Body		1
	Knok Pin		1
	Button		4
	Release Button		8
	Spring		4
	Spring		4
	Knock Pin		4
	Knock Pin		4
	Plug		4
9	4^{1/2}" Alpha Guide Lock Button set	907820	1
	3 ^{1/2} " & 4 ^{1/2} " Alpha Guide Lock Piece		1
	4 ^{1/2} " Alpha Guide Lock Button		1
	Spring		1
	Knock Pin		1
10	4^{1/2}" Alpha Guide Adapter set	907180	1
	4 ^{1/2} " Alpha Guide Adapter		1
	Stripper Clamp Spring		4
	Set Screw		4
	Screw Plug		2
11	4^{1/2}" Alpha Guide SP Spring Package	907780	1

C (2")

Thick turret Z Style Guide Parts List



N°	Part and Unit Name	Code N°
	2" Z Style Guide Assy (with Wrench)	900500
	2" Z Style Guide Spring Unit	906000
	2" Z Style Guide Body Assy	906030
①	Punch Head	906060
②	Socket Head Cap Screw (3-M8x25)	999600
③	Spring Cover	906080
④	Disk Spring (2x8=16)	906090
⑤	Urethane Stopper	906270
⑥	Air-Blow Draw Bolt (M14x70)	906300
⑦	M 14 Washer	906310
⑧	Adjust Button Unit	906350
⑨	Key	906460
⑩	Low Head Cap Screw (M5x10)	905680
⑪	Guide Body	900900
⑫,⑭	SP Spring Pack	906920
⑬	Stripper Clamp Ring	906580
⑮	Lock Button Unit	906620

Standard Parts and Wrench

⑯	Socket Head Cap Screw (M12x70)	999900
⑰	M12 Collar	906670

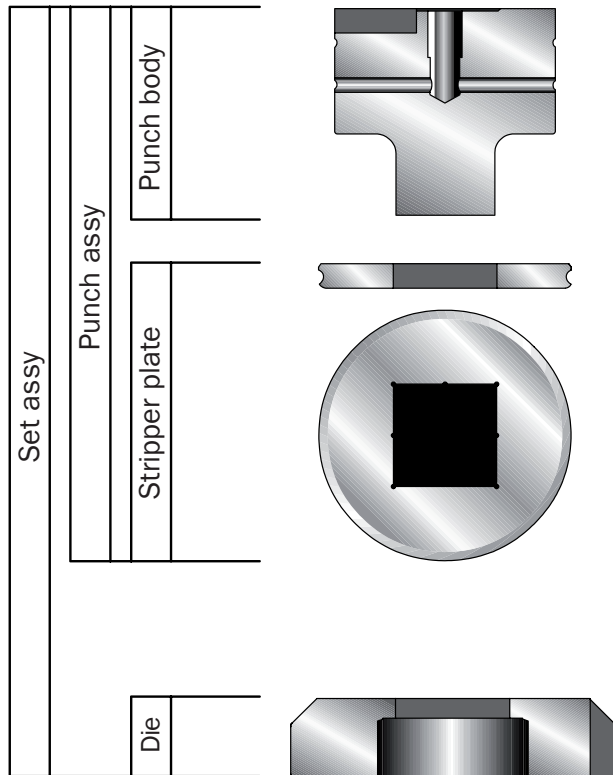
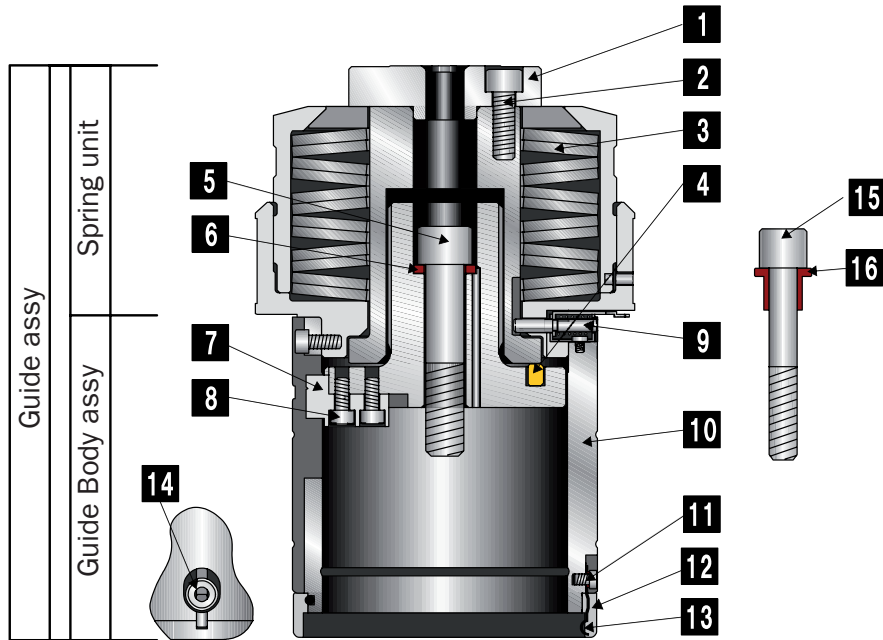
Wrench set	906700
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C (2") Z Style Guide

Part N°	Description	Code N°	Qty
	2" Z Guide assy		
	2" Z Style Guide assy (with wrench)	900500	1
	2" Z Style Guide assy (without wrench)	900530	1
	2" Z Style Guide Spring Unit	906000	1
	2" Z Style Guide Body assy	906030	1
	Pièces pour Porte-outil Z St C		
1	2" Z Style Guide Punch Head	906060	1
2	Socket Head Cap Screw (M8 x 25)	999600	3
3	2" Z Style Guide Spring Cover	906080	1
	Z Tooling Sticker	906170	1
4	2" Z Style Guide Disk Spring	906090	16
	2" Z Style Guide Punch Driver Set	906190	1
	2" Z Style Guide Outer Punch Driver	906220	1
	2" Z Style Guide Inner Punch Driver	906240	1
5	Urethane Stopper	906270	2
	Retainer Collar	906280	1
	Spring Role Pin (4 x 14)	906290	1
6	Air-Blow Draw Bolt (M14 x 70)	906300	1
7	M14 Washer	906310	1
	Air-Blow Draw Bolt M14x70 (with washer)	906320	1
8	Adjust Button Unit	906350	1
	Locate Pin	906360	1
	Push Button	906370	1
	Coil Spring	906380	2
	Low Head Cap Screw (M4 x 6)	906390	2
9	2" Z Style Guide Key	906460	1
10	Low Head Cap Screw (M5 x 10)	905680	1
11	2" Z Style Guide Body	900900	1
	Spring Roll Pin 4x18	906490	3
	Ball Bearing 3.5	906500	3
	Pedestal Ring	906510	3
12	SP Spring Pack		1
	Low Head Cap Screw (M4 x 5)	906920	3
	M4 Washer		3
14	Stripper Clamp Spring		3
13	2" Z Style Guide Stripper Clamp Ring	906580	1
15	Lock Button Unit	906620	1
	Stopper Button	906630	1
	Coil Spring	906640	1
	Stopper Pin	906650	1
	Standard Accessories		
	Socket Head Cap Screw M12x70 (with washer)	906660	1
16	Socket Head Cap Screw (M12 x 70)	999900	1
17	M12 Adapter Collar	906670	1
	Z Style Guide Standard Wrench Set	906700	1
	M10 Hexagon Key Wrench	906710	1
	M6 Hexagon Key Wrench	906720	1
	M4 Hexagon Key Wrench	906730	1
	M3 Hexagon Key Wrench	906740	1
	M2.5 Hexagon Key Wrench	906750	1
	M2 Hexagon Key Wrench	906760	1

D (3 1/2")

Thick turret Z Style Guide Parts List



N°	Part and Unit Name	Code N°
	3 1/2" Z Style Guide assy	900510
	3 1/2" Z Style Guide Spring Unit	906010
	3 1/2" Z Style Guide Body assy	906040
①	Punch Head	906070
②	Socket Head Cap Screw (4-M8x25)	999600
③	Disk Spring (2x5=10)	906180
④	Urethane Stopper	906270
⑤	Air-Blow Draw Bolt (M14x70)	901900
⑥	M 14 washer	906310
⑦	Key	906330
⑧	Socket Head Cap Screw (2-M5x12)	906340
⑨	Adjust Lever Unit	906400
⑩	Guide Body	900910
⑪,⑬	SP Spring Pack	906960
⑫	Stripper Clamp Ring	906590
⑭	Lock Button Unit	906620

Standard parts and wrench

⑮	Socket Head Cap Screw (M12x70)	999900
⑯	M12 Washer	906670

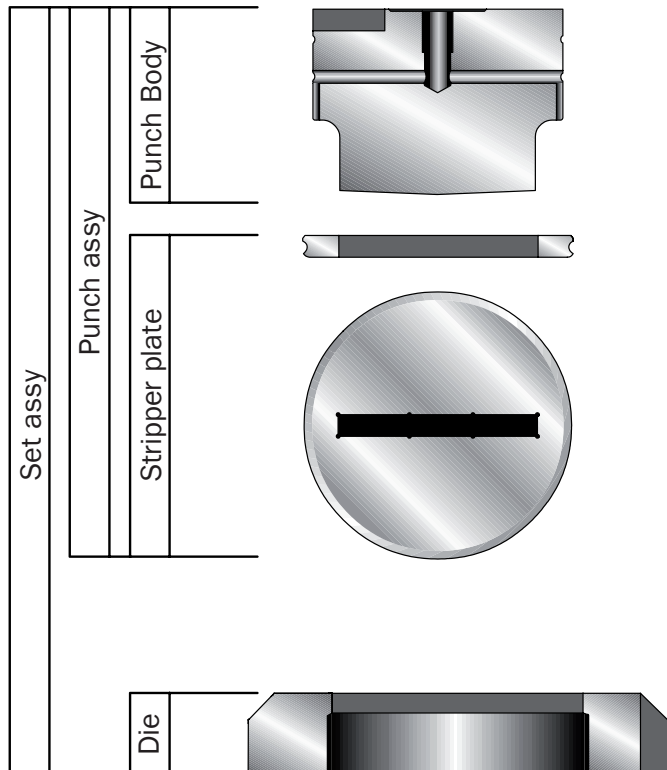
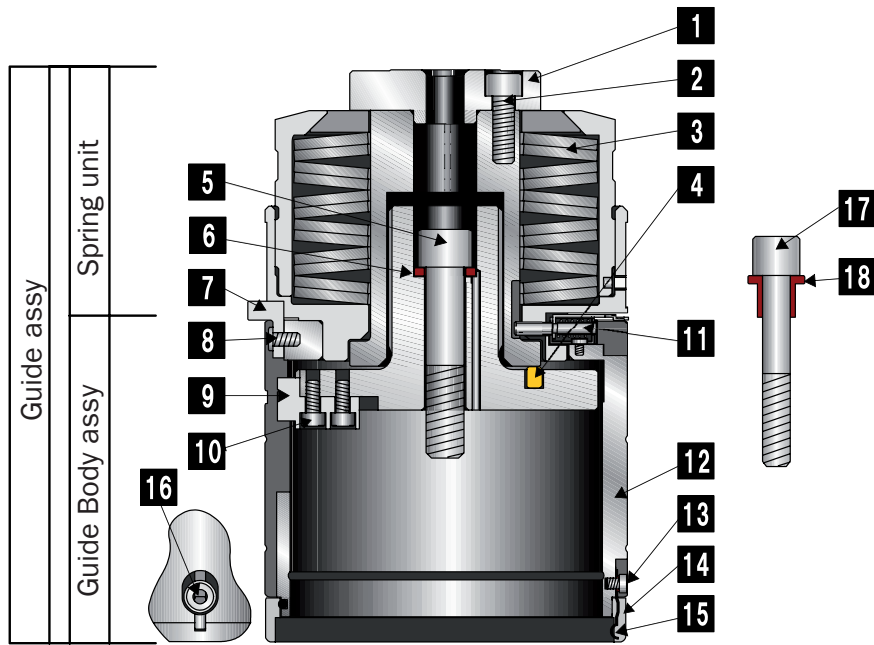
Wrench Set	906700
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D (3¹/₂") Z Style Guide

Part N°	Description	Code N°	Qty
	3-1/2» Z Style Guide assy		
	3-1/2» Z Style Guide assy (with Wrench)	900510	1
	3-1/2» Z Style Guide assy	900540	1
	3-1/2» Z Style Guide Spring Unit	906010	1
	3-1/2» Z Style Guide Body assy	906040	1
	3-1/2» Z Style Guide assy parts		
1	3-1/2» 4-1/2» Z Style Guide Punch Head	906070	1
2	Socket Head Cap Screw (M8 x 25)	999600	4
	Spring Retainer Collar	906100	1
	3-1/2» Z Style Guide Spring Cover Set	906110	1
	3-1/2» 4-1/2» Z Style Guide Upper Spring Cover	906130	1
	3-1/2» Z Style Guide Lower Spring Cover	906140	1
	Set Screw (M5 x 8) (Dog point)	906160	1
	Z Tooling Sticker	906170	1
3	3-1/2» 4-1/2» Z Style Guide Disk Spring	906180	10
	3-1/2» Z Style Guide Punch Driver Set	906200	1
	3-1/2» Z Style Guide Outer Punch Driver	906230	1
	3-1/2» Z Style Guide Inner Punch Driver	906250	1
4	Urethane Stopper	906270	2
5	Air-Blow Draw Bolt (M14 x 70)	901900	1
6	M14 Washer	906310	1
7	3-1/2» 4-1/2» Z Style Guide Punch Driver Key	906330	1
8	Socket Head Cap Screw (M5 x 12)	906340	2
9	Adjust Lever Unit	906400	1
	Bracket Type I	906410	1
	Bracket Type II	906420	1
	Lock Pin	906430	1
	Coil Spring	906440	1
	Locating Bolt	906450	1
10	3-1/2» Z Style Guide Body (with Screw M5x12)	900910	1
	3-1/2» Z Style Guide Body	900930	1
	M5 Washer	906520	3
	Socket Head Cap Screw (M5 x 12)	906530	3
	Ball Bearing 3.5	906500	6
	Pedestal Ring	906510	6
11	SP Spring Pack		1
	Low Head Cap Screw (M4 x 5)	906960	3
	M4 Washer		3
13	Stripper Clamp Spring		3
12	3-1/2» Z Style Guide Stripper Clamp Ring	906590	1
14	Lock Button Unit	906620	1
	Stopper Button	906630	1
	Coil Spring	906640	1
	Stopper Pin	906650	1
	Standard Accessories		
	Socket Head Cap Screw (M12x70) with washer	906660	1
15	Socket Head Cap Screw (M12 x 70)	999900	1
16	M12 Adapter Collar	906670	1
	Z Style Guide Standard Tool Set	906700	1
	M10 Hexagon Key Wrench	906710	1
	M6 Hexagon Key Wrench	906720	1
	M4 Hexagon Key Wrench	906730	1
	M3 Hexagon Key Wrench	906740	1
	M2.5 Hexagon Key Wrench	906750	1
	M2 Hexagon Key Wrench	906760	1
	Spacer	906770	1
	Spring assy Jig	906780	1

E (4^{1/2}"

Thick turret Z Style Guide Parts List



N°	Part and Unit Name	Code N°
	4 ^{1/2} " Z Style Guide Assy	900520
	4 ^{1/2} " Z Style Guide Spring Unit	906020
	4 ^{1/2} " Z Style Guide Body Assy	906050
①	Punch Head	906070
②	Socket Head Cap Screw (4-M8x25)	999600
③	Disk Spring (2x5=10)	906180
④	Urethane Stopper	906270
⑤	Air-Blow Draw Bolt (M14x70)	901900
⑥	M14 Washer	906310
⑦	Lifter Pin	906470
⑧	Countersunk flat head screw (M5x12)	905670
⑨	Punch Driver Key 906330	906330
⑩	Socket Head Cap Screw (2-M5x12)	906340
⑪	Adjust Lever Unit	906400
⑫	Guide Body	900920
⑬,⑮	SP Spring Pack	906960
⑭	Stripper Clamp Ring	906600
⑯	Lock Button Unit	906620

Standard parts and wrench

Socket Head Cap Screw (M12x70)	999900
M12 Collar	906670

Wrench Set	906700
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E (4^{1/2}") Z Style Guide

Part N°	Description	Code N°	Qty
	4-1/2» Z Style Guide assy		
	4-1/2» Z Style Guide assy (with Wrench)	900520	1
	4-1/2» Z Style Guide assy	900550	1
	4-1/2» Z Style Guide Spring Unit	906020	1
	4-1/2» Z Style Guide Body assy	906050	1
	4-1/2» Z Style Guide assy parts		
1	3-1/2» 4-1/2» Z Style Guide Punch Head	906070	1
2	Socket Head Cap Screw (M8 x 25)	999600	4
	Spring Retainer Collar	906100	1
	4-1/2» Z Style Guide Spring Cover Set	906120	1
	3-1/2» 4-1/2» Z Style Guide Upper Spring Cover	906130	1
	4-1/2» Z Style Guide Lower Spring Cover	906150	1
	Set Screw (M5 x 8) (Dog point)	906160	1
	Z Tooling Sticker	906170	1
3	3-1/2» 4-1/2» Z Style Guide Disk Spring	906180	10
	4-1/2» Z Style Guide Punch Driver Set	906210	1
	3-1/2» 4-1/2» Z Style Guide Outer Punch Driver	906230	1
	4-1/2» Z Style Guide Inner Punch Driver	906260	1
4	Urethane Stopper	906270	2
5	Air-Blow Draw Bolt (M14 x 70)	901900	1
6	M14 Washer	906310	1
9	3-1/2» 4-1/2» Z Style Guide Punch Driver Key	906330	1
10	Socket Head Cap Screw (M5 x 12)	906340	2
11	Adjust Lever Unit	906400	1
	Bracket Type I	906410	1
	Bracket Type II	906420	1
	Lock Pin	906430	1
	Coil Spring	906440	1
	Locating Bolt	906450	1
7	Lifter Pin	906470	8
8	Countersunk flat head screw (M5 x 12)	905670	4
12	4-1/2» Z Style Guide Body (with ScrewM5 X 12)	900920	1
	4-1/2» Z Style Guide Body	900940	1
	Socket Head Cap Screw (M5 x 20)	906540	3
	Ball Bearing 3.5	906500	6
	Pedestal Ring	906510	6
13	SP Spring Pack		3
	Low Head Cap Screw (M4 x 5)		3
	M4 Washer	906960	3
15	Stripper Clamp Spring		3
14	4-1/2» Z Style Guide Stripper Clamp Ring	906600	1
16	Lock Button Unit	906620	1
	Stopper Button	906630	1
	Coil Spring	906640	1
	Stopper Pin	906650	1
	Standard Accessories		
	Socket Head Cap Screw (M12x70) with washer	906660	1
17	Socket Head Cap Screw (M12 x 70)	999900	1
18	M12 Adapter Collar	906670	1
	Z Style Guide Standard Tool Set	906700	1
	M10 Hexagon Key Wrench	906710	1
	M6 Hexagon Key Wrench	906720	1
	M4 Hexagon Key Wrench	906730	1
	M3 Hexagon Key Wrench	906740	1
	M2.5 Hexagon Key Wrench	906750	1
	M2 Hexagon Key Wrench	906760	1
	Spacer	906770	1
	Spring assy Jig	906780	1



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