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Punch Press Tooling

AMADA Quality Tooling

As the global market leader in the manufacture of Punch Press Tooling, AMADA can call upon 40 years of experience. With over 30,000 Punch Press Machines in operation worldwide, the co-operation and feedback between customers and our own personnel ensures continual product development.

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Correct Tooling Selection



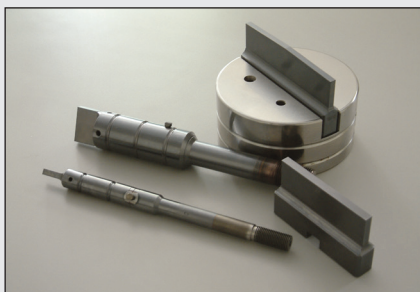
NEX III tools ensure the ultimate performance of EM ZR type machines using AMADA's unique digital tool management ID marking system.

To ensure maximum life from our Electric & Hydraulic range of punching machines, it is recommended to use Airflow tooling with NEX springs and Alpha guides.



The machine's Airflow system lubricates all parts of the tool. This keeps the cutting edge clean and will provide extended tool life with less maintenance to ensure longer trouble free production.

The NEX springs and Alpha Guides allow quick assembly and adjustment and will maintain the highest hit rates to get the maximum productivity from your investment.




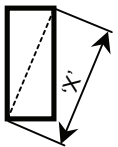
For the ultimate tooling performance, use our APH powder metallurgy punches.

These punches are suitable for high usage tools and offer typically 17 times the life of TiCN coated HSS.



Our traditional standard style tooling is still readily available as a cost effective alternative for our older range of mechanical machines.

Size Range

Station	Maximum Size			
	Round		Shape	
'A'	12.7 mm		12.7 mm	
'B'	31.7 mm*		31.7 mm	
'C'	50.8 mm*		50.8 mm	
'D'	88.9 mm*		88.9 mm	
'E'	114.3 mm*		114.3 mm	

* Note: Maximum diameters for Airblow: 'B' = 30.0 mm 'C' = 47.0 mm 'D' = 85.6 mm 'E' = 110.5 mm

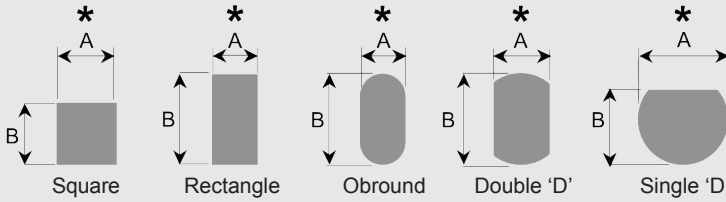
Die Clearance

Material type and thickness need to be considered to establish the correct die clearance

Thickness	Mild Steel	Stainless	Aluminium*
0.8 mm	0.15 - 0.20 mm	0.20 - 0.24 mm	0.15 - 0.16 mm
1.0 mm	0.20 - 0.25 mm	0.25 - 0.30 mm	0.15 - 0.20 mm
1.5 mm	0.30 - 0.38 mm	0.37 - 0.45 mm	0.22 - 0.30 mm
2.0 mm	0.40 - 0.50 mm	0.50 - 0.60 mm	0.30 - 0.40 mm
2.5 mm	0.50 - 0.63 mm	0.62 - 0.75 mm	0.37 - 0.50 mm
3.0 mm	0.60 - 0.75 mm	0.75 - 0.90 mm	0.45 - 0.60 mm
3.2 mm	0.64 - 0.80 mm	0.80 - 0.96 mm	0.48 - 0.64 mm
3.5 mm	0.70 - 0.88 mm	0.88 - 1.05 mm	0.53 - 0.70 mm
4.0 mm	0.80 - 1.00 mm	1.00 - 1.20 mm	0.60 - 0.80 mm
4.5 mm	0.90 - 1.13 mm	1.13 - 1.35 mm	0.68 - 0.90 mm
5.0 mm	1.00 - 1.25 mm	-	0.75 - 1.00 mm
5.5 mm	1.10 - 1.38 mm	-	0.83 - 1.10 mm
6.0 mm	1.20 - 1.50 mm	-	0.90 - 1.20 mm

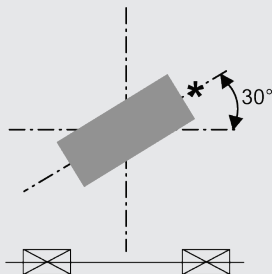
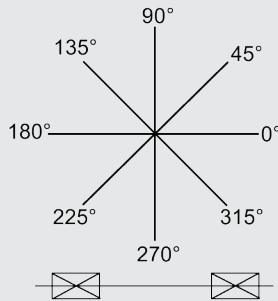
* Also applicable to Copper and Brass

Key Position

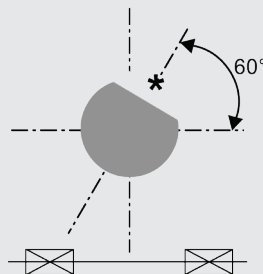


* = Reference point for standard shapes - plan view looking down on top of the die

Please specify the reference point of the shape on ordering

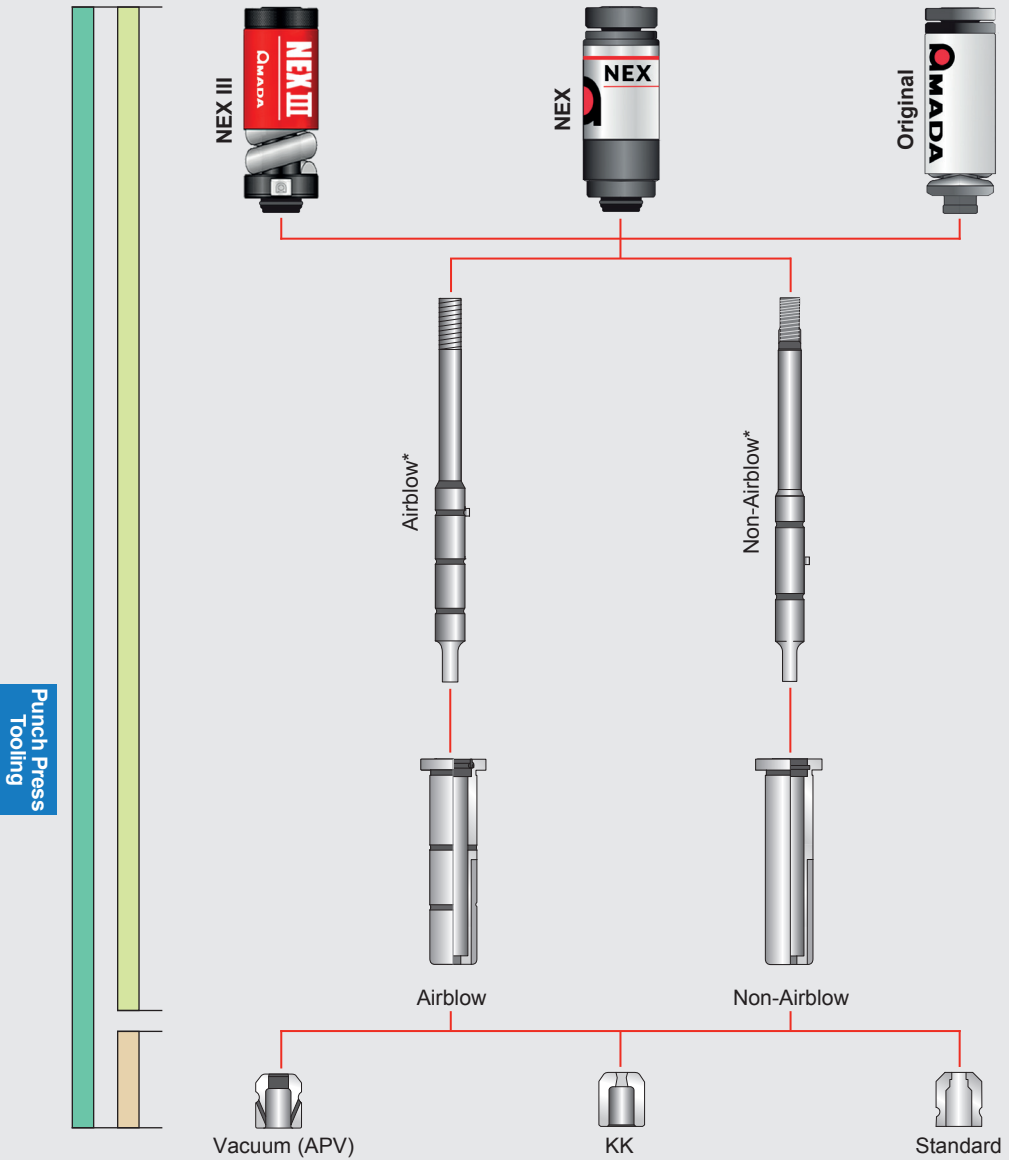


Rectangle at 30°



Single 'D' at 60°

'A' Station



*Round NEX III Punch Bodies are not compatible with NEX or Original style

'A' Station

Airblow		NEX III ID Round	NEX III ID Shape	NEX Round	NEX Shape	Original Round	Original Shape
Set Assy with Vacuum Die*		£313.51	£433.28	£313.51	£433.28	£215.96	£335.73
Set Assy with Std or KK Die*				£296.45	£421.13	£198.90	£323.58
Punch Assy*		£275.07	£368.14	£275.07	£368.14	£177.52	£270.59
Die	Std or KK	£21.38	£52.99	£21.38	£52.99	£21.38	£52.99
	Vacuum	£38.44	£65.14	£38.44	£65.14	£38.44	£65.14
Punch Body	Airblow	£55.92	£101.59	£55.92	£101.59	£55.92	£101.59
	Airblow APH	£129.58	£261.53	£129.58	£261.53	£129.58	£261.53
Guide		£97.39	£144.79	£97.39	£144.79	£97.39	£144.79

* For APH Set & Punch Assy, Please add £73.66 for Round £159.94 for Shape

Non-Airblow		NEX III Round	NEX III Shape	NEX Round	NEX Shape	Original Round	Original Shape
Set Assy with Vacuum Die*		£242.76	£355.73	£242.76	£355.73	£143.24	£256.21
Set Assy with Std or KK Die*		£225.70	£343.58	£225.70	£343.58	£126.18	£244.06
Punch Assy*		£204.32	£290.59	£204.32	£290.59	£104.80	£191.07
Die	Std or KK	£21.38	£52.99	£21.38	£52.99	£21.38	£52.99
	Vacuum	£38.44	£65.14	£38.44	£65.14	£38.44	£65.14
Punch Body	Non-Airblow	£34.99	£66.68	£34.99	£66.68	£34.99	£66.68
	Non-Airblow APH	£108.20	£237.78	£108.20	£237.78	£108.20	£237.78
Guide		£47.57	£102.15	£47.57	£102.15	£47.57	£102.15

* For APH Set & Punch Assy, Please add £73.21 for Round £171.10 for Shape

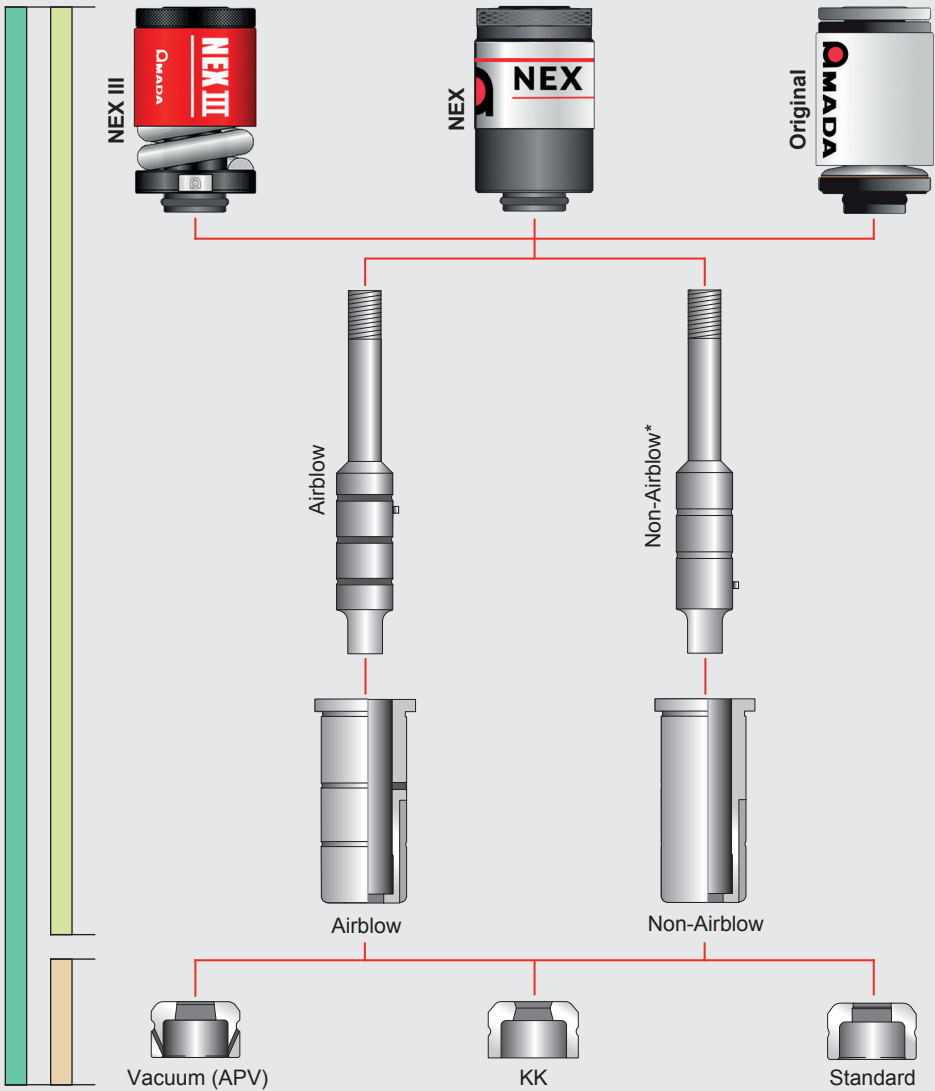
Airblow & Non-Airblow Parts

Description	Code	Price	Code	Price	Code	Price
NEX III Canister	982000	£121.76				
NEX Canister			980000	£121.76		
Punch Head (Airblow)					901470	£11.20
Punch Head (Non-Airblow)					901400	£9.23
Spring					901300	£7.00
Collar					901200	£5.60
'O' Ring					910060	£0.41
Ejector	£0.57		£0.57		£0.57	

NEX III ID only available as Airblow

NEX III ID Dies only available as Vacuum

'B' Station



*Round NEX III Punch Bodies are not compatible with NEX or Original style

'B' Station

Airblow		NEX III ID Round	NEX III ID Shape	NEX Round	NEX Shape	Original Round	Original Shape
Set Assy with Vacuum Die*		£389.17	£492.75	£389.17	£492.75	£300.35	£403.93
Set Assy with Std or KK Die*				£363.71	£480.70	£274.89	£391.88
Punch Assy*		£337.28	£416.85	£337.28	£416.85	£248.46	£328.03
Die	Std or KK	£26.43	£63.85	£26.43	£63.85	£26.43	£63.85
	Vacuum	£51.89	£75.90	£51.89	£75.90	£51.89	£75.90
Punch Body	Airblow	£86.77	£128.74	£86.77	£128.74	£86.77	£128.74
	Airblow APH	£201.29	£281.79	£201.29	£281.79	£201.29	£281.79
Guide		£125.95	£163.55	£125.95	£163.55	£125.95	£163.55

* For APH Set & Punch Assy, Please add £114.52 for Round £153.05 for Shape

Non-Airblow		NEX III Round	NEX III Shape	NEX Round	NEX Shape	Original Round	Original Shape
Set Assy with Vacuum Die*		£281.40	£398.39	£281.40	£398.39	£191.76	£308.75
Set Assy with Std or KK Die*		£255.94	£386.34	£255.94	£386.34	£166.30	£296.70
Punch Assy*		£229.51	£322.49	£229.51	£322.49	£139.87	£232.85
Die	Std or KK	£26.43	£63.85	£26.43	£63.85	£26.43	£63.85
	Vacuum	£51.89	£75.90	£51.89	£75.90	£51.89	£75.90
Punch Body	Non-Airblow	£47.58	£81.77	£47.58	£81.77	£47.58	£81.77
	Non-Airblow APH	£169.84	£247.70	£169.84	£247.70	£169.84	£247.70
Guide		£57.37	£116.16	£57.37	£116.16	£57.37	£116.16

* For APH Set & Punch Assy, Please add £122.26 for Round £165.93 for Shape

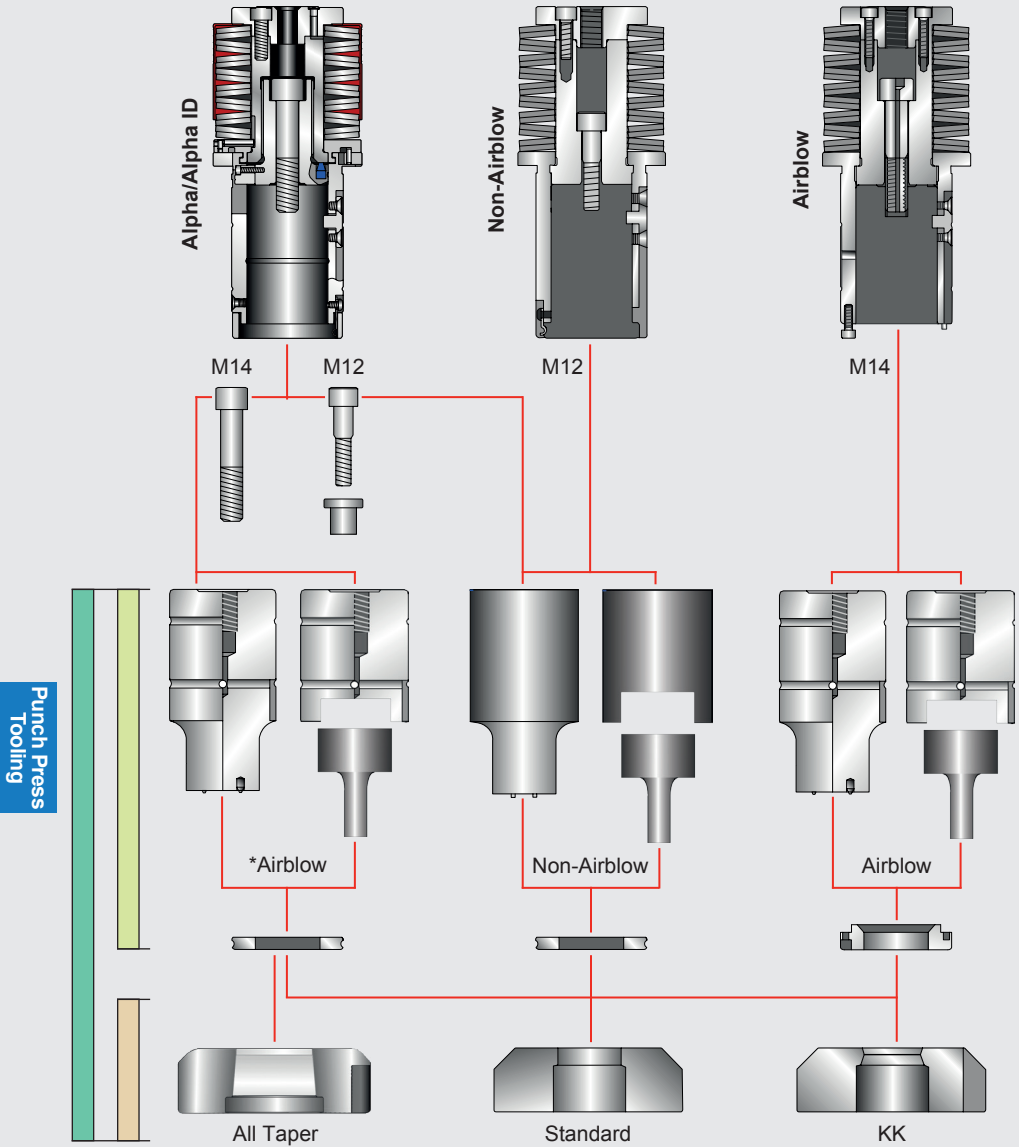
Airblow & Non-Airblow Parts

Description	Code	Price	Code	Price	Code	Price
NEX III Canister	983000	£124.56				
NEX Canister			981000	£124.56		
Punch Head (Airblow)					901480	£15.51
Punch Head (Non-Airblow)					901430	£14.69
Spring					901310	£12.60
Collar					901210	£7.00
'O' Ring					910080	£0.63
Ejector	£0.57		£0.57		£0.57	

NEX III ID only available as Airblow

NEX III ID Dies only available as Vacuum

'C' Station



* For ID Tooling, Punch is Solid Airflow only
For ID Tooling, Die will be All Taper only

'C' Station

Airblow		Alpha ID Round	Alpha ID Shape	Z/Alpha Round	Z/Alpha Shape	Bolt on Round	Bolt on Shape
Set Assy*		£284.96	£435.00	£274.06	£420.68	£307.84	£449.30
Punch Assy*		£204.59	£260.62	£197.32	£253.57	£231.10	£282.19
Die	All Taper	£80.37	£174.38				
	Standard or KK			£76.74	£167.11	£76.74	£167.11
Punch Body	Airblow	£149.18	£201.64	£145.55	£198.21	£145.55	£198.21
	Airblow APH		£355.88		£352.45		£352.45
Stripper Plate		£55.41	£58.98	£51.77	£55.36	£85.55	£83.98

* For APH Set & Punch Assy please add £154.24

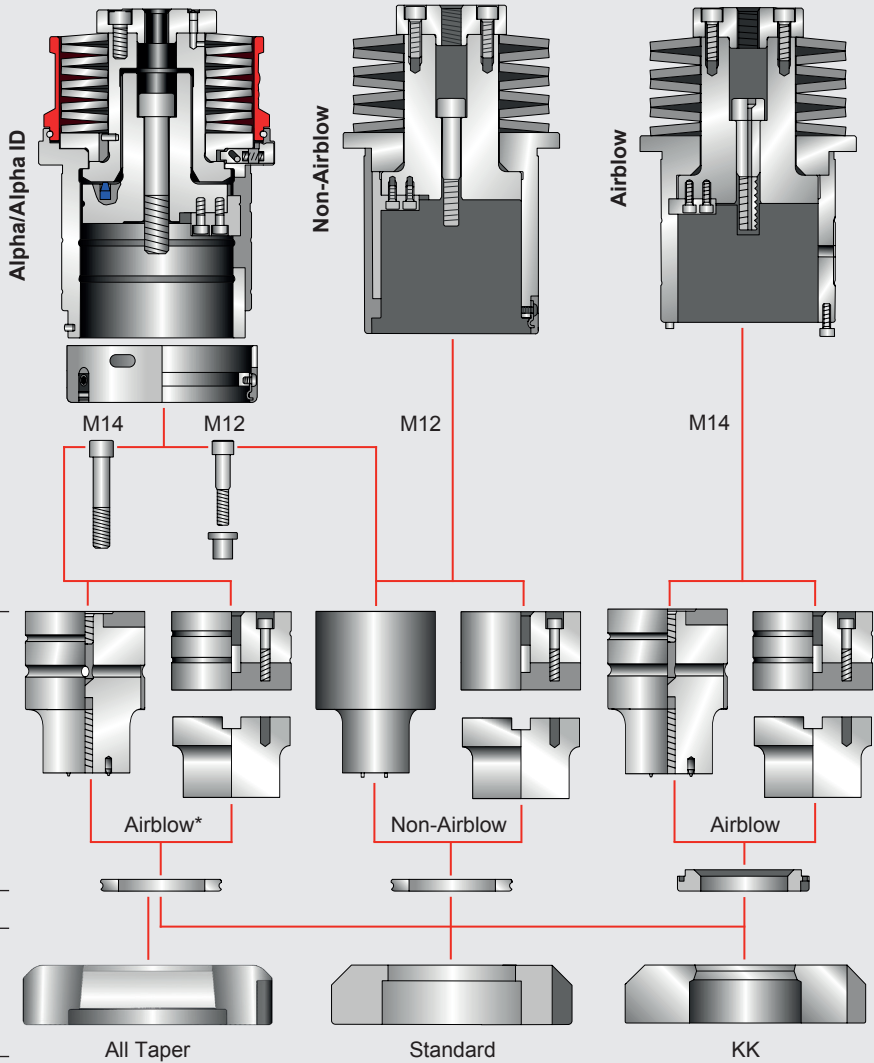
Non-Airblow		Z/Alpha Round	Z/Alpha Shape
Set Assy*		£189.97	£363.04
Punch Assy*		£113.23	£195.93
Die	Standard or KK	£76.74	£167.11
Punch Body	Non-Airblow	£86.81	£156.74
	Non-Airblow APH		£342.20
Stripper Plate		£26.42	£39.19

* For APH Set & Punch Assy please add £185.46

Tip Type Tooling

Description	Z/Alpha Code	Z/Alpha Price
Punch Tip Holder (Airblow)	961279	£206.32
Punch Tip Holder (Non-Airblow)	961059	£206.32
M2 Punch Tip	461279	£145.94

'D' Station



* For ID Tooling, Punch is Airflow or Airflow Tip Type APH
For ID Tooling, Die will be All Taper only

'D' Station

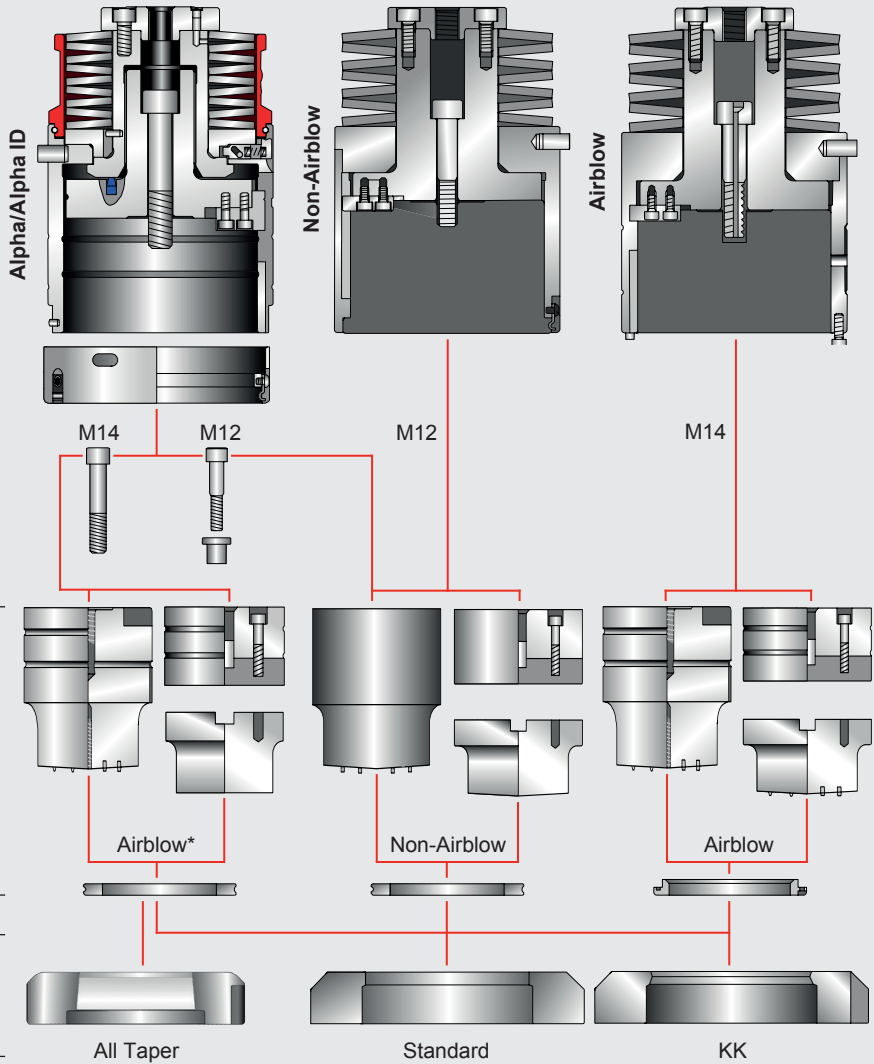
Airblow		Alpha ID Round	Alpha ID Shape	Z/Alpha Round	Z/Alpha Shape	Bolt on Round	Bolt on Shape
Set Assy		£425.00	£649.60	£414.11	£635.28	£451.20	£669.80
Punch Assy		£320.73	£435.20	£313.47	£428.15	£350.56	£462.67
Die	All Taper	£104.27	£214.40				
	Standard or KK			£100.64	£207.13	£100.64	£207.13
Punch Body	Airblow	£235.94	£348.54	£232.30	£345.12	£232.30	£345.12
Stripper Plate		£84.79	£86.66	£81.17	£83.03	£118.26	£117.55

Non-Airblow		Z/Alpha Round	Z/Alpha Shape
Set Assy		£249.77	£460.66
Punch Assy		£149.13	£253.53
Die	Standard or KK	£100.64	£207.13
Punch Body	Non-Airblow	£106.36	£205.72
Stripper Plate		£42.77	£47.81

Tip Type Tooling

Description	Alpha ID Code	Alpha ID Price	Z/Alpha Code	Z/Alpha Price
Punch Tip Holder (Airblow)	72F380	£305.20	72F380	£301.94
Punch Tip Holder (Non-Airblow)			721380	£223.94
M2 Punch Tip			422280	£178.65
APH Punch Tip	42X280	£345.98	42X280	£345.98

'E' Station



* For ID Tooling, Punch is Airblow or Airblow Tip Type APH
For ID Tooling, Die will be All Taper only

'E' Station

Airblow		Alpha ID Round	Alpha ID Shape	Z/Alpha Round	Z/Alpha Shape	Bolt on Round	Bolt on Shape
Set Assy		£614.61	£834.95	£603.72	£820.79	£664.10	£857.28
Punch Assy		£457.49	£545.00	£450.24	£538.10	£510.62	£574.59
Die	All Taper	£157.12	£289.95				
	Standard or KK			£153.48	£282.69	£153.48	£282.69
Punch Body	Airblow	£350.70	£439.46	£347.07	£436.20	£347.07	£436.20
Stripper Plate		£106.79	£105.54	£103.17	£101.90	£163.55	£138.39

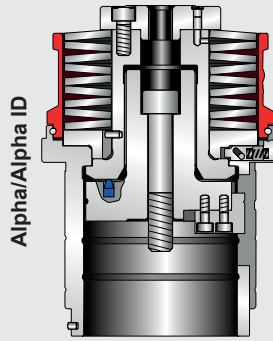
Non-Airblow		Z/Alpha Round	Z/Alpha Shape
Set Assy		£372.38	£624.89
Punch Assy		£218.90	£342.20
Die	Standard or KK	£153.48	£282.69
Punch Body	Non-Airblow	£169.84	£289.36
Stripper Plate		£49.06	£52.84

Tip Type Tooling

Description	Alpha ID Code	Alpha ID Price	Z/Alpha Code	Z/Alpha Price
Punch Tip Holder (Airblow)	72F390	£337.01	72F390	£333.39
Punch Tip Holder (Non-Airblow)			721390	£269.23
M2 Punch Tip			422290	£212.61
APH Punch Tip	42X290	£345.98	42X290	£345.98

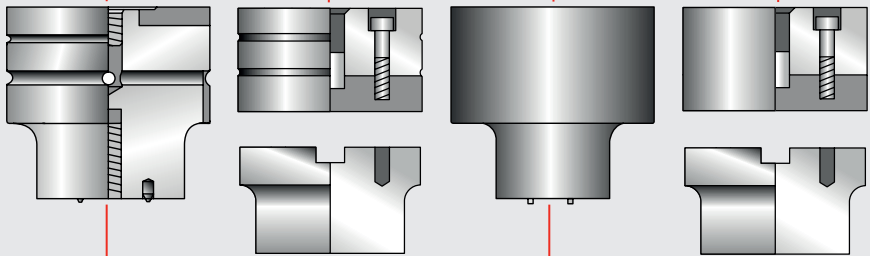
'D' Station Sheet Saver

Punch Press
Tooling



M14

M12



Airflow

Non-Airflow



Single Sheet Saver (Std or KK)

Double Sheet Saver (Std or KK)

For ID Tooling, Punch is Airflow or Airflow Tip Type APH
For ID Tooling, Die will be All Taper only

'D' Station Sheet Saver

Airblow		Alpha ID Shape	Z/Alpha Shape
Set Assy Single		£1,041.72	£1,027.41
Set Assy Double		£1,211.08	£1,196.78
Punch Assy Single		£592.88	£585.83
Punch Assy Double		£665.46	£658.42
Die	All Taper Single	£448.84	
	All Taper Double	£545.62	
	Std or KK Single		£441.58
	Std or KK Double		£538.36
Punch Body (Solid)		£348.54	£345.12
Stripper Single (Alpha or Z)*		£244.34	£240.71
Stripper Double (Alpha or Z)*		£316.92	£313.30

* Please specify Guide Assy Type - ID Stripper can only suit Alpha Guide
Z Style and Alpha Style Stripper Plates are different

Non-Airblow		Z/Alpha Shape
Set Assy Single		£864.22
Set Assy Double		£1,033.58
Punch Assy Single		£422.64
Punch Assy Double		£495.22
Die	Std or KK Single	£441.58
	Std or KK Double	£538.36
Punch Body (Solid)		£205.72
Stripper Single (Alpha or Z)*		£216.92
Stripper Double (Alpha or Z)*		£289.50

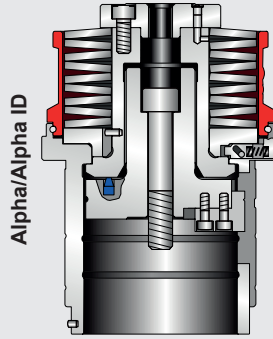
* Please specify Guide Assy Type - ID Stripper can only suit Alpha Guide
Z Style and Alpha Style Stripper Plates are different

Tip Type Tooling

Description	Alpha ID Code	Alpha ID Price	Z/Alpha Code	Z/Alpha Price
Punch Tip Holder (Airblow)	72F380	£305.20	72F380	£301.94
Punch Tip Holder (Non-Airblow)			721380	£223.94
M2 Punch Tip			422280	£178.65
APH Punch Tip	42X280	£345.98	42X280	£345.98

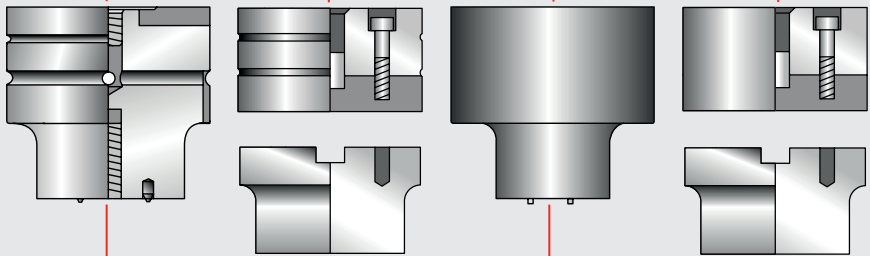
'E' Station Sheet Saver

Punch Press
Tooling



M14

M12



Airflow

Non-Airflow



Single Sheet Saver (Std or KK)

Double Sheet Saver (Std or KK)

For ID Tooling, Punch is Airflow or Airflow Tip Type APH
For ID Tooling, Die will be All Taper only

'E' Station Sheet Saver

Airblow		Alpha ID Shape	Z/Alpha Shape
Set Assy Single		£1,185.09	£1,170.94
Set Assy Double		£1,354.44	£1,340.29
Punch Assy Single		£707.60	£700.71
Punch Assy Double		£780.18	£773.29
Die	All Taper Single	£477.49	
	All Taper Double	£574.26	
	Std or KK Single		£470.23
	Std or KK Double		£567.00
Punch Body (Solid)		£439.46	£436.20
Stripper Single (Alpha or Z)*		£268.14	£264.51
Stripper Double (Alpha or Z)*		£340.72	£337.09

* Please specify Guide Assy Type - ID Stripper can only suit Alpha Guide
Z Style and Alpha Style Stripper Plates are different

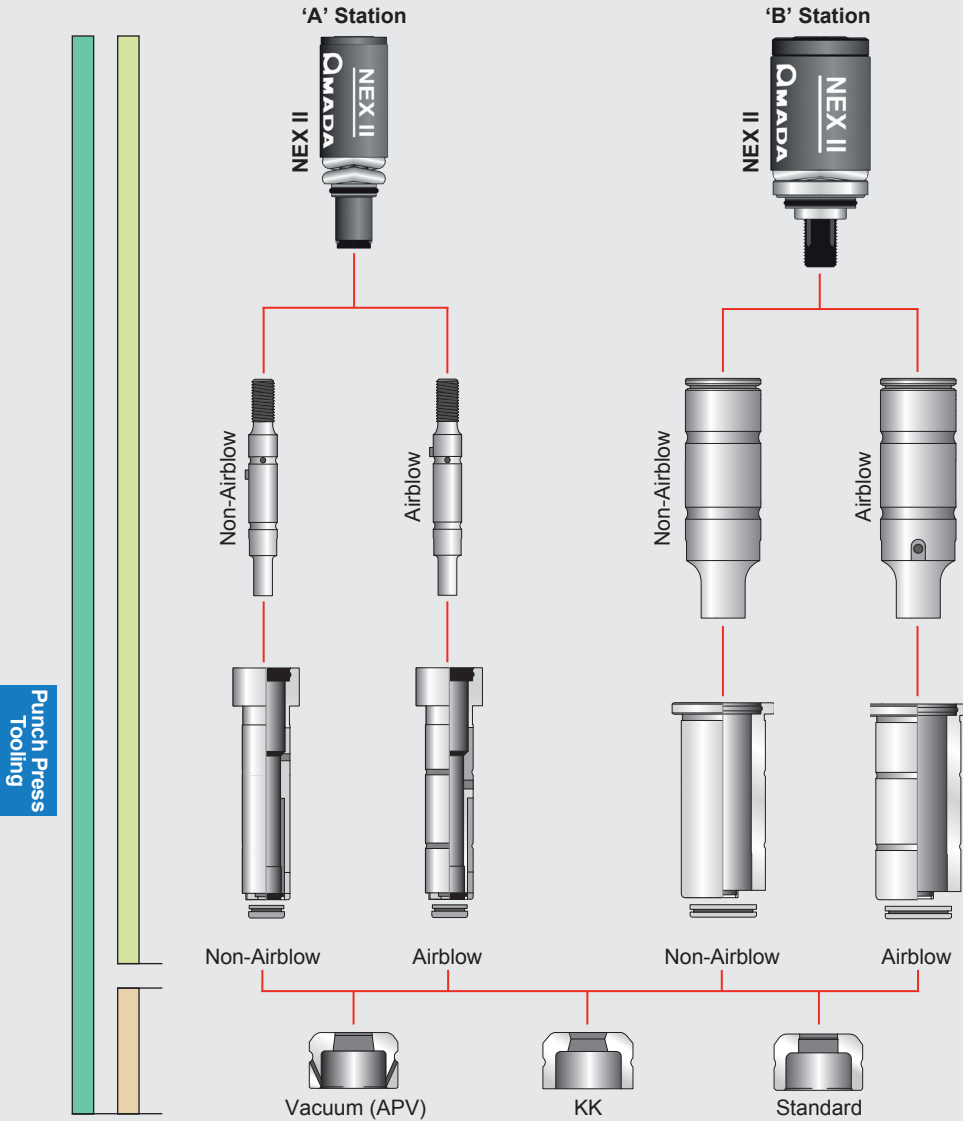
Non-Airblow		Z/Alpha Shape
Set Assy Single		£1,004.50
Set Assy Double		£1,173.85
Punch Assy Single		£534.27
Punch Assy Double		£606.85
Die	Std or KK Single	£470.23
	Std or KK Double	£567.00
Punch Body (Solid)		£289.36
Stripper Single (Alpha or Z)*		£244.91
Stripper Double (Alpha or Z)*		£317.49

* Please specify Guide Assy Type - ID Stripper can only suit Alpha Guide
Z Style and Alpha Style Stripper Plates are different

Tip Type Tooling

Description	Alpha ID Code	Alpha ID Price	Z/Alpha Code	Z/Alpha Price
Punch Tip Holder (Airblow)	72F390	£337.01	72F390	£333.39
Punch Tip Holder (Non-Airblow)			721390	£269.23
M2 Punch Tip			422290	£212.61
APH Punch Tip	42X290	£345.98	42X290	£345.98

NEX II 'A' & 'B' Station



NEX II Fully compatible with: HP, HP2, HP ABS, HP WLS, Series 90

NEX II 'A' & 'B' Station

NEX II Airblow		'A' Station Round	'A' Station Shape	'B' Station Round	'B' Station Shape
Set Assy with Vacuum Die		£224.85	£329.93	£332.05	£410.58
Set Assy with Std or KK Die		£207.79	£317.78	£306.59	£398.53
Punch Assy		£186.41	£264.79	£280.16	£334.68
Die	Standard or KK	£21.38	£52.99	£26.43	£63.85
	Vacuum	£38.44	£65.14	£51.89	£75.90
Punch Body Airblow		£32.93	£63.17	£52.42	£87.36
Guide		£57.80	£95.43	£112.90	£112.90
Stripper Plate		£12.34	£22.85	£11.34	£30.92

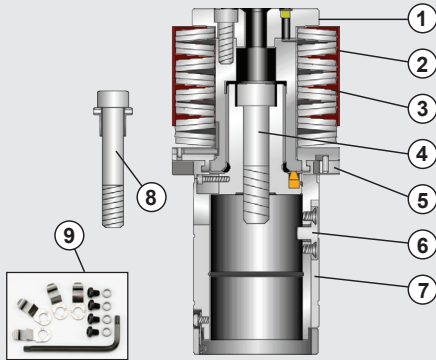
NEX II Non-Airblow		'A' Station Round	'A' Station Shape	'B' Station Round	'B' Station Shape
Set Assy with Vacuum Die		£208.66	£307.09	£295.18	£363.00
Set Assy with Std or KK Die		£191.60	£294.94	£269.72	£350.95
Punch Assy		£170.22	£241.95	£243.29	£287.10
Die	Standard or KK	£21.38	£52.99	£26.43	£63.85
	Vacuum	£38.44	£65.14	£51.89	£75.90
Punch Body Non-Airblow		£29.56	£56.45	£45.70	£76.61
Guide		£47.04	£83.33	£84.68	£84.68
Stripper Plate		£10.28	£18.83	£9.41	£22.31

NEX II Airblow & Non-Airblow Parts

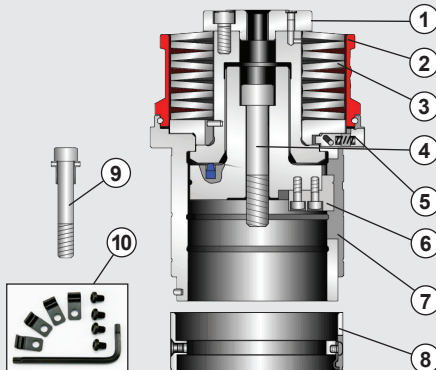
Description	'A' Station Code	'A' Station Price	'B' Station Code	'B' Station Price
Canister	90GT00	£83.34	91GT00	£103.50
'O' Ring	90GT20	£0.27	90GT40	£0.27
Spiral Clip	50GT20	£0.85	50GT40	£0.85
Ball Bearing	99GT20	£0.27	99GT40	£0.27
Ejector	£0.85		£0.85	

'C', 'D & 'E' Station

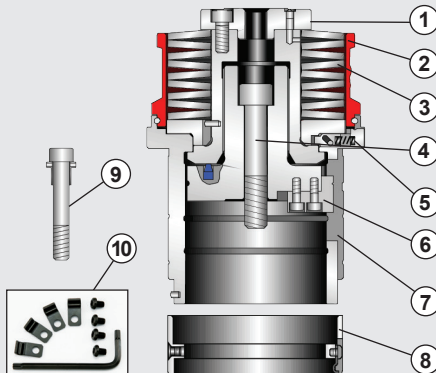
Alpha Guide Assy & Parts



Description	Code No.	Price
Alpha Guide Assy	90743E	£1,360.00
1. Punch Head	907460	£40.58
2. Spring Cover	907480	£6.99
3. Disc Spring	907490	£11.20
4. Airblow Draw Bolt	907520	£11.20
5. Lock Button Set	907550	£50.38
6. Guide Key Set	907560	£40.58
7. Guide Body Set	907570	£467.42
8. Standard Draw Bolt	907530	£11.73
9. S.P. Spring Pack	907450	£26.42

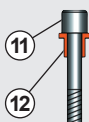
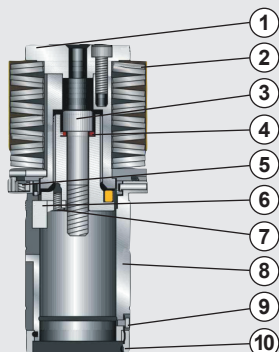


Description	Code No.	Price
Alpha Guide Assy	90719E	£1,640.00
1. Punch Head	907630	£41.52
2. Spring Cover	907650	£22.39
3. Disc Spring	907660	£23.79
4. Airblow Draw Bolt	907690	£11.73
5. Lock Button Set	907760	£25.19
6. Guide Key & Bolts	908700	£56.61
7. Guide Body	907750	£628.37
8. Stripper Plate Adaptor	907170	£151.14
9. Standard Draw Bolt	907740	£11.73
10. S.P. Spring Pack	907780	£12.59



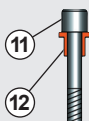
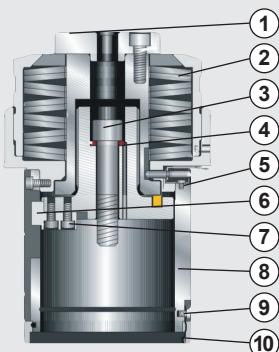
Description	Code No.	Price
Alpha Guide Assy	90720E	£1,850.00
1. Punch Head	907630	£41.52
2. Spring Cover	907650	£22.39
3. Disc Spring	907660	£23.79
4. Airblow Draw Bolt	907690	£11.73
5. Lock Button Set	907820	£25.19
6. Guide Key & Bolts	908700	£56.61
7. Guide Body	907810	£741.72
8. Stripper Plate Adaptor	907180	£160.94
9. Standard Draw Bolt	907740	£11.73
10. S.P. Spring Pack	907780	£12.59

‘C’, ‘D & ‘E’ Station Z Style Guide Assy Parts



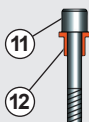
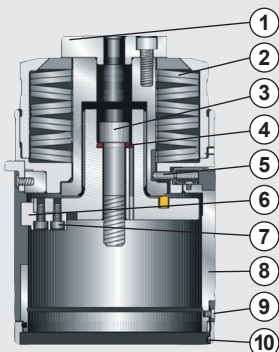
'C' Stn Guide Assy (900500)	Code No.	Price
1. Punch Head	906060	POA
2. Disc Spring	906090	POA
3. Airblow Draw Bolt	906300	POA
4. Washer	906310	POA
5. Adjust Button Unit	906350	POA
6. Key	906460	POA
7. Low Head Cap Screw	905680	POA
8. Guide Body	900900	POA
9. Low Head Cap Screw	906550	POA
10. Stripper Clamp Spring	906610	POA
11. M12 x 70 Screw *	999900	POA
12. Collar *	906670	POA

* Standard tool part



'D' Stn Guide Assy (900510)	Code No.	Price
1. Punch Head	906070	POA
2. Disc Spring	906180	POA
3. Airblow Draw Bolt	901900	POA
4. Washer	906310	POA
5. Adjust Lever Unit	906400	POA
6. Key	906330	POA
7. Socket H'd Cap Screw	906340	POA
8. Guide Body	900910	POA
9. Low Head Cap Screw	906550	POA
10. Stripper Clamp Spring	906610	POA
11. M12 x 70 Screw *	999900	POA
12. Collar *	906670	POA

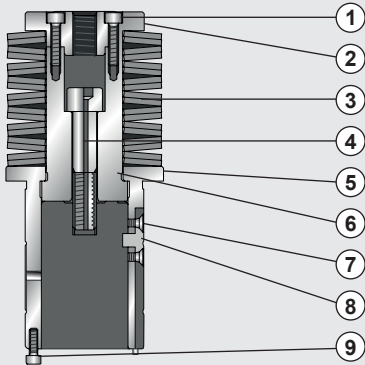
* Standard tool part



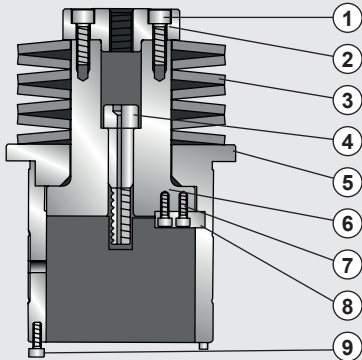
'E' Stn Guide Assy (900520)	Code No.	Price
1. Punch Head	906070	POA
2. Disc Spring	906180	POA
3. Airblow Draw Bolt	901900	POA
4. Washer	906310	POA
5. Adjust Lever Unit	906400	POA
6. Key	906330	POA
7. Socket H'd Cap Screw	906340	POA
8. Guide Body	900920	POA
9. Low Head Cap Screw	906550	POA
10. Stripper Clamp Spring	906610	POA
11. M12 x 70 Screw *	999900	POA
12. Collar *	906670	POA

* Standard tool part

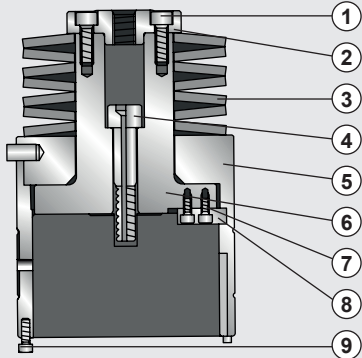
'C', 'D' & 'E' Station Airblow Guide Assy Parts



'C' Station Guide (900180)	Code No.	Price
1. M6 x 25 Screw	998800	£0.29
2. Punch Head	901050	£57.38
3. Spring	906090	£11.20
4. M14 x 70 Screw	901900	£11.20
5. Punch Guide	900750	POA
6. Punch Driver	901170	£111.96
7. M5 x 8 Screw	999300	£0.41
8. Key	901420	£39.18
9. M5 x 16 Screw	997700	£0.15

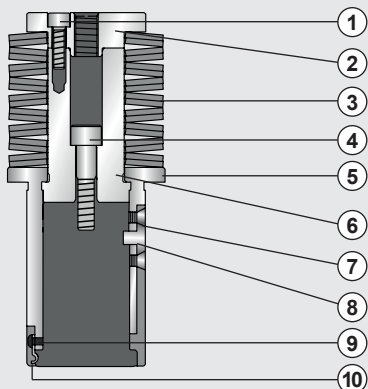


'D' Station Guide (900190)	Code No.	Price
1. M8 x 25 Screw	999600	£0.29
2. Punch Head	901060	£62.98
3. Spring	901330	£26.59
4. M14 x 70 Screw	901900	£11.20
5. Punch Guide	900660	POA
6. Punch Driver	901180	£230.92
7. M5 x 10 Screw	999400	£0.41
8. Key	910110	£11.20
9. M5 x 16 Screw	997700	£0.15

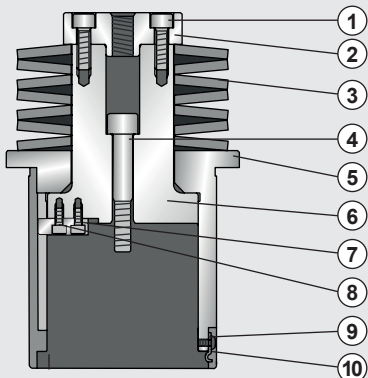


'E' Station Guide (900200)	Code No.	Price
1. M8 x 20 Screw	999650	£0.29
2. Punch Head	901070	£62.98
3. Spring	901330	£26.59
4. M14 x 70 Screw	901900	£11.20
5. Punch Guide	900670	POA
6. Punch Driver	901190	£397.45
7. M5 x 10 Screw	999400	£0.41
8. Key	910110	£11.20
9. M5 x 16 Screw	997700	£0.15

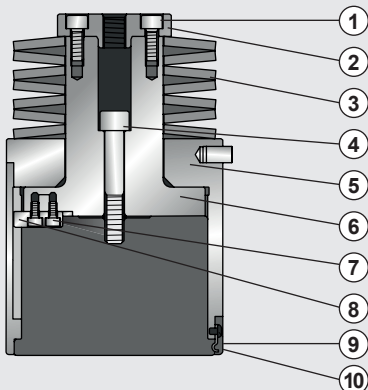
'C', 'D' & 'E' Station Standard Guide Assy Parts



'C' Station Guide (900120)	Code No.	Price
1. M8 x 25 Screw	999600	£0.29
2. Punch Head	901020	£23.79
3. Spring	906090	£11.20
4. M12 x 50 Screw	999700	£2.79
5. Punch Guide	900720	POA
6. Punch Driver	901120	£75.57
7. M5 x 8 Screw	999300	£0.41
8. Key	901420	£39.18
9. M4 x 5 Screw (Pack 40)	998750	£15.73
10. S.P. Spring	901360	£0.70



'D' Station Guide (900130)	Code No.	Price
1. M8 x 25 Screw	999600	£0.29
2. Punch Head	901030	£32.19
3. Spring	901330	£26.59
4. M12 x 70 Screw	999900	£2.79
5. Punch Guide	900730	POA
6. Punch Driver	901130	£139.95
7. M5 x 10 Screw	999400	£0.41
8. Key	910110	£11.20
9. M4 x 5 Screw (Pack 40)	998750	£15.73
10. S.P. Spring	901360	£0.70

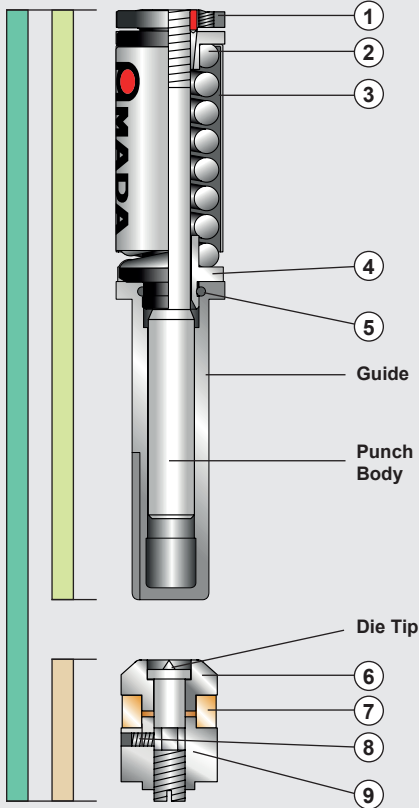


'E' Station Guide (900140)	Code No.	Price
1. M8 x 20 Screw	999650	£0.29
2. Punch Head	901040	£32.19
3. Spring	901330	£26.59
4. M12 x 70 Screw	999900	£2.79
5. Punch Guide	900740	POA
6. Punch Driver	901140	£160.94
7. M5 x 10 Screw	999400	£0.41
8. Key	910110	£11.20
9. M4 x 5 Screw (Pack 40)	998750	£15.73
10. S.P. Spring	901360	£0.70

'A' Station

Upform Centre Punch Tool

Maximum Material Thickness = 6.0 mm

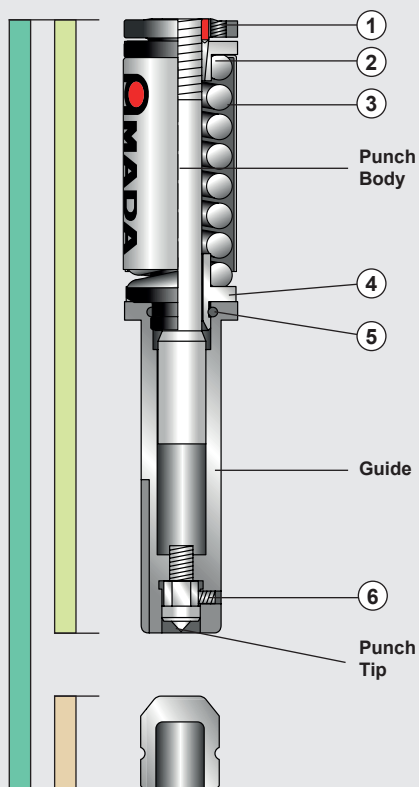


Description	Code No.	Price
Set Assy	381110	£236.52
Punch Assy	181110	£109.16
Die Assy	281010	£127.36

Description	Code No.	Price
Guide	581010	£50.38
Punch Body	918310	£36.39
Die Tip	918210	£76.97
1. Punch Head	901400	£9.23
2. Spring	901300	£7.00
3. Spring Sleeve	926120	£1.39
4. Collar	901200	£5.60
5. 'O' Ring	910060	£0.41
6. Ejector Plate	918320	£12.59
7. Urethane Spring	918720	£2.79
8. M4 x 4 Screw	918340	£0.15
9. Die Holder	918330	£37.74

'A' Station Downform Centre Punch Tool

Maximum Material Thickness = 6.0 mm

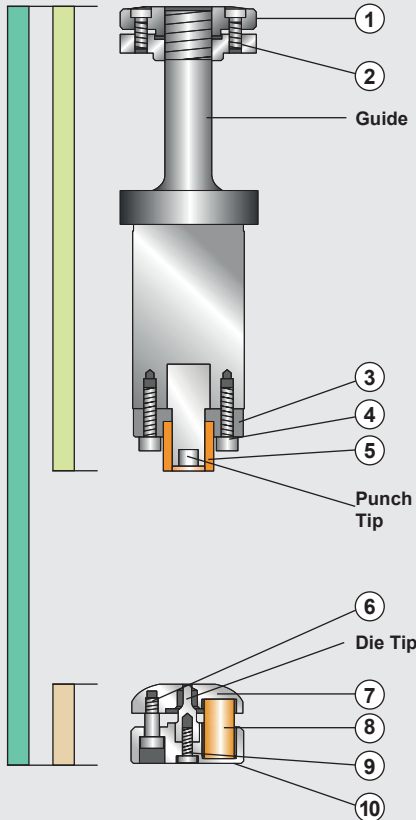


Description	Code No.	Price
Set Assy	381100	£216.92
Punch Assy	181100	£190.33
Die Assy	281000	£26.59

Description	Code No.	Price
Punch Body	918410	£36.39
Guide	918420	£71.37
Punch Tip	918110	£60.18
1. Punch Head	901400	£9.23
2. Spring	901300	£7.00
3. Spring Sleeve	926120	£1.39
4. Collar	901200	£5.60
5. 'O' Ring	910060	£0.41
6. M5 x 6 Screw	999960	£0.15

'B' Station Upform Burring Tool

Size Range = M2.6 - M6



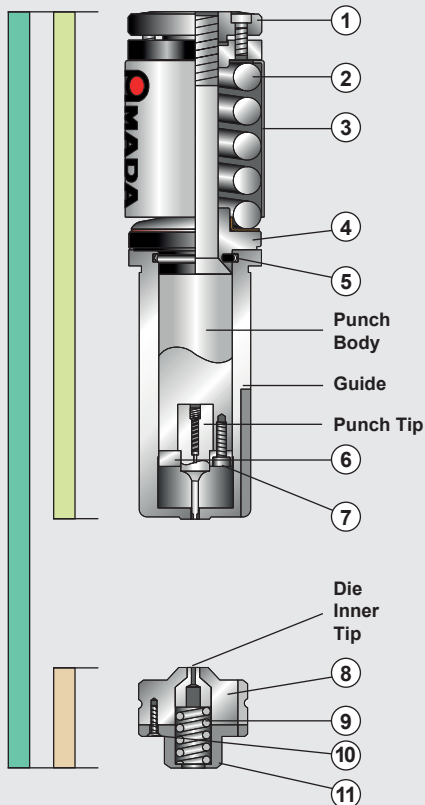
Description	Code No.	Price
Set Assy	301000	£438.16
Punch Assy	101000	£264.55
Die Assy	201000	£173.61

Description	Code No.	Price
Guide	902000	£149.75
Punch Tip	902020	£69.19
Die Tip	902220	£44.03
1. Punch Head	901010	£19.09
2. M6 x 25 Screw	998800	£0.29
3. Punch Plate	902030	£23.79
4. M6 x 20 Screw	998900	£0.15
5. Urethane Spring	902040	£2.30
6. Stripper Bolt	902070	£5.25
7. Ejector Plate	902060	£49.06
8. Urethane Spring	998500	£0.85
9. M5 x 12 Screw	901970	£0.58
10. Die Block	902210	£81.17

Note: Please refer to page 164 for burring hole reference chart for thread cutting

'B' Station Downform Burring Tool

Size Range = M2.6 - M6



Description	Code No.	Price
Set Assy	301100	£618.95
Punch Assy	101100	£306.86
Die Assy	201200	£312.09

Description	Code No.	Price
Punch Body	902010	£83.96
Guide	501100	£61.65
Punch Tip	902120	£86.81
Die Inner Tip	903010	£69.19
1. Punch Head	901010	£19.09
2. Spring	901410	£23.79
3. Spring Sleeve	926140	£1.39
4. Collar	901210	£7.00
5. 'O' Ring	910080	£0.63
6. Punch Plate	901960	£23.79
7. M4 x 12 Screw	901940	£0.15
8. Die Block	901920	£176.13
9. Spring	902910	£3.15
10. M3 x 12 Screw	901990	£0.14
11. Die Plate	901980	£106.94

Note: This tool does not require a pre-pierced hole

Semi-Standard Tooling (AT-Codes)

CAT

1	AT 001	AT 130	AT 131	AT 132	AT 133	AT 140	AT 141	AT 151
	AT 010	AT 020	AT 022	AT 023	AT 042	AT 043	AT 044	AT 085
	AT 087	AT 088	AT 094	AT 110	AT 111	AT 120	AT 121	AT 142
	AT 152	AT 153	AT 154	AT 155	AT 160	AT 170	AT 180	AT 231
2	AT 011	AT 021	AT 024	AT 030	AT 040	AT 051	AT 060	AT 061
	AT 080	AT 090	AT 092	AT 100	AT 143	AT 144	AT 192	AT 193
	AT 200	AT 201	AT 202	AT 203	AT 210	AT 211	AT 232	AT 220
	AT 070	AT 086	AT 089	AT 091	AT 093	AT 095	AT 096	AT 097
	AT 098	AT 099	AT 101	AT 102	AT 103	AT 104	AT 105	AT 106
3	AT 031	AT 041	AT 054	AT 055	AT 056	AT 062	AT 063	AT 064
	AT 072	AT 081	AT 082	AT 091	AT 093	AT 095	AT 096	AT 101
	AT 145	AT 190	AT 191	AT 195	AT 196	AT 212	AT 220	AT 221
	AT 073	AT 074	AT 075	AT 076	AT 077	AT 078	AT 079	AT 080
	AT 083	AT 084	AT 085	AT 086	AT 087	AT 088	AT 089	AT 090
4	AT 032	AT 050	AT 052	AT 053	AT 057	AT 073	AT 074	AT 083
	AT 220	AT 230						
	AT 033	AT 051	AT 054	AT 055	AT 056	AT 062	AT 063	AT 064
	AT 072	AT 081	AT 082	AT 091	AT 093	AT 095	AT 096	AT 101
	AT 145	AT 190	AT 191	AT 195	AT 196	AT 212	AT 220	AT 221
5	AT 032	AT 050	AT 052	AT 053	AT 057	AT 073	AT 074	AT 083
	AT 220	AT 230						
	AT 033	AT 051	AT 054	AT 055	AT 056	AT 062	AT 063	AT 064
	AT 072	AT 081	AT 082	AT 091	AT 093	AT 095	AT 096	AT 101
	AT 145	AT 190	AT 191	AT 195	AT 196	AT 212	AT 220	AT 221

Note: Gang tools will have a solid Punch Body. Tip Type available upon request

Semi-Standard Tooling

'A' & 'B' Station Airblow

Cat	NEX III		NEX		Original	
	'A'	'B'	'A'	'B'	'A'	'B'
1	£433.28	£492.75	£421.13	£480.70	£323.58	£391.88
2	£464.68	£521.77	£452.53	£509.72	£354.98	£420.90
3	£602.47	£693.04	£590.32	£681.01	£492.77	£592.17
4	£634.13	£728.04	£622.00	£715.99	£524.43	£627.17
5	£711.69	£818.64	£699.54	£806.59	£601.99	£717.77

'A' & 'B' Station Non-Airblow

Cat	NEX III		NEX		Original	
	'A'	'B'	'A'	'B'	'A'	'B'
1	£355.73	£398.39	£343.58	£386.34	£244.06	£296.70
2	£385.10	£428.11	£372.95	£416.06	£273.43	£326.42
3	£521.97	£602.82	£509.82	£590.77	£410.30	£501.13
4	£551.75	£639.33	£539.60	£627.28	£440.08	£537.64
5	£628.03	£736.28	£615.88	£724.23	£516.36	£634.59

'C', 'D' & 'E' Station for Z or Alpha Guides

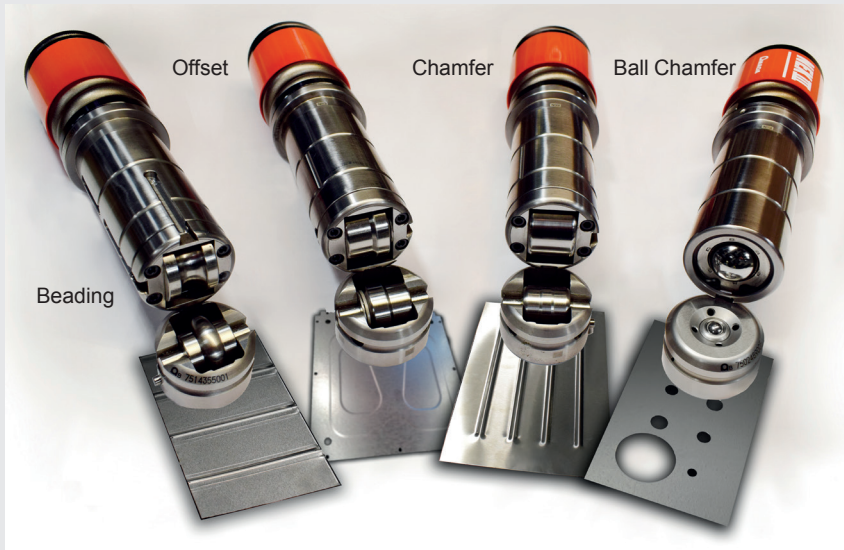
Cat	Airblow ID			Non-Airblow		
	'C'	'D'	'E'	'C'	'D'	'E'
1	£435.00	£649.60	£834.95	£363.04	£460.66	£624.89
2	£534.83	£823.35	£1,108.44	£457.24	£634.51	£905.22
3	£775.80	£1,122.43	£1,526.42	£690.64	£933.82	£1,339.26
4	£814.86	£1,202.97	£1,589.96	£728.43	£1,014.98	£1,406.81
5	£924.75	£1,331.93	£1,742.39	£834.47	£1,143.10	£1,563.98

Note:

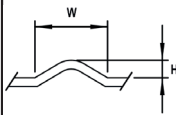
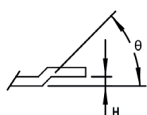
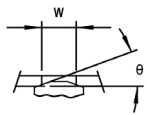
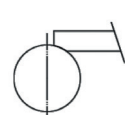
- Vacuum Dies are included with NEX III Set Assy
- Standard or KK Dies are included with all NEX and Original Set Assy (Airblow and Non-Airblow)
- For Vacuum Sets (NEX and Original) add £12.15 for 'A' Station or £12.05 for B Station
- Prices given are for Set Assy
- Prices available on request for individual items ie. Punch Body, Die, Guide/Stripper
- 'C', 'D' & 'E' Stations do not include Guide Assy
- Alternative configurations for gang tools also available
- Bolt-on Airblow Strippers are available on request

ARFT

AMADA Rapid Form Tooling



- Reduce production time with high speed, high quality continuous forming
- Improved quality, eliminating witness marks and sharp edges
- Enhance product design with more complex profiles

	Beading	Offset	Chamfer	Ball Chamfer
Station	'B' Station			
Profile	 <p>W: Max. 12.7 mm H: Max. 3.0 mm</p>	 <p>θ: Max. 45° H: Max. 1.6 mm</p>	 <p>W: Max. 10.0 mm θ: 20°</p>	 <p>C: 0.2 ~ 0.4 mm</p>
Material	Mild Steel: 0.8 ~ 1.6 mm		Mild Steel: 0.8 ~ 3.2 mm	
	Stainless/Aluminium: 0.8 ~ 1.5 mm		Stainless/Aluminium: 0.8 ~ 3.0 mm	
Min. Radius	25 mm			
Feed Speed	Max. 30 m/min (adjust depending on product profile)			
Machine	EM-M2/EM-ZR/AE/C1/ACIES/C1-AJ/EML-AJ/ACIES-AJ (use AMNC 2/AMNC 3i)*			

*Depending on which form is required.

Tapping Tools

Reduce Production Costs

- Eliminate the need for inserts and secondary operations
- Labour and parts costs dramatically reduced
- No more missed tapped holes or inserts; on site assembly

'B' Station (MPT)

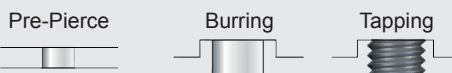


'C' Station (Fixed)

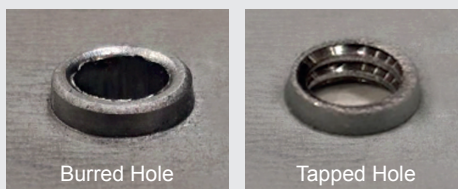


Tap Size	M2.5 - M8	M2.5 - M6
Material*	Up to 6 mm	Up to 3.2 mm
Tap Life*	Up to 10,000 hits	4,000 ~ 28,000 hits
Machine	Electric with MPT Turret	VIPROS/AE/EM

* Depends on tap size



Burred/extruded holes can be tapped in thinner materials to allow for more threads, giving more strength in the fixing application.

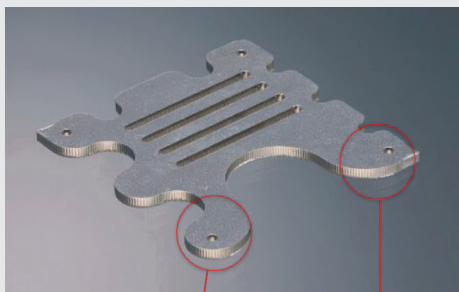


Contouring Tool

Close Pitch Nibbling



- Fast close 0.5 mm pitch nibbling is achieved from innovative tool design
- Produces a fine contoured edge
- Punch complex shapes without the need for special tooling
- 0.01 mm punch tip to guide clearance, minimises side loading forces when nibbling and ensures smooth contoured finish
- APH Punch Tip = 2.0 mm diameter
- Maximum material thickness:
Mild Steel = 1.6 mm
Stainless Steel = 1.0 mm



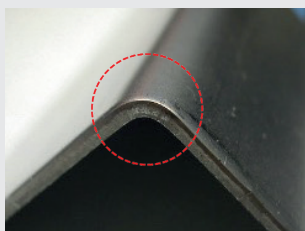
V-CUT Tool

For Sharp Corner Bending

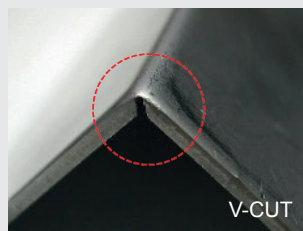
- Sharp corner bending
- Reduced hemming tonnage
- Reduced hole distortion
- Short flange bending



Outside Radius



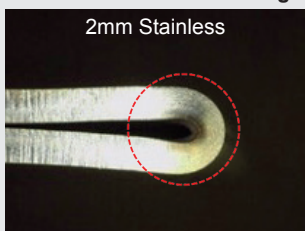
Traditional bend



V-CUT

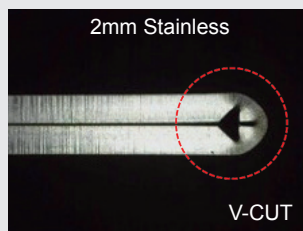
Bend after V-Cut

Hemming Tonnage Reduction



2mm Stainless

Tonnage at 100 t/m



2mm Stainless

V-CUT

Tonnage at 40 t/m

For use on all Electric machines with "Ram Down" functionality (except EM-ZR and ACIES)

Pen Tool

High Speed Part Marking
Increase Productivity and Efficiency



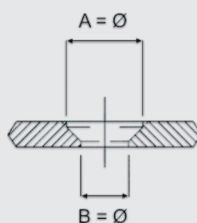
- Quick, low cost identification of parts
- Mark with indelible ink on all materials
- For machines with "ram-down" capability
- Different colours available



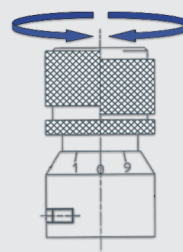
Countersink Kit

Reduce Tooling Costs

- Eliminates time and cost of secondary forming operations
- 'A' Station provides more location options
- Large range of 7 sizes:
M2, M2.5, M2.6, M3, M4, M5, M6
- Versatile kit to suit 1.0 mm to 3.2 mm material
- Pre-pierce hole and countersink operation can be performed on same track to minimise turret rotation and set-up time



Form dimensions



Vernier head

Specification

M2 (Ø A=Ø 4.3)			M2.5 (Ø A=Ø 5.3)			M2.6 (Ø A=Ø 5.5)			M3 (Ø A=Ø 6.4)			M4 (Ø A=Ø 8.6)			M5 (Ø A=Ø 10.6)			M6 (Ø A=Ø 12.8)			
THK	Ø B	P/P	THK	Ø B	P/P	THK	Ø B	P/P	THK	Ø B	P/P	THK	Ø B	P/P	THK	Ø B	P/P	THK	Ø B	P/P	
1.0	3.2	3.5	1.0	4.2	4.5	1.0	4.4	4.7	1.0	5.5	5.7										
1.2	3.2	3.5	1.2	4.2	4.5	1.2	4.4	4.7	1.2	5.1	5.5	1.2	7.2	7.5							
1.5	2.6	3.0	1.5	3.6	4.0	1.5	3.8	4.2	1.5	4.6	5.0	1.5	6.8	7.2	1.5	9.1	9.5				
1.6	2.6	3.0	1.6	3.6	4.0	1.6	3.8	4.2	1.6	4.6	5.0	1.6	6.8	7.2	1.6	9.1	9.5				
2.0	2.6	3.0	2.0	3.2	3.8	2.0	3.4	4.0	2.0	4.0	4.8	2.0	6.7	7.2	2.0	8.8	9.3	2.0	10.6	11.0	
2.3	2.6	3.0	2.3	3.3	3.8	2.3	3.5	4.0	2.3	4.2	4.8	2.3	5.7	6.5	2.3	7.9	8.5	2.3	10.6	11.0	
										2.5	4.1	4.7	2.5	5.6	6.4	2.5	7.8	8.4	2.5	10.4	10.8
										3.0	3.7	4.5	3.0	4.8	5.7	3.0	7.0	8.0	3.0	9.4	10.0
										3.2	3.7	4.5	3.2	4.8	5.7	3.2	7.0	8.0	3.2	9.4	10.0

THK = Material thickness

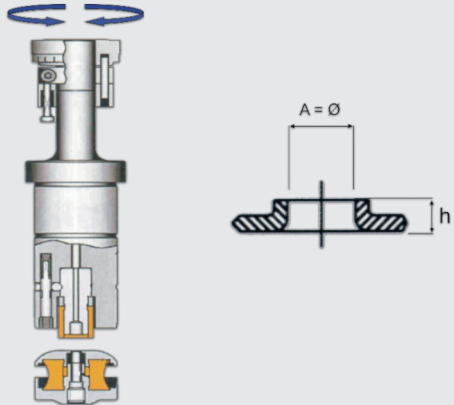
P/P = Pre-pierce diameter

Dimensions: mm

Burring Kit

Reduce Tooling Costs

- Eliminates the need for inserts and secondary operations
- Quick and easy change of tool tips to create different sizes
- 5 sizes M2.6, M3, M4, M5, M6 to suit 0.8 mm to 2.3 mm material
- One touch adjustable head
- Specially coated die tips to reduce friction and wear



Specification

ØA	0.8t				1.0t				1.2t				1.6t				2.0t				2.3t (M/S Only)			
	P/Tip Ø	Form Data			P/Tip Ø	Form Data			P/Tip Ø	Form Data			P/Tip Ø	Form Data			P/Tip Ø	Form Data			P/Tip Ø	Form Data		
		P/P	h			P/P	h			P/P	h			P/P	h			P/P	h			P/P	h	
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									
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									
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	
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	
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	

ØA = Inside diameter

P/Tip Ø = Punch Tip diameter

P/P = Pre-pierce diameter

h = Height of form

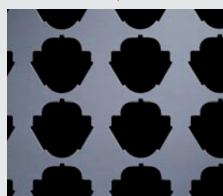
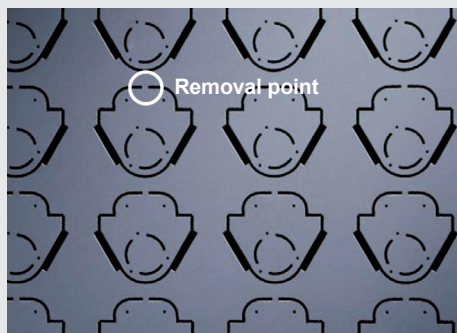
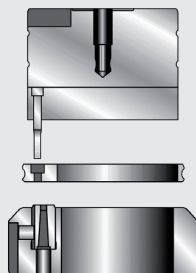
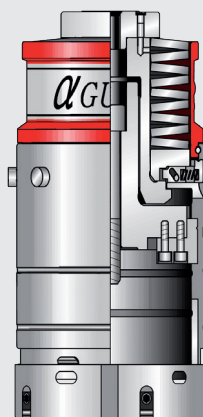
M/S Only = Mild Steel only

Dimensions: mm

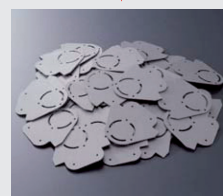
Work Chute Tool

Easy Part Removal

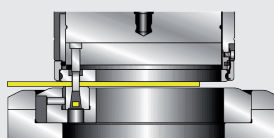
- Ideal for fast removal of small parts
- Eliminates micro-jointing of small parts
- No more operators shaking parts out of the sheet



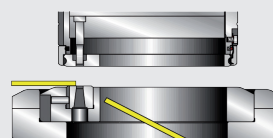
Slug



Products



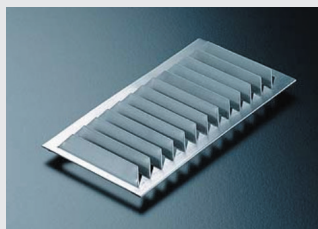
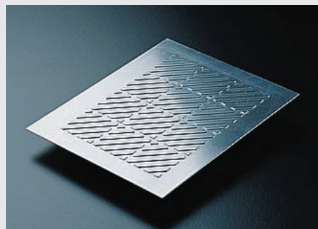
5mm SQ punch separates the components



Slug Component

Tool size	'D'	'E'
Max. size of components	Max. 65 SQ	Max. 85 SQ
Joint cut tool	5 mm SQ	5 mm SQ

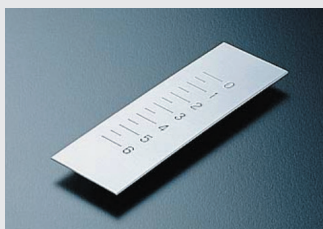
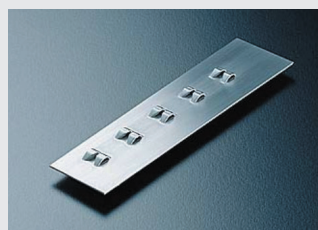
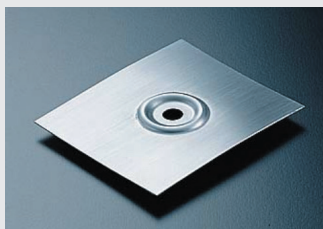
Examples of Form Tooling



The pictures above show a selection of components
produced by AMADA's Form Tooling

Please contact Tooling Hotline for further assistance

Examples of Form Tooling



The pictures above show a selection of components produced by AMADA's Form Tooling

Please contact Tooling Hotline for further assistance

Accessories

'A' & 'B' Station Shim Keeper Packs

Description	Code No.	Price
'A' Stn Shim Pack	911100	£40.26
'B' Stn Shim Pack	913300	£40.26

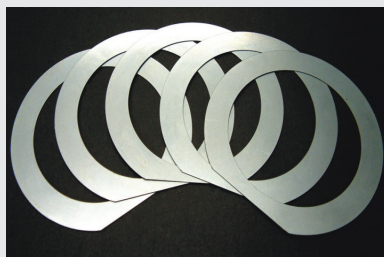
Note: Contains 5 x 0.5 mm Keepers,
5 x 0.2 mm shim and 5 x 0.4 mm shim



'C', 'D' & 'E' Station Shim Packs

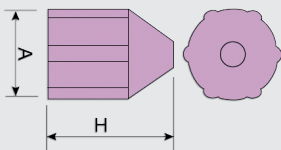
Description	Code No.	Price
'C' Stn Die Shim Pack	944000	£47.58
'D' Stn Die Shim Pack	955000	£51.79
'E' Stn Die Shim Pack	966000	£56.61
'C' Stn Punch Shim Pack	944400	£39.18
'D' Stn Punch Shim Pack	955500	£50.38
'E' Stn Punch Shim Pack	966600	£54.58

Note: Contains 1 x 0.4 mm, 1 x 0.6 mm,
1 x 0.8 mm, 1 x 1.0 mm and 1 x 1.2 mm shims



Slug Ejectors

Made from urethane, the ejector helps to ensure that the scrap is pushed down through the die to avoid slugs coming back on to the sheet



	ØA (mm)	H (mm)	Code No.	Price
No. 1	3.3	6.5	910010	£0.57
No. 2	6.3	10.0	910020	£0.57
No. 3	10.3	16.0	910030	£0.57



Accessories

Tooling Cabinet C-286-00

AMADA's punch tooling cabinet offers an effective method of storing punch press tooling.

It protects tooling against workplace atmospheric conditions and reduces damage caused by incorrect tool storage.

Dimensions: 975 x 2170 x 340 mm

Capacity:	Punches	Dies
'A' Station	34	102
'B' Station	22	66
'C' Station	6	12
'D' Station	5	10
'E' Station	4	8

Safe working load = 420kg

Code No: 990000

Price: £2,295.00





Contents Reference

AMADA Reference Section

AMADA have compiled some useful data which may assist engineers in the daily business of sheet metal design and production.

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Bend Allowance - 90°

Example 1 - Bending 1mm mild steel in a 6mm 'V' die

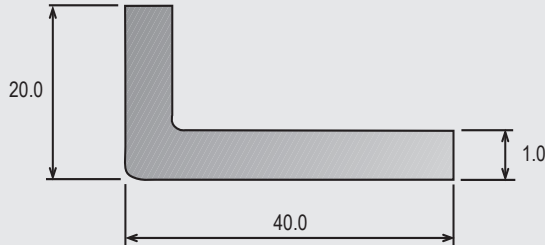
If (f) = Elongation factor

If (d) = Blank development size

$$d = (20 + 40) - 2f$$

$$d = 60 - (2 \times 0.87)$$

$$d = 58.26 \text{ mm}$$



The following tables show the elongation factor (f) of mild steel, stainless steel and aluminium during a 90° bend.

V = V - width (mm)

t = material thickness (mm)

f = bend allowances (mm)

Mild Steel

t \ V	4	6	7	8	10	12	14	16	18	20	25	32
0.5	0.47	0.55	0.59	0.63	0.70							
0.6	0.54	0.62	0.65	0.69	0.77	0.85						
0.7	0.60	0.68	0.72	0.76	0.83	0.91	0.99					
0.8	0.67	0.74	0.78	0.82	0.90	0.97	1.05	1.13				
1.0	0.80	0.87	0.91	0.95	1.03	1.10	1.18	1.26	1.33	1.41		
1.2		1.00	1.04	1.08	1.15	1.23	1.31	1.38	1.46	1.54		
1.5		1.19	1.23	1.27	1.35	1.42	1.50	1.58	1.65	1.73	1.92	
1.6			1.29	1.32	1.40	1.47	1.76	1.86	1.96	2.05	2.29	2.63
2.0				1.59	1.67	1.74	1.82	1.90	1.97	2.05	2.24	2.51
2.3				1.65	1.71	1.77	1.84	1.90	1.97	2.03	2.19	2.41
2.5					1.99	2.07	2.14	2.22	2.29	2.37	2.56	2.83
2.6						2.13	2.21	2.28	2.30	2.44	2.63	2.90
3.0						2.39	2.46	2.54	2.62	2.69	2.88	3.15
3.2						2.51	2.59	2.67	2.74	2.82	3.01	3.28

Bend Allowance - 90°

V = V - width (mm)
t = material thickness (mm)
f = bend allowances (mm)

Stainless Steel

$\frac{V}{t}$	4	6	7	8	10	12	14	16	18	20	25	32
0.5	0.52	0.63	0.69	0.75	0.86							
0.6	0.58	0.69	0.75	0.80	0.92	1.03						
0.7	0.64	0.75	0.81	0.86	0.98	1.09	1.20					
0.8	0.70	0.81	0.87	0.92	1.04	1.15	1.26	1.37				
1.0	0.82	0.94	0.99	1.05	1.17	1.29	1.40	1.52	1.64	1.75		
1.2		1.05	1.10	1.16	1.27	1.38	1.50	1.61	1.72	1.83		
1.5		1.23	1.28	1.34	1.45	1.56	1.67	1.79	1.90	2.01	2.29	
1.6			1.34	1.40	1.51	1.62	1.73	1.85	1.96	2.07	2.35	2.74
2.0				1.64	1.74	1.85	1.96	2.07	2.18	2.28	2.55	2.93
2.3				1.81	1.93	2.04	2.15	2.26	2.37	2.49	2.77	3.16
2.5					2.04	2.16	2.27	2.38	2.49	2.60	2.88	3.28
2.6						2.22	2.33	2.44	2.55	2.66	2.94	3.34
3.0						2.45	2.56	2.68	2.79	2.90	3.18	3.57
3.2						2.57	2.68	2.80	2.91	3.02	3.30	3.69


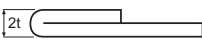
Aluminium

$\frac{V}{t}$	4	6	7	8	10	12	14	16	18	20	25	32
0.5	0.40	0.44	0.47	0.49	0.54							
0.6	0.46	0.50	0.53	0.55	0.60	0.65						
0.7	0.52	0.56	0.59	0.61	0.66	0.71	0.76					
0.8	0.58	0.62	0.65	0.67	0.72	0.77	0.82	0.87				
1.0	0.69	0.74	0.77	0.80	0.85	0.90	0.95	1.00	1.06	1.11		
1.2		0.86	0.89	0.91	0.96	1.01	1.06	1.11	1.15	1.20		
1.5		1.04	1.07	1.09	1.14	1.19	1.24	1.29	1.33	1.38	1.50	
1.6			1.13	1.15	1.20	1.25	1.30	1.35	1.39	1.44	1.56	1.73
2.0				1.40	1.45	1.49	1.54	1.58	1.63	1.67	1.79	1.94
2.3				1.57	1.62	1.67	1.72	1.76	1.81	1.86	1.98	2.15
2.5					1.74	1.79	1.83	1.88	1.93	1.98	2.10	2.27
2.6						1.85	1.89	1.94	1.99	2.04	2.16	2.33
3.0						2.09	2.13	2.18	2.23	2.28	2.40	2.57
3.2						2.20	2.25	2.30	2.35	2.40	2.52	2.69

Hemming Tonnes


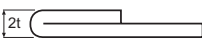
Hemming is a form of bending requiring higher amounts of tonnage than standard Air Bending. The tables below show the tonnage required for hemming and seaming operations.

Mild Steel

Sheet Thickness (mm)	Bending Shape			
				
	Required Tonnage	C	Required Tonnage	2t
0.6	9.0	3.0	23.0	1.2
0.8	12.0	3.0	32.0	1.6
1.0	15.0	3.5	40.0	2.0
1.2	17.0	3.5	50.0	2.4
1.6	24.0	3.5	63.0	3.2
2.0	30.0	5.5	80.0	4.0
2.6	55.0	6.5	90.0	5.2
3.2	70.0	8.0	100.0	6.4
4.5	105.0	11.3	200.0	9.0

Note: Required tonnage is given per 1 metre length

Stainless Steel

Sheet Thickness (mm)	Bending Shape			
				
	Required Tonnage	C	Required Tonnage	2t
0.6	15.0	3.0	35.0	1.2
0.8	20.0	3.0	50.0	1.6
1.0	25.0	3.5	60.0	2.0
1.2	26.0	3.5	80.0	2.4
1.5	38.0	3.5	95.0	3.0
2.0	50.0	5.5	130.0	4.0
2.5	90.0	6.5	180.0	5.0
3.0	100.0	8.0	210.0	6.0
4.0	140.0	11.3	280.0	8.0

Note: Required tonnage is given per 1 metre length

Tonnage Calculation

The punching tonnage is calculated by using the following formula:

$$\frac{\text{Length of the cut edge (mm)} \times \text{Material Thickness (mm)} \times \text{Tensile Strength (kg/mm}^2\text{)}}{1000}$$

Example 1

Rectangle 50 x 10 in 2.0 mm Stainless Steel

$$\text{Tonnage Required} = \frac{(50 + 50 + 10 + 10) \times (2.0) \times (60)}{1000}$$

Tonnage Required = 14.4 Tonnes

Example 2

30mm Diameter in 1.5 mm Mild Steel

$$\text{Tonnage Required} = \frac{(3.142 \times 30) \times (1.5) \times (40)}{1000}$$

Tonnage Required = 5.7 Tonnes

Minimum Hole Diameter

As a general guideline, the following table shows the minimum diameter (mm) of a punched hole with regards to material thickness.

t = Material Thickness

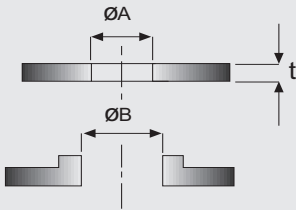
Material Type	Minimum Hole Diameter
Mild Steel	1.0 x t
Aluminium	1.0 x t
Stainless Steel	2.0 x t

It is possible to punch smaller hits, please contact Tooling Hotline for assistance

Burring Hole Reference

The table below shows the pre-pierce (mm) and burred hole (mm) sizes for Mild Steel.

Material Thickness Tap Size	Pre-Pierced Hole (øA)						Nominal Burr Hole (øB)
	0.8 mm	1.0 mm	1.2 mm	1.6 mm	2.0 mm	2.3 mm	
M2.6 x 0.45	1.2	1.2	1.4	1.6	-	-	2.21
M3 x 0.5	1.2	1.5	1.5	1.7	-	-	2.57
M4 x 0.7	-	2.0	2.0	2.1	2.3	2.7	3.40
M5 x 0.8	-	2.0	2.0	2.6	3.0	3.1	4.30
M6 x 1.0	-	2.0	2.0	3.4	3.8	3.8	5.10



Countersink Hole Reference

The table below shows the nominal pre-pierce hole (mm) sizes required for a countersink operation for Mild Steel.

Material Thickness (mm)	Screw Size						
	M2 x0.4	M2.5 x0.45	M2.6 x0.45	M3 x0.5	M4 x0.7	M5 x0.8	M6 x1.0
1.0	3.5	4.5	4.8	5.7	-	-	-
1.2	3.5	4.5	4.5	5.3	7.3	-	-
1.5	3.2	4.2	4.5	5.3	7.3	9.0	-
1.6	3.0	4.0	4.3	5.0	7.0	8.8	10.8
2.0	3.0	3.8	4.0	4.8	7.0	8.6	10.6
2.3	3.0	3.8	4.0	4.8	6.8	8.5	10.5
2.5	-	-	-	4.5	6.5	8.4	10.4
3.0	-	-	-	4.4	6.0	8.0	10.0
3.2	-	-	-	4.0	5.8	7.8	9.8

Correct Tool Heights

The table below shows the correct tool height (mm) for NEX III, NEX and Original style tooling

Tool Style	Setting Height	Punch Body Only	Die Only
'A' Station Original	207.5	207.0	30
'A' Station NEX III & NEX	208.0	207.0	30
'B' Station Original	207.5	207.0	30
'B' Station NEX III & NEX	208.0	207.0	30
'C' Station	208.0	96.0	30
'D' Station	209.0	84.0	30
'E' Station	210.0	85.0	30

Note:

- i) The Punch setting height is the measurement taken from the top of the Punch Assembly head to the bottom cutting edge of the punch body, not the bottom of the guide or stripper plate

Die Clearance

The table below shows the recommended die clearances for a range of materials and thicknesses.

Material Thickness	Mild Steel	Stainless Steel	Aluminium	Copper	Brass
0.8 mm	0.15 - 0.20 mm	0.20 - 0.24 mm	0.15 - 0.16 mm	0.15 - 0.16 mm	0.15 - 0.16 mm
1.0 mm	0.20 - 0.25 mm	0.25 - 0.30 mm	0.15 - 0.20 mm	0.15 - 0.20 mm	0.15 - 0.20 mm
1.5 mm	0.30 - 0.38 mm	0.37 - 0.45 mm	0.22 - 0.30 mm	0.22 - 0.30 mm	0.22 - 0.30 mm
2.0 mm	0.40 - 0.50 mm	0.50 - 0.60 mm	0.30 - 0.40 mm	0.30 - 0.40 mm	0.30 - 0.40 mm
2.5 mm	0.50 - 0.63 mm	0.62 - 0.75 mm	0.37 - 0.50 mm	0.37 - 0.50 mm	0.37 - 0.50 mm
3.0 mm	0.60 - 0.75 mm	0.75 - 0.90 mm	0.45 - 0.60 mm	0.45 - 0.60 mm	0.45 - 0.60 mm
3.2 mm	0.64 - 0.80 mm	0.80 - 0.96 mm	0.48 - 0.64 mm	0.48 - 0.64 mm	0.48 - 0.64 mm
3.5 mm	0.70 - 0.88 mm	0.88 - 1.05 mm	0.53 - 0.70 mm	0.53 - 0.70 mm	0.53 - 0.70 mm
4.0 mm	0.80 - 1.00 mm	1.00 - 1.20 mm	0.60 - 0.80 mm	0.60 - 0.80 mm	0.60 - 0.80 mm
4.5 mm	0.90 - 1.13 mm	1.13 - 1.35 mm	0.68 - 0.90 mm	0.68 - 0.90 mm	0.68 - 0.90 mm
5.0 mm	1.00 - 1.25 mm	-	0.75 - 1.00 mm	0.75 - 1.00 mm	0.75 - 1.00 mm
5.5 mm	1.10 - 1.38 mm	-	0.83 - 1.10 mm	0.83 - 1.10 mm	0.83 - 1.10 mm
6.0 mm	1.20 - 1.50 mm	-	0.90 - 1.20 mm	0.90 - 1.20 mm	0.90 - 1.20 mm

Notes:

- i) The figures in the above chart are given as a range, for example 0.15 - 0.20 mm
For mechanical machines choose the smaller die clearance of the range
For hydraulic machines choose the larger die clearance of the range
- ii) For Galvalite and Zintec materials, use Mild Steel as a guide
- iii) The figures above are a guideline only. Please refer to your Machine Operators Manual for more specific details

Further Information



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