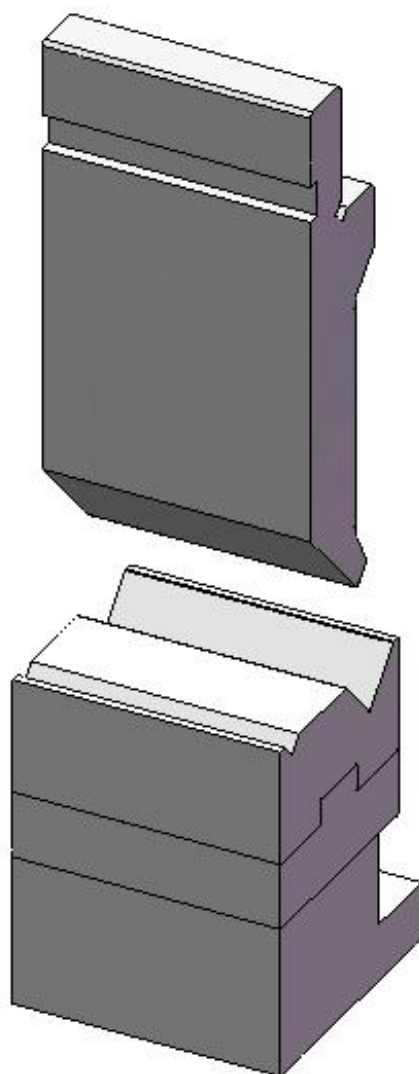


折弯机模具

Press Brake Tooling



2021 年试行版

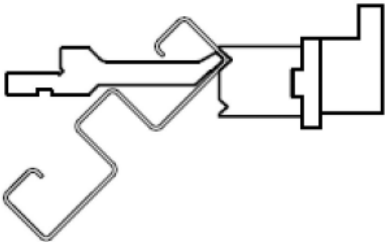
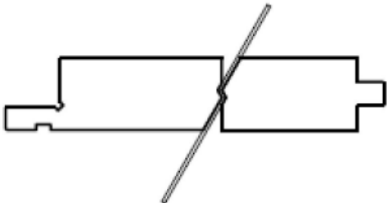
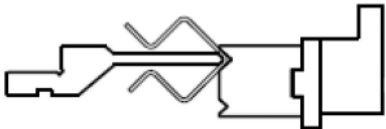
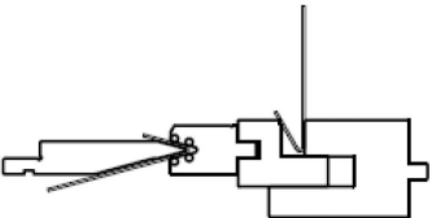
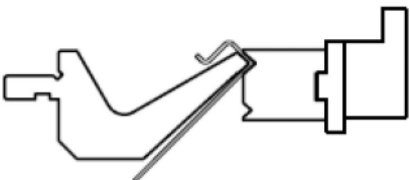
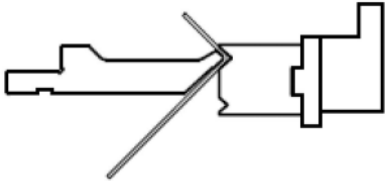
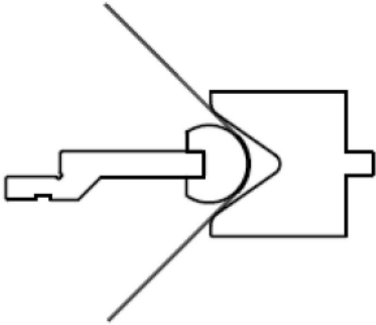
KRRASS[®]

目录/content

常见折弯模具应用/Normal bending die applications.....	2
主管推荐上模/Recommended punches of supervisor.....	3
主管推荐下模/ Recommended dies of supervisor.....	4
自由折弯的折弯压力对照表/Capacity chart for air bending	5
上模夹紧形式/Upper tooling clamping	6
下模夹紧形式/Dies tooling clamping.....	7
标准上模/Standard punches.....	8
标准上模 60° /Standard punches 60°	12
标准上模 26° 30° /Standard punches 26° 30°	13
标准 R 型圆模/Standard R-type round tooling	14
复平模具/Hemming die.....	15
气动复平模具/ Pneumatic hemming die.....	16
Z 型模/ Z-type tooling.....	16
标准重载直联型上模/Standard heavy duty direct-link type tooling	17
1V 下模/1V lower dies.....	18
低划伤下模/Low Friction Dies.....	20
2V 下模/2V lower dies.....	21
多 V 下模/multi-V lower dies	23
插片式下模/Combined dies.....	25
下模附件/Accessories of lower dies	26

常见折弯模具应用

Normal bending die applications

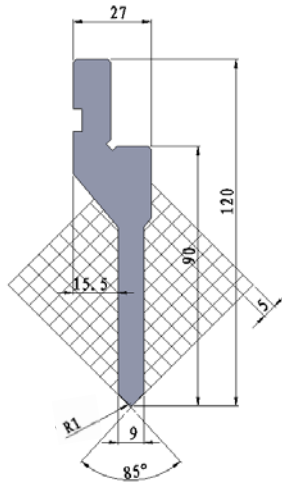
2-V85°专用上模折弯		1-V 段差上模折弯	
2-V85°直剑上模折弯		气动复平折弯	
2-V85°鹤颈上模折弯		2-V 30°锐角上模折弯	
2-V85°通用上模折弯		1-V R型通用上模折弯	

主管推荐上模

Recommended punches of supervisor

10.103

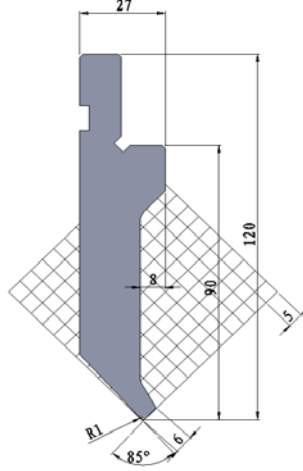
Max Tons:80t/m



10.105

Max Tons:80t/m

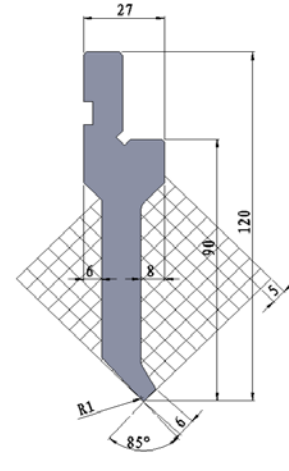
85° 82° 有库存



10.106

Max Tons:50t/m

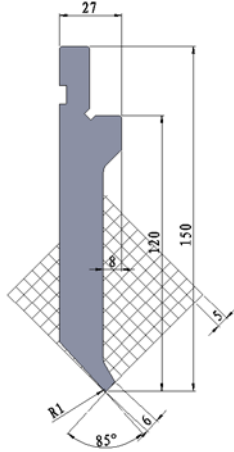
85° 有库存



10.109

Max Tons:80t/m

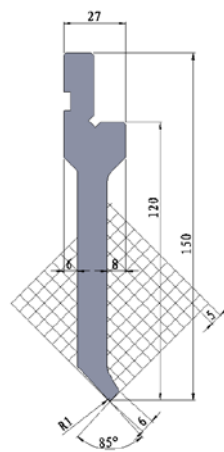
85° 82° 有库存



10.110

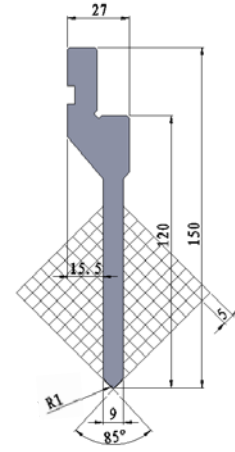
Max Tons:40t/m

85° 有库存



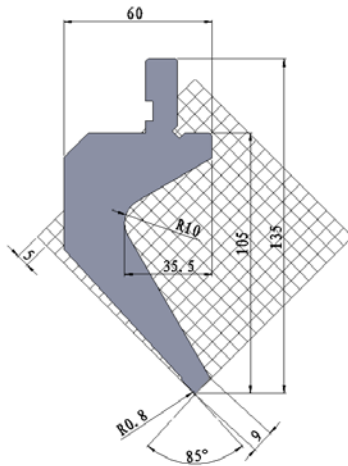
10.111

Max Tons:70t/m



10.116

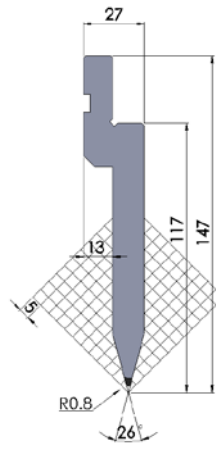
Max Tons:40t/m



10.190

Max Tons:50t/m

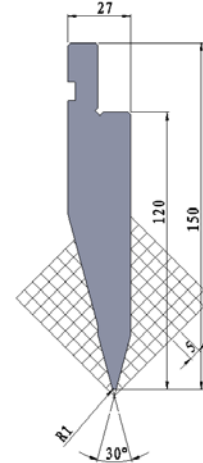
26° 有库存



10.195

Max Tons:100t/m

26° 30° 有库存



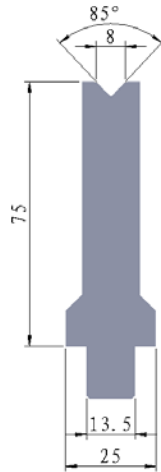
主管推荐下模

Recommended dies of supervisor

20.101

Max Tons:40t/m

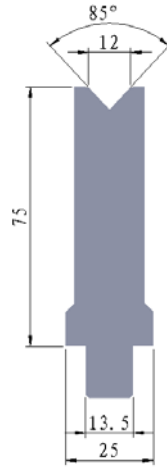
85° 有库存



20.103

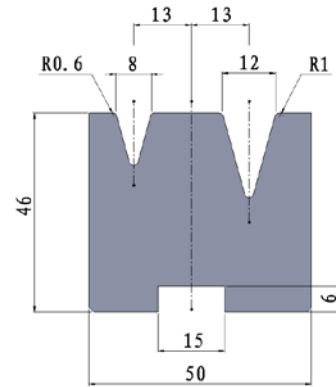
Max Tons:60t/m

85° 有库存



20.231

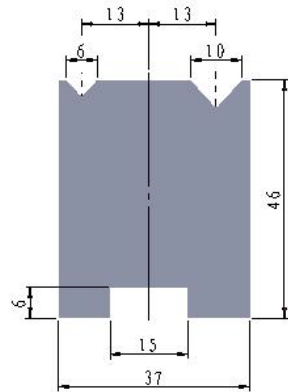
Max Tons:60t/m



20.251

Max Tons:80t/m

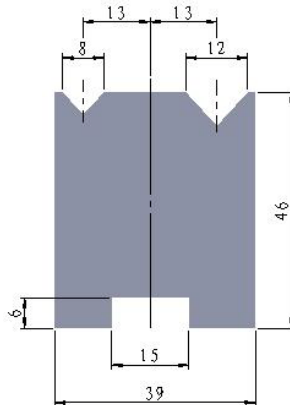
85° 82° 有库存



20.252

Max Tons:80t/m

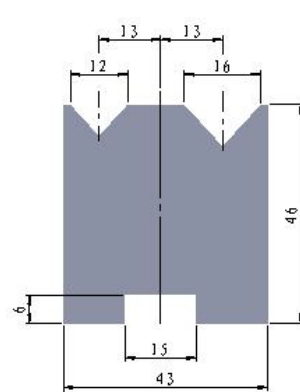
85° 82° 有库存



20.253

Max Tons:80t/m

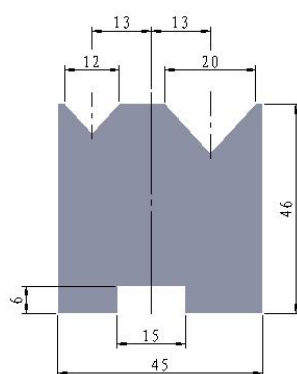
85° 有库存



20.254

Max Tons:80t/m

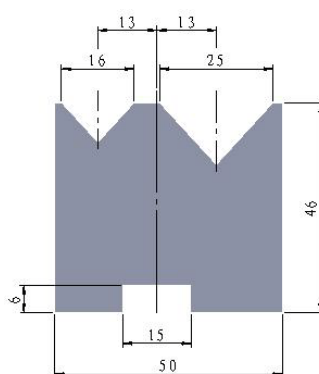
85° 有库存



20.255

Max Tons:80t/m

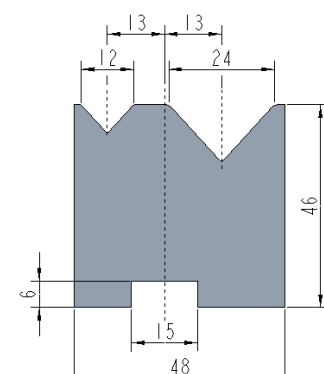
85° 有库存



20.259

Max Tons:80t/m

85° 有库存



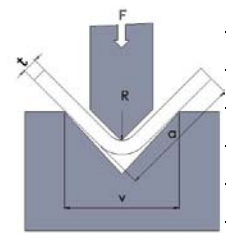
自由折弯的折弯压力对照表

Capacity chart for air bending

本表格中的数据是在 90° 折弯，材料抗拉强度 $\delta b=420\text{MPa}$ ，折弯长度为 1m 基础上计算的结果。

The given data has been calculated based upon bending material with a tensile strength of $\delta b=420\text{ MPa}$ over a length of 1m.

V	6	8	10	12	16	18	20	24	32	35	40	50	60	63	80	100	120	130	140	150	160	180	190	200	230	260
b	4.5	5	7	8.5	12	13	15	17	23	25	28	35	43	45	57	71	85	92	100	105	115	130	135	140	160	180
r	1	1.2	1.6	2	2.5	2.8	3	3.5	5	5.5	6	8	9.5	10	12	15.5	19	21	23	24.5	26	28	30	32	36	40
0.5	2.5																									
0.8	7	4.8																								
1.0	11	8	6																							
1.2		12	9	7																						
1.5			15	12	8																					
2.0				23	16	13	12	9.5																		
2.5					26	22	20	15	11																	
3.0							30	24	16	14	12															
4.0								44	31	28	23	18														
5.0									53	47	43	31	25													
6.0											61	45	36	34												
8.0												88	69	65	47	36										
10														110	80	60	47	43	39							
12															120	90	71	65	58	55	50					
16																	140	125	115	105	95	81	80	71		
18																			148	135	125	110	100	95	80	
20																						140	130	120	110	90



内径 R 约等于凹模开口宽度 V 的 16%

The internal radius R corresponds to approximate 16% of the die opening V

自由折弯建议凹模开口宽度 V

Recommended die opening V for air bending

材料厚度/Material thickness	t	0.5~2.5mm	3~8mm	9~10mm	>12mm
凹模开口宽度/Die opening	V	$6 \times t$	$8 \times t$	$10 \times t$	$12 \times t$

折弯力/Bending force for

铝 Alu	$\delta b=300\text{ MPa}$	$F=F(\text{表}) \times 0.65$ $F=F(\text{chart}) \times 0.65$
不锈钢 S.S	$\delta b=700\text{ MPa}$	$F=F(\text{表}) \times 1.6$ $F=F(\text{chart}) \times 1.6$

折弯压力吨位计算公式（参考值）

Determination of the bending force for air bending (approximation)

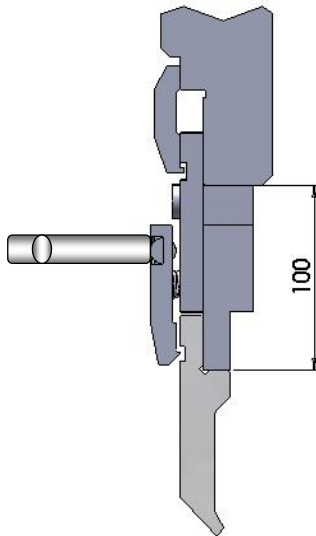
$$F(\text{chart}) = 65 \times t^2 / V \quad (\text{Ton} / \text{m})$$

上模夹紧形式

Upper tooling clamping

机械快速夹紧

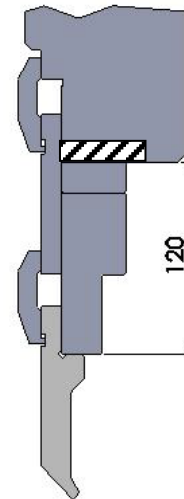
Mechanical rapid clamping



快夹可以方便欧式上模的快速安装
Rapid clamping is convenient to installing the European type punch quickly

重型斜楔夹紧

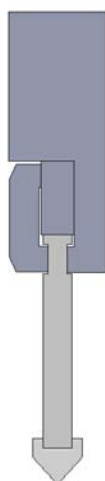
High-duty wedge clamping



适用于 220t 以上欧式上模的安装
Suited to the installing of Europe type punch over 220t nominal pressure machines

重载直联型夹紧

Heavy duty direct-link type clamping



适用于滑块受重载的安装
Suited to install the ram which bear overload

WILA 上模液压夹紧式

WILA upper tooling hydraulic clamping

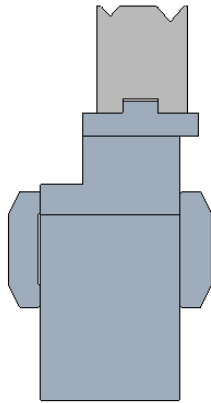


NSCL II with Top with Safety Click

下模夹紧形式

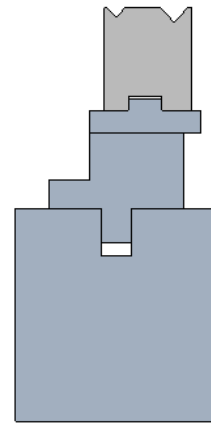
Dies tooling clamping

2V- “T” 型快换式
2V-T quick-change type



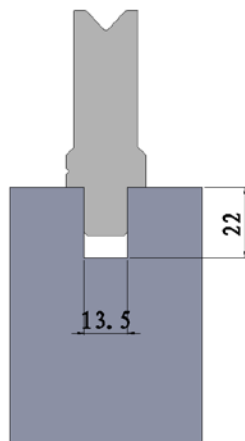
下模口可快速更换
the die opening can be quick changed

2V- “T” 型快换式
2V-T quick-change type



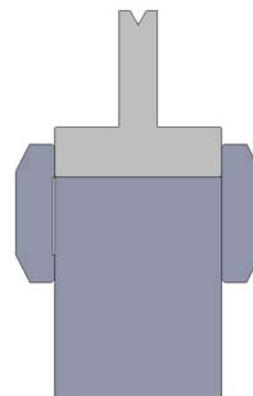
下模口可快速更换
the die opening can be quick changed

1V 插槽式
1V slot



模具肩部受力
the shoulder of tooling bear the force

1V- “T” 型夹紧式
1V-T clamping type



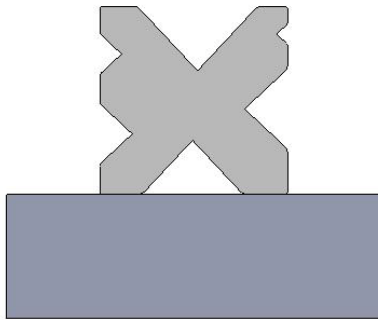
适用于“T”型 1V 下模
Suited to T type 1V bottom tooling

下模夹紧形式

Dies tooling clamping

多 V 工作台式

multi-V worktable type

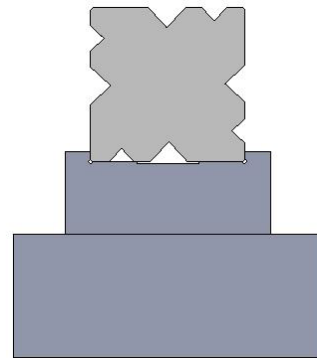


适用于整体多 V 下模

Suited to whole multi-V bottom tooling

多 V 插槽分段式

multi-V slot subsection

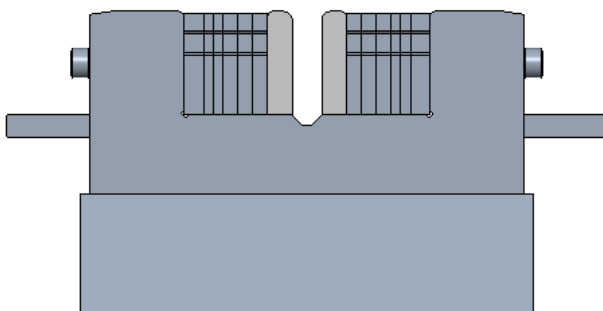


适用于分段多 V 下模

Suited to subsection multi-V bottom tooling

下模插片式

insert type for bottom tooling clamping



模口可分级增大

the die orifice can graded increase

WILA 下模液压夹紧

WILA bottom tooling hydraulic clamping



NSCR II with OZU bottom tooling

标准上模

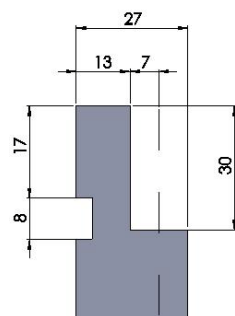
Standard punches

上模模柄结构

Upper tooling fixtures

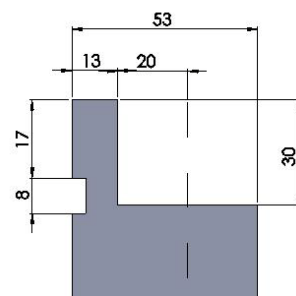
标准欧式

European type tooling



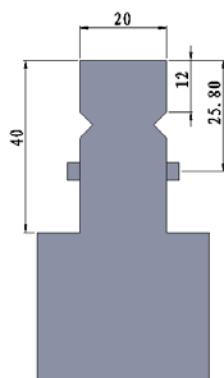
加强型欧式

European type tooling



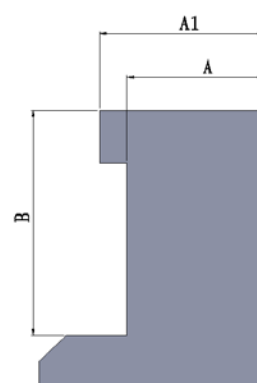
WILA 式

WILA type tooling



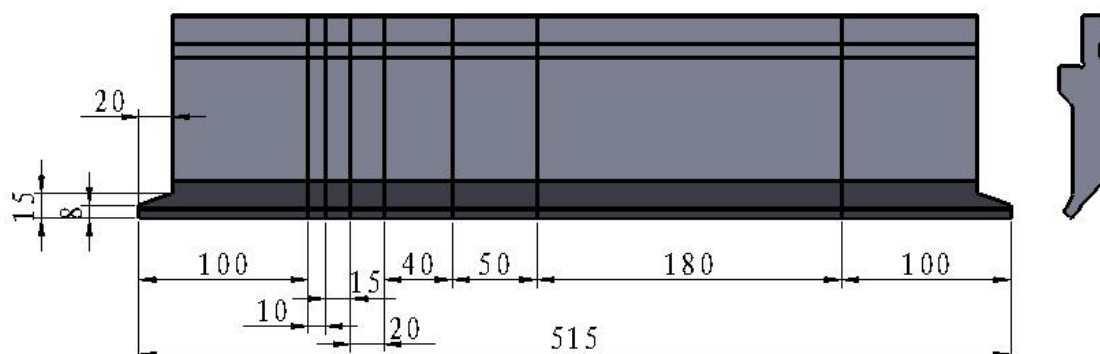
重载直联式

Heavy-duty direct-link type



上模标准分段方式

Segmentation of punch



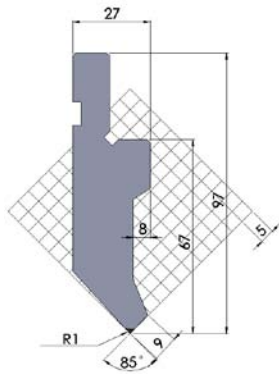
标准上模

标配 85°，可选配 82°

Standard punches

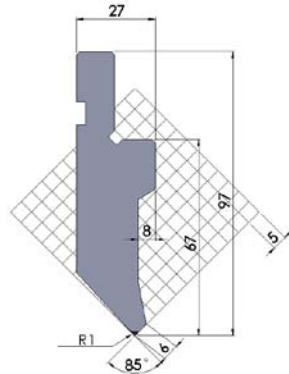
10.100

Max Tons:100t/m



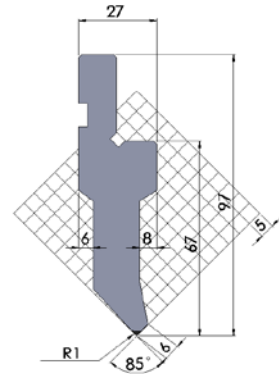
10.101

Max Tons:80t/m



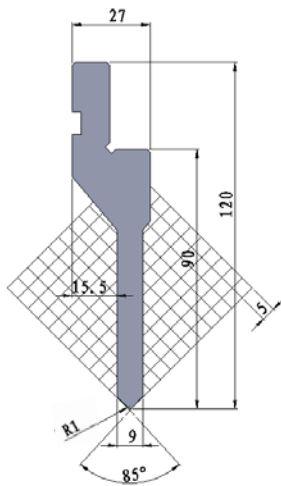
10.102

Max Tons:60t/m



10.103

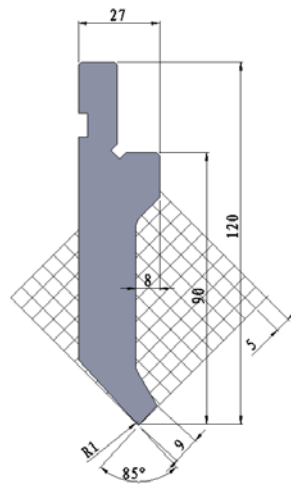
Max Tons:80t/m



10.104

Max Tons:100t/m

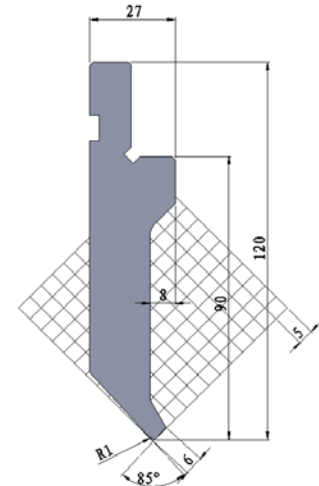
85° 有库存



10.105

Max Tons:80t/m

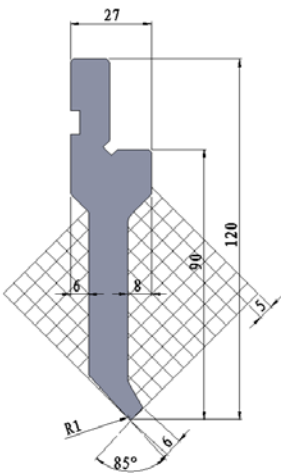
85° 82° 有库存



10.106

Max Tons:50t/m

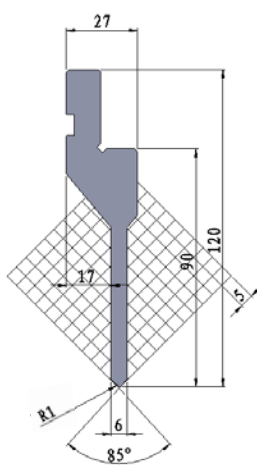
85° 有库存



10.107

Max Tons:50t/m

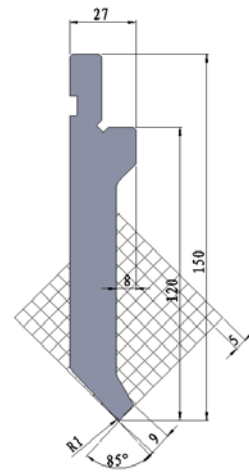
85° 有库存



10.108

Max Tons:100t/m

85° 有库存



标准上模

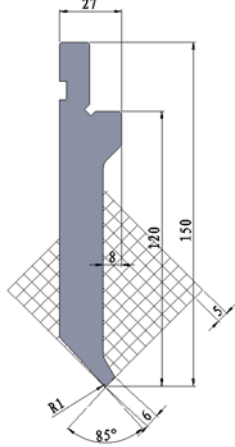
标配 85°，可选配 82°

Standard punches

10.109

Max Tons:80t/m

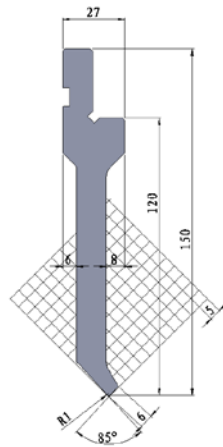
85° 82° 有库存



10.110

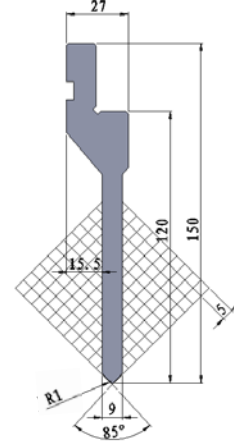
Max Tons:40t/m

85° 有库存



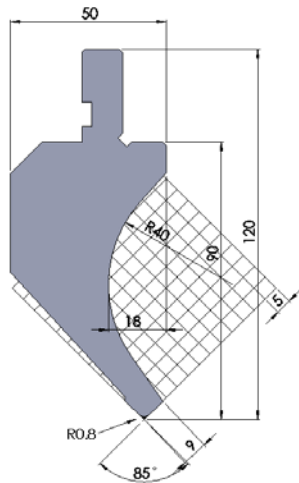
10.111

Max Tons:80t/m



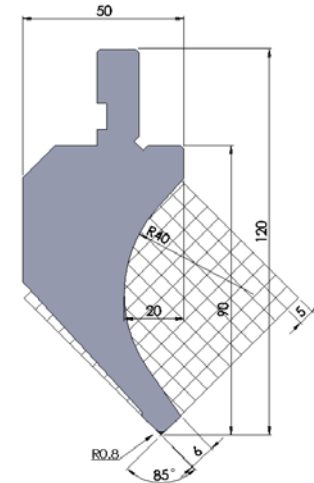
10.112

Max Tons:70t/m



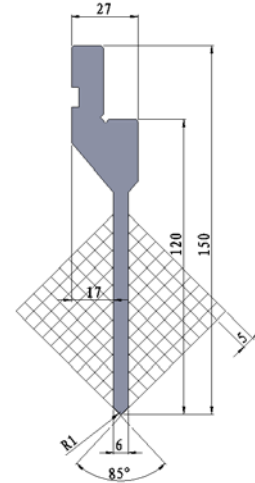
10.113

Max Tons:40t/m



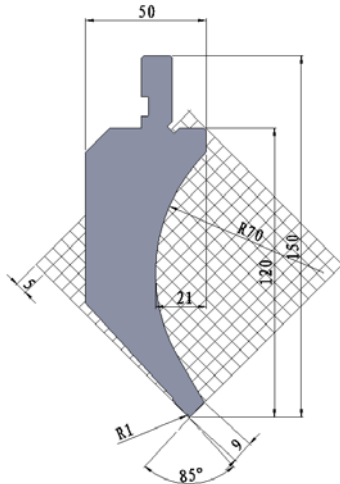
10.114

Max Tons:50t/m



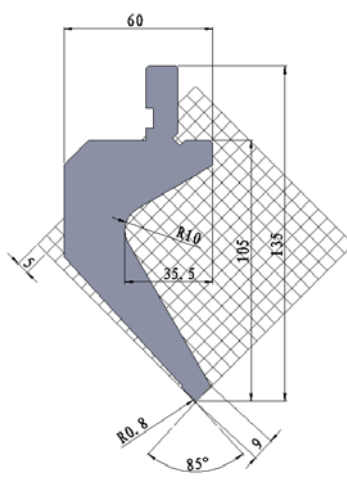
10.115

Max Tons:50t/m



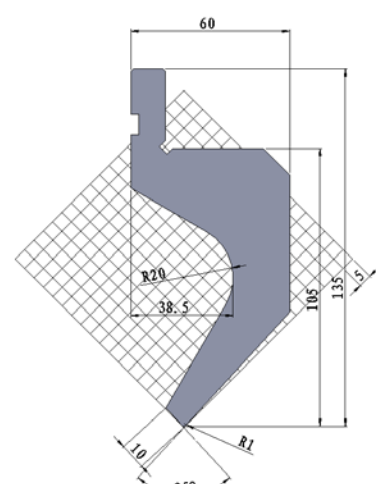
10.116

Max Tons:60t/m



10.117

Max Tons:45t/m

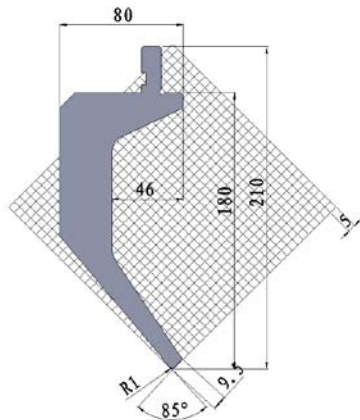


标准上模

Standard punches

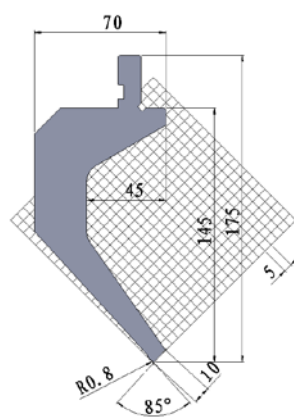
10.118

Max Tons:80t/m



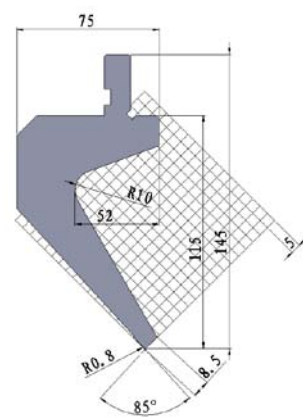
10.119

Max Tons:80t/m



10.120

Max Tons:50t/m

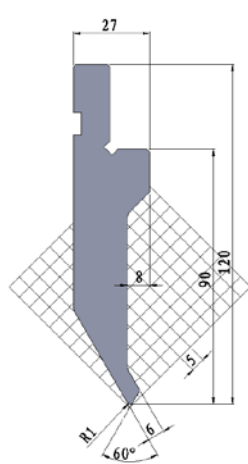


标准上模 60°

Standard punches 60°

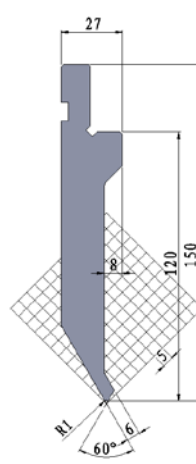
10.170

Max Tons:80t/m



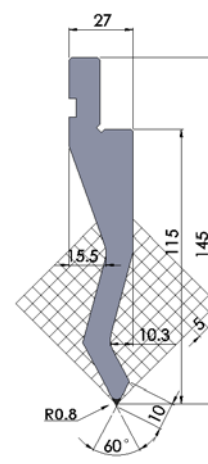
10.171

Max Tons:80t/m



10.172

Max Tons:40t/m



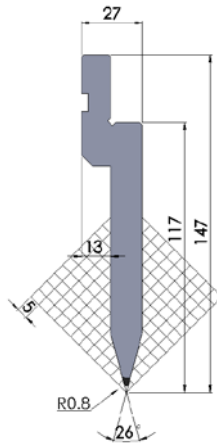
标准上模 26° 30°

Standard punches 26° 30°

10.190

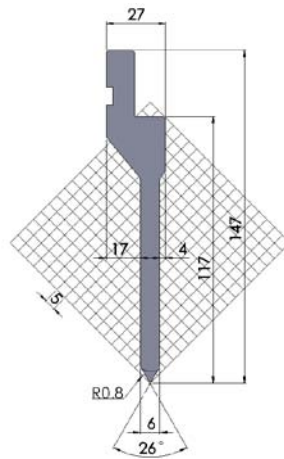
Max Tons:80t/m

26° 有库存



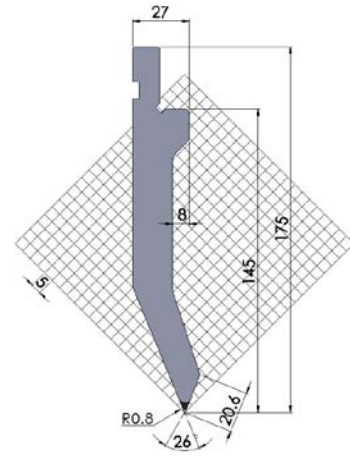
10.191

Max Tons:80t/m



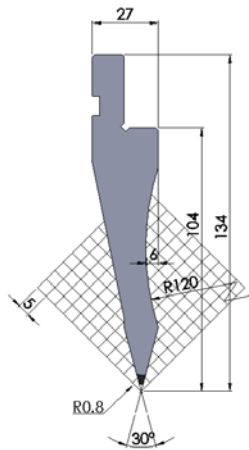
10.192

Max Tons:90t/m



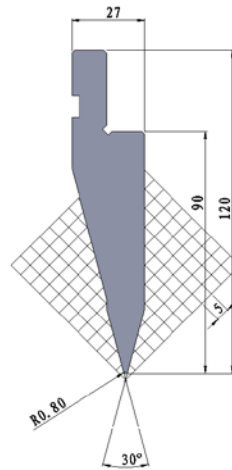
10.193

Max Tons:70t/m



10.194

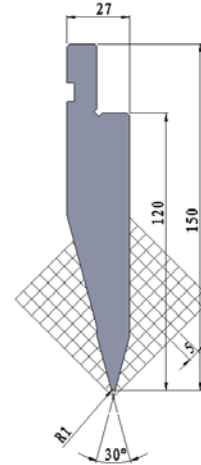
Max Tons:100t/m



10.195

Max Tons:100t/m

26° 30° 有库存

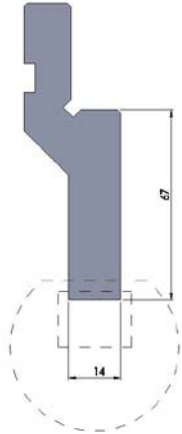


标准 R 型圆模

Standard R-type round tooling

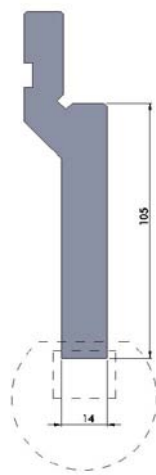
10.210

Max Tons:100t/m



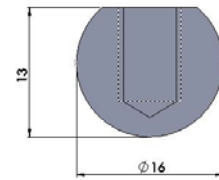
10.211

Max Tons:100t/m



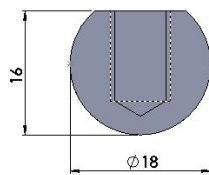
10.212

Max Tons:80t/m



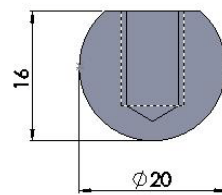
10.213

Max Tons:80t/m



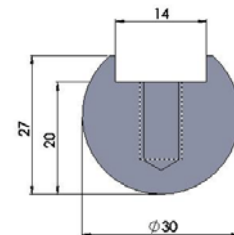
10.214

Max Tons:80t/m



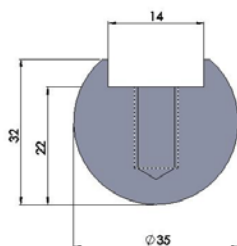
10.215

Max Tons:80t/m



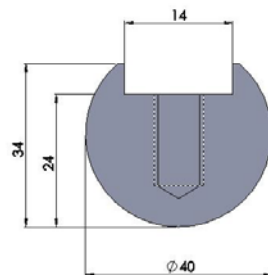
10.216

Max Tons:80t/m



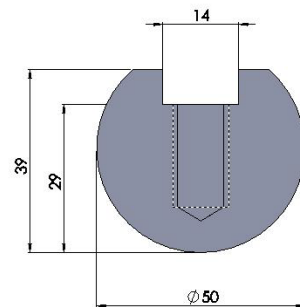
10.217

Max Tons:80t/m



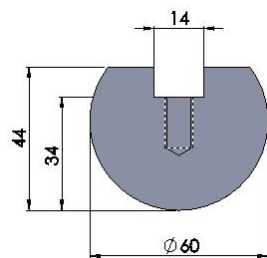
10.218

Max Tons:80t/m



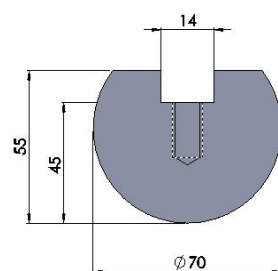
10.219

Max Tons:80t/m



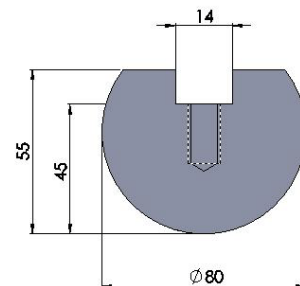
10.220

Max Tons:80t/m



10.221

Max Tons:80t/m



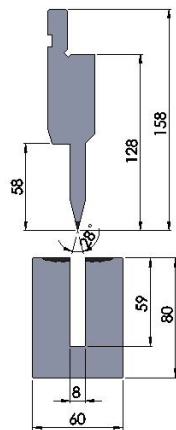
复平模具

Hemming die

10.250+20.134

10.250 Max Tons:A 80t/m B 100t/m

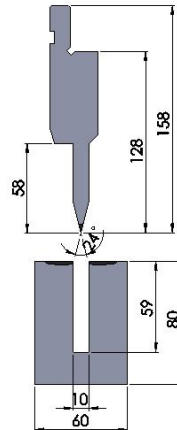
20.134 Max Tons:A 50t/m B 100t/m



10.251+20.135

10.251 Max Tons:A 80t/m B 100t/m

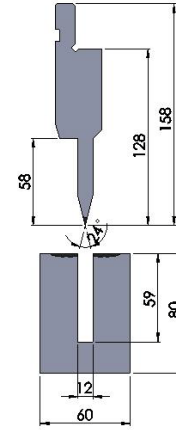
20.135 Max Tons:A 50t/m B 100t/m



10.252+20.136

10.252 Max Tons:A 80t/m B 100t/m

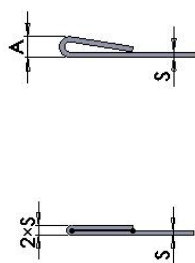
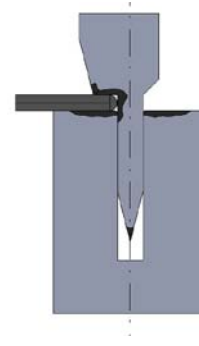
20.136 Max Tons:A 50t/m B 100t/m



A



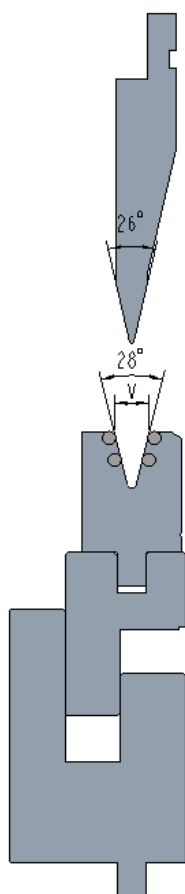
B



s mm	A mm	450Mpa t/m	700Mpa t/m	s mm	A mm	450Mpa t/m	700Mpa t/m
0.6	3.0	9	15	0.6	1.2	23	35
0.8	3.0	12	20	0.8	1.6	32	50
1.0	3.5	15	25	1.0	2.0	40	60
1.25	3.5	17	26	1.25	2.5	50	80
1.5	4.6	22	38	1.5	3.0	63	95
2.0	5.5	30	50	2.0	4.0	80	130

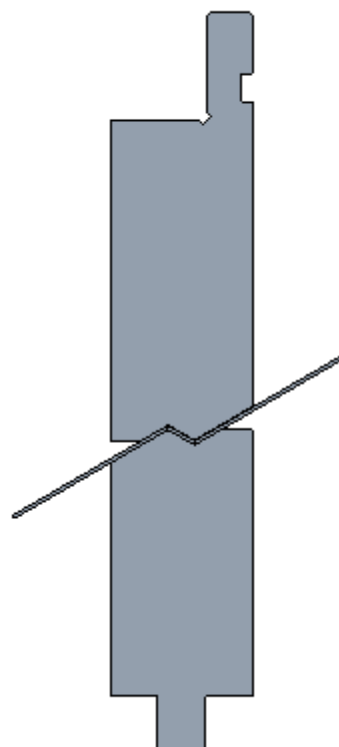
气动复平模具

Pneumatic hemming die



Z 型模

Z-type tooing



注:

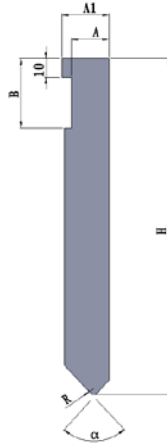
- 1、气动复平模标配尖刀上模：10.195（26°）
- 1、复平模座整长，低划伤下模最小分段 20，最大分段 500；
- 2、槽口最小 10，最大 24.

标准重载直联型上模

标配 85°，可选配 82°

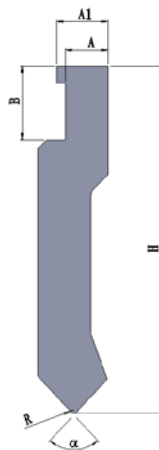
Standard heavy duty direct-link type tooling

10.280



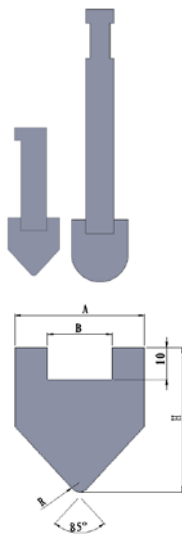
代号	A	A1	H	B	模尖 R Top end R	maxT/m	适用范围
1	20	25	180	42	R3	100	300T-400T
2	26	29	180	42	R5	120	500T
3	30	35	200	42	R8	150	630T-800T
4	36	40	200	51	R10	200	1000T-1200T

10.281



代号 Code	A	A1	H	B	模尖 R Top end R	maxT/m	适用范围
1	20	25	180	42	R3	100	300T-400T
2	26	29	180	42	R5	120	500T
3	30	35	200	42	R8	150	630T-800T
4	36	40	200	51	R10	200	1000T-1200T

10.290



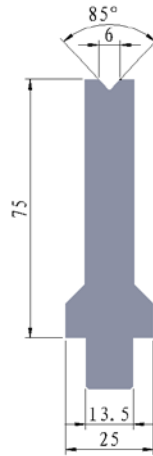
序号 Code	A	B	H	模尖 R Top end R	适用范围
1	50	30	50	R3	300T-400T
2	50	32	50	R5	500T
3	60	40	60	R8	630T-800T
4	65	45	65	R10	1000T-1200T

1V 下模

1V lower dies

20.100

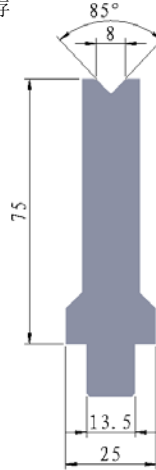
Max Tons:40t/m



20.101

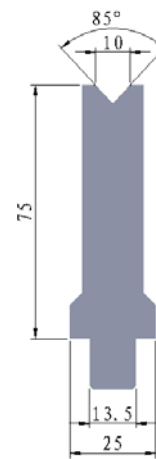
Max Tons:40t/m

有库存



20.102

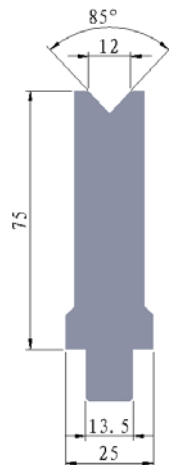
Max Tons:50t/m



20.103

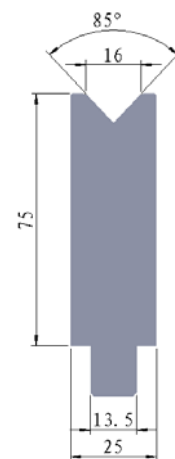
Max Tons:60t/m

有库存



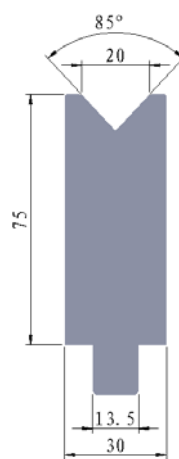
20.104

Max Tons:80t/m



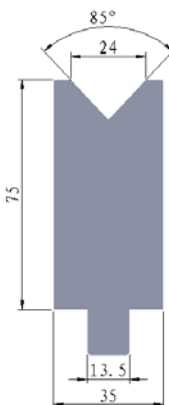
20.105

Max Tons:85t/m



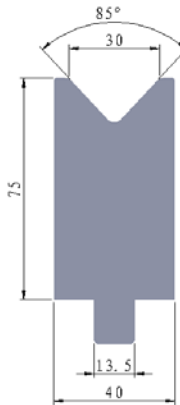
20.106

Max Tons:90t/m



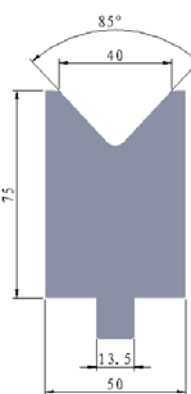
20.107

Max Tons:100t/m



20.108

Max Tons:100t/m

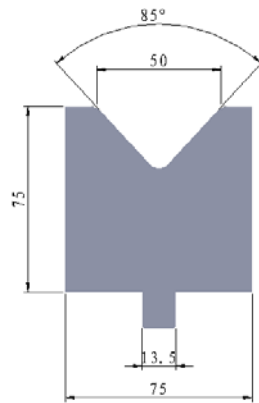


1V 下模

1V lower dies

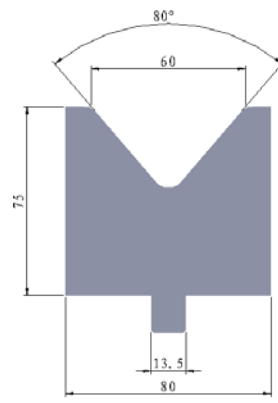
20.109

Max Tons:100t/m



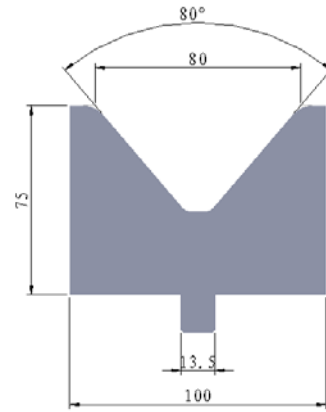
20.110

Max Tons:100t/m



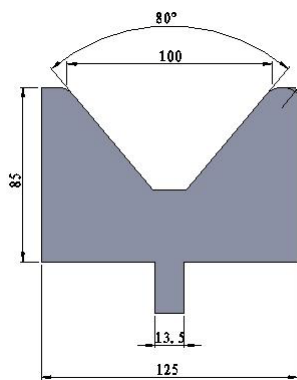
20.111

Max Tons:100t/m



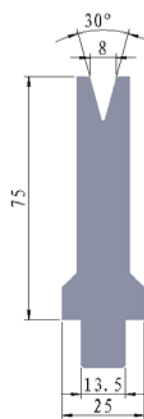
20.112

Max Tons:145t/m



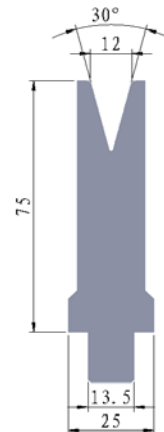
20.120

Max Tons:40t/m



20.121

Max Tons:40t/m



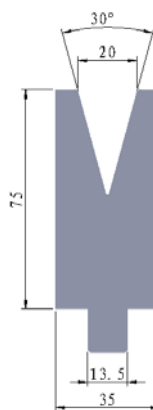
20.122

Max Tons:55t/m



20.123

Max Tons:55t/m



20.124

Max Tons:60t/m



低划伤下模

Low Friction Dies

复合模具用于自由折弯

Compound dies are press brake dies for "airbending" only.

可最大程度地减少压痕

Minimal marking on the bend parts.

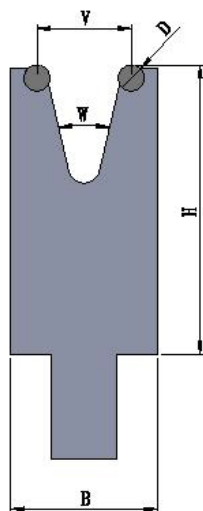
圆棒可以更换，以防磨损

The die bars are interchangeable in case of wear.

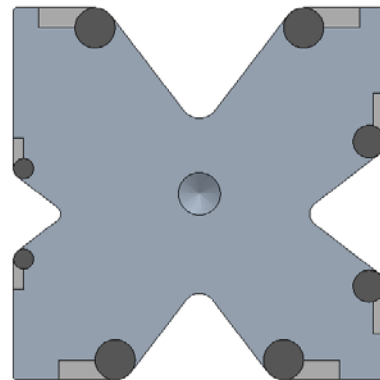
特殊的应用，圆棒可以选用不同材料，有镀锡、青铜或非金属圆棒

Choose of optimal radius material, Bronze or non metallic bars can be supplied for special application, The bars can be TIN coated for longer life and less friction.

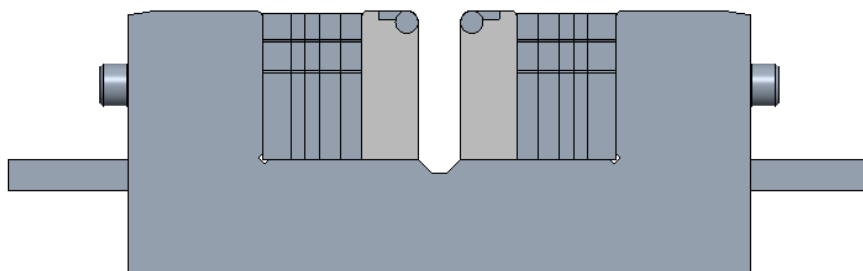
单 V 低划伤下模



多 V 低划伤下模



插片式低划伤下模

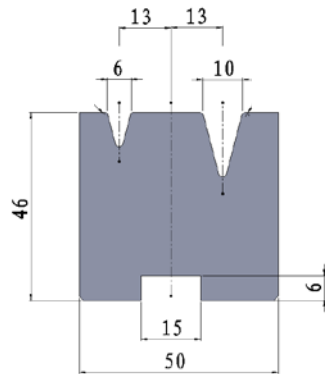


2V 下模

2V lower dies

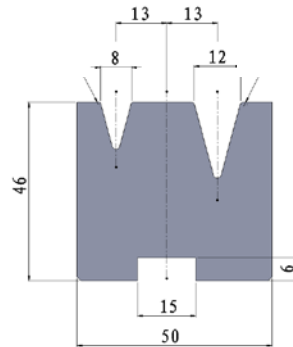
20.230

Max Tons:60t/m



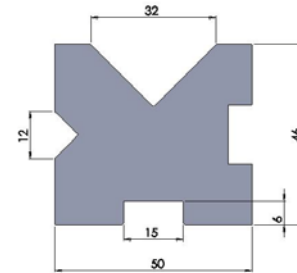
20.231

Max Tons:60t/m



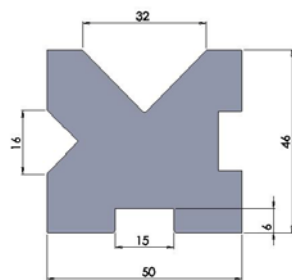
20.233

Max Tons:100t/m



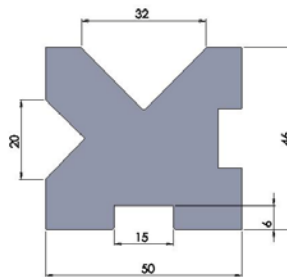
20.234

Max Tons:100t/m



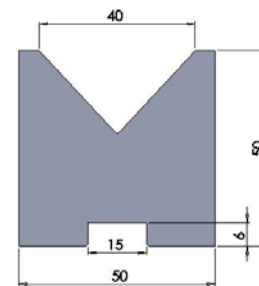
20.235

Max Tons:100t/m



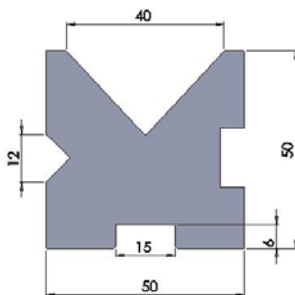
20.236

Max Tons:100t/m



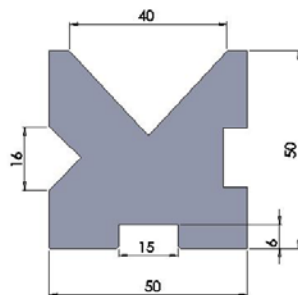
20.237

Max Tons:100t/m



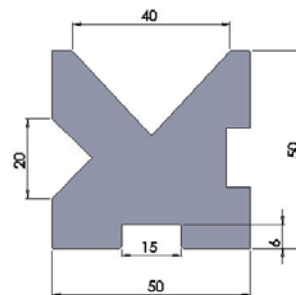
20.238

Max Tons:100t/m



20.239

Max Tons:100t/m



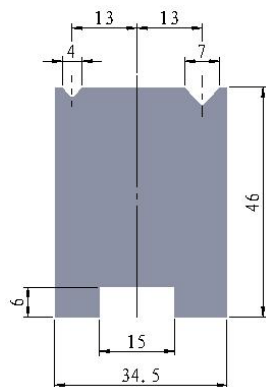
2V 下模

标配 85°，可选配 82°

2V lower dies

20.250

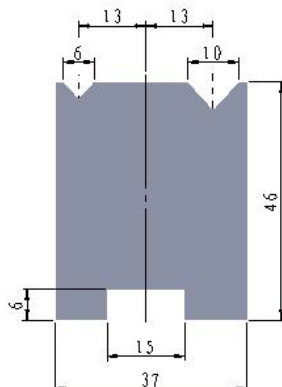
Max Tons:80t/m



20.251

Max Tons:80t/m

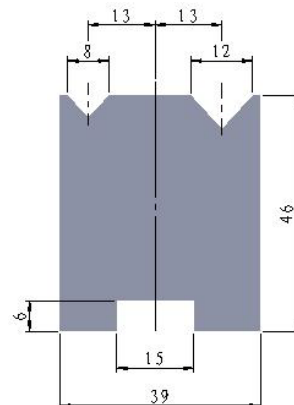
85° 82° 有库存



20.252

Max Tons:80t/m

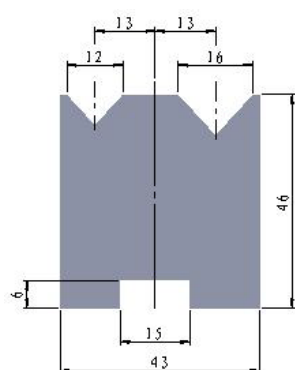
85° 82° 有库存



20.253

Max Tons:80t/m

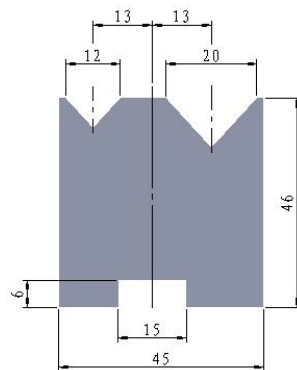
85° 有库存



20.254

Max Tons:80t/m

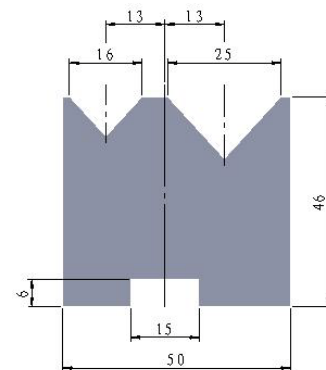
85° 有库存



20.255

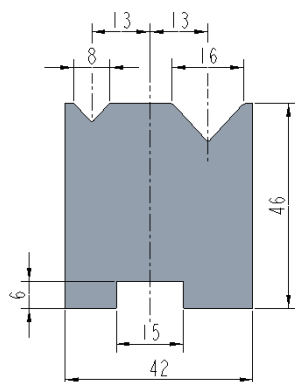
Max Tons:80t/m

85° 有库存



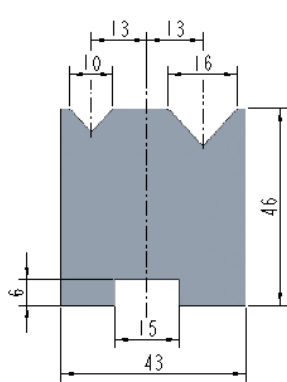
20.257

Max Tons:80t/m



20.258

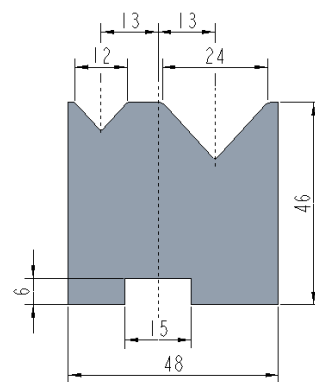
Max Tons:80t/m



20.259

Max Tons:100t/m

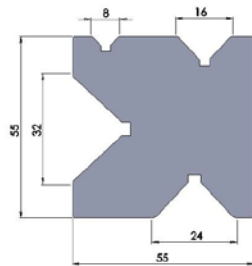
85° 有库存



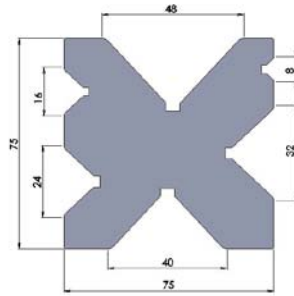
多 V 下模

multi-V lower dies

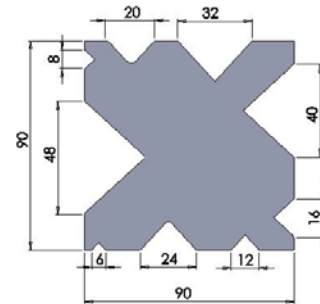
20.500



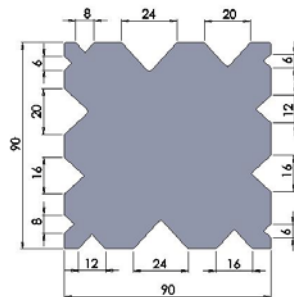
20.501



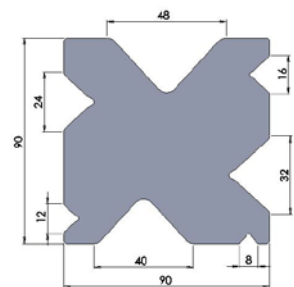
20.502



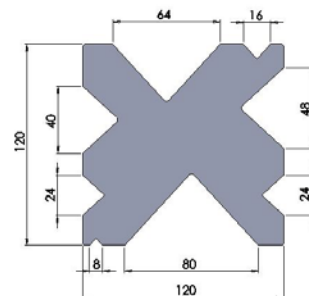
20.503



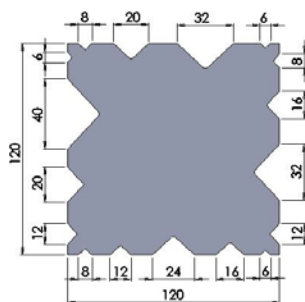
20.506



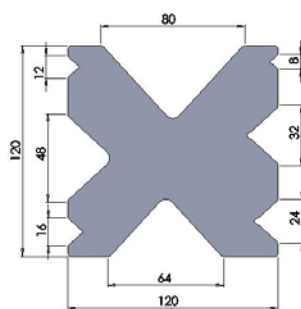
20.507



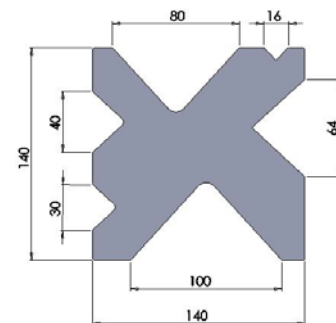
20.508



20.510



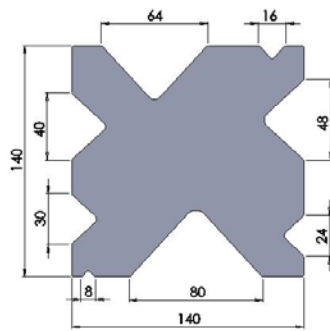
20.511



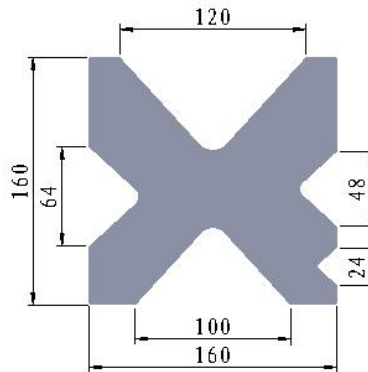
多 V 下模

multi-V lower dies

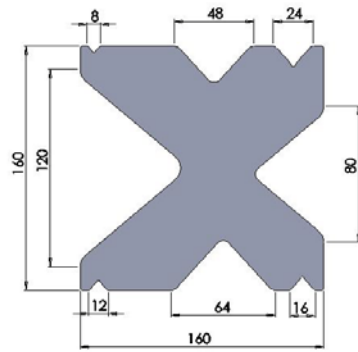
20.512



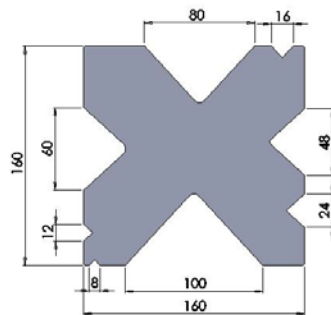
20.513



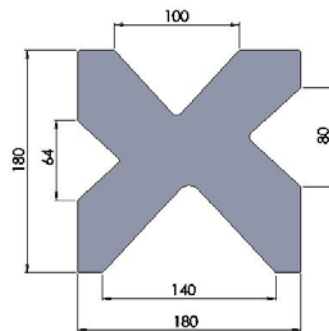
20.514



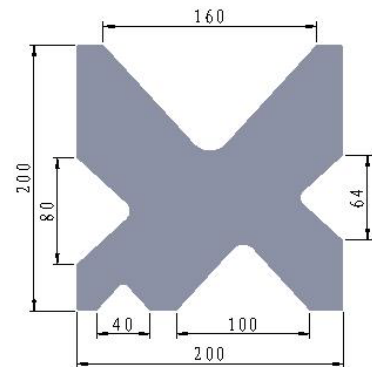
20.515



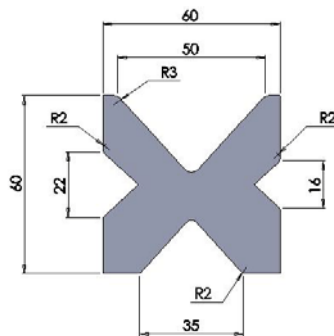
20.516



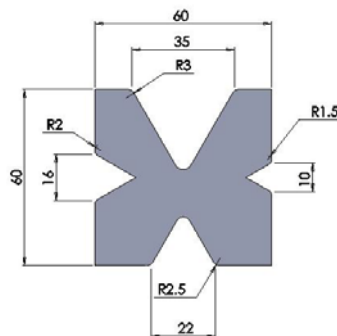
20.517



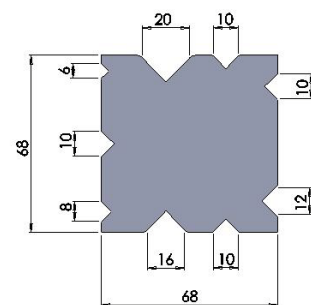
20.530



20.531



20.540

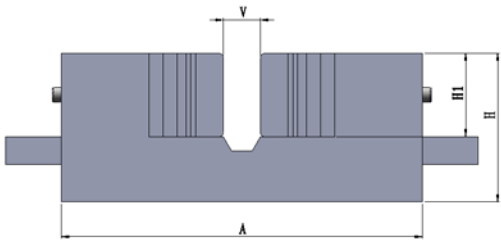


插片式下模

Combined dies

20.560

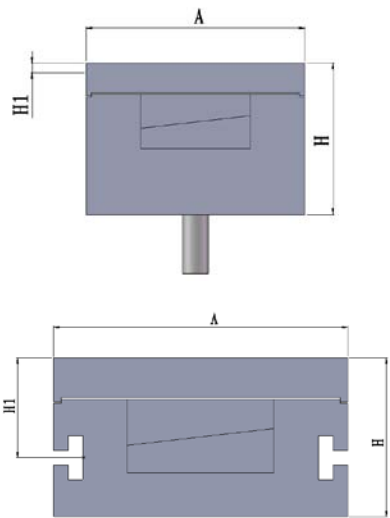
Max Tons:200t/m



序号 Code	Vmax	A	H	H1
1	200	390	160	90
2	240	460	190	110
3	280	540	220	130
4	320	620	250	150
5	360	700	260	160
6	400	800	290	180

机械补偿工作台

Mechanical crowning table

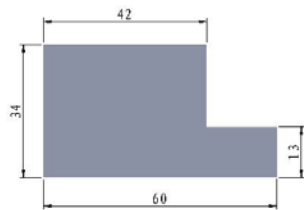


序号 Code	A	H	H1	T 型螺栓 T type bolt	应用范围 Application scope
1	200	110	60	M12	110T~160T
2	240	110	60	M12	220T~300T
3	320	140	60	M16	300T~500T
4	360	150	90	M16	500T~630T
5	400	150	90	M16	800T~1000T
6	500	160	80	M16	1000T~1200T

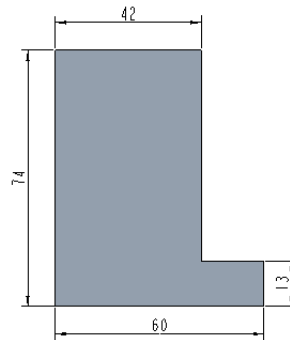
下模附件

Accessories of lower dies

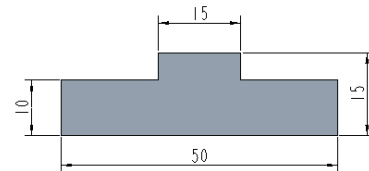
20.600



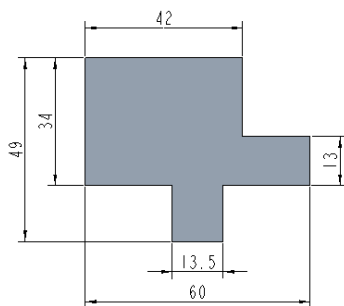
20.602



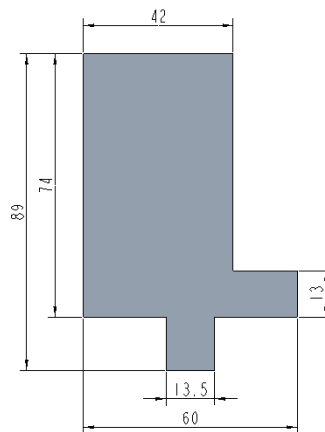
20.603



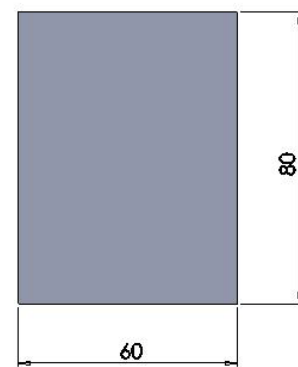
20.600A



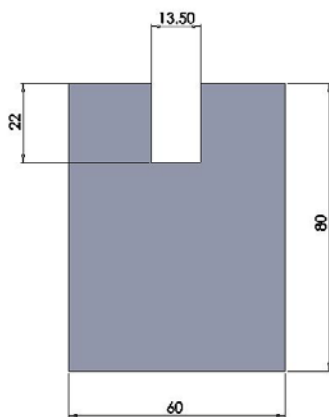
20.602A



20.606



20.609



20.610



20.611





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