



U.S. PATENT 7,581,475 EUROPEAN PATENT 1922191 CHINESE PATENT ZL200680033120.3 ADDITIONAL INTERNATIONAL PATENTS PENDING

ESIGN

THE WORLD'S HIGHEST PERFORMANCE STANDARD MECHANICAL PUNCH STRIPPER

INCH / METRIC CATALOG

4



U.S. PATENT 7,581,475 • EUROPEAN PATENT 1922191 • CHINESE PATENT ZL200680033120.3 Additional international patents pending

- Fits standard Heavy and Light Duty Ball Lock and Shoulder Style Retainers.
- Exclusive preloaded die spring for extended life.
- A variety of springs are available for a wide range of stripping forces. See page 11 for details.
- Custom strippers for contoured panels, multi-hole punches and non-marring applications.

- Eliminates expensive custom stripper plates.
- The industries strongest and most accurate off the shelf mechanical stripper.
- Innovative One-Piece, self-contained construction.
- Special multi-hole retainer designs available upon request.

## **BENEFITS & FEATURES:**

The stripper is precision fit to the housing and slides on both the body and shoulder to provide a **dual guiding condition** guaranteeing stability during the entire stroke.

The stripper unit's housing \_\_\_\_\_\_ is precision bored and roller burnished to a high micro finish providing smooth stripper guidance and support.

> The spring cap is installed using a hex wrench tool and is threaded to a positive stop, which provides a flush mounting surface and preloads the spring for optimal life.

> > The spring cap has a precision slip fit to the punch shank accurately locating the assembly.

The traveling manganese bronze stripper is shock resistant, non-marring and selflubricating.

> The housing is made from durable pre-hardened steel finished with black oxide for corrosion resistance. Critical operating surfaces are precisely machined providing superb squareness and alignment which assures long life even under side load conditions.

The stripper mechanical die spring assures optimal stripping forces and maximum life. There are four spring types available offering the ability to adjust stripping forces to match special applications.

The attachment foot is designed to fully isolate all stripping forces and side load **increasing punch life.** 







Standard Units Adapted to Existing Special Retainer



Special Factory Design for Specific Applications



**ENGINEERING & DESIGN PROVIDED** 



**STANDARD STYLE RETAINER** 

## HEAVY DUTY BALL LOCK



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MTT

#### **SPECIFY AT TIME OF ORDER:**

- If retainer and punch are required, please purchase as additional line items at time of order.
- If panel contour is required on stripper face, please specify at time of order and provide surface data. P.O.R.
- · Denote punch point dimensions at time of order for factory machining.

#### STANDARD UNIT







MTZ

MTU



#### LR LONG REACH / COMPACT UNIT

Note: Only available in 90mm & 100mm lengths





CAD FILES AVAILABLE FOR DOWNLOAD AT WWW.MOELLERPUNCH.COM

COMPLETE Assembly Catalog No.	C	D	E	F	G	н	H-2	К	м	STANDARD MAX TRAVEL FROM K-DIM. [BLUE]	LONG REACH/ Compact Max Travel from K-Dim. [blue]	STANDARD MAX TRAVEL FROM K-DIM [RED]	LONG REACH/ Compact Max Travel From K-Dim. [Red]	
MT_10-80/S						37.74		45.7	45.1	0.0		6.2		
MT_10-90/S	47.4	33.9	27	15	26.9	46.74	27.74	55.7	55.1	0.3	0.0	0.5	6.2	
MT_10-100/S						54.52	37.74	65.7	65.1	11.1	0.0	8.4	0.5	
MT_13-80/S						37.74		45.7	45.1	8.0		6.5		
MT_13-90/S	54.1	37.5	33.3	20	30	46.74	27.74	55.7	55.1	0.0	8.0	0.5	6.5	
MT_13-100/S						54.52	57.74	65.7	65.1	10.9	0.0	8.5	0.0	
MT_16-80/S				27		37.74		45.7	45.1	01		7.4		
MT_16-90/S	58.7	38.7	40		31.8	46.74	37.74	55.7	55.1	5.4	94	1.4	74	
MT_16-100/S						54.52		65.7	65.1	13	5.4	9.5	7.4	
MT_20-80/S						37.74		45.7	45.1	9.1		7.4		
MT_20-90/S	65.4	42.4	46.1	33	33.5	46.74	37 74	55.7	55.1	5.1	0.1	1.4	7.4	
MT_20-100/S						54.52	57.74	65.7	65.1	11.0	5.1	8.9	7.4	
MT_25-80/S						37.74		45.7	45.1	10.1		8.4		
MT_25-90/S	74.9	47.1	55.6	42.5	40.6	46.74	37 74	55.7	55.1	10.1	10.1	0.4	8.4	
MT_25-100/S						54.52	57.74	65.7	65.1	10.6	10.1	8.9	0.4	
MT_32-80/S						37.74		45.7	45.1	0.7		7.6		
MT_32-90/S	78.9	47.1	63.5	50.6	40.6	46.74	27.74	55.7	55.1	5.7	0.7	7.0	7.6	
MT_32-100/S						54.52	57.74	65.7	65.1	11.8	5.7	7.7	7.0	
MT_40-80/S						37.74		45.7	45.1	0 /		7.0		
MT_40-90/S	90.8	54.5	72.5	59.7	44	46.74	37 74	55.7	55.1	0.4	8.4	1.2	7.2	
MT_40-100/S						54.52	57.74	65.7	65.1	10.4	0.4	7.7	1.2	



\* For Light Duty Ball Lock application reference page 8 and page 9



**STANDARD STYLE RETAINER** 

## HEAVY DUTY BALL LOCK





#### **SPECIFY AT TIME OF ORDER:**

- If retainer and punch are required, please purchase as additional line items at time of order.
- If panel contour is required on stripper face, please specify at time of order and provide surface data. P.O.R.
- Denote punch point dimensions at time of order for factory machining.



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COMPLETE Assembly Catalog No.	С	D	E	F	G	Н	H-2	к	М	STANDARD Max travel From K-Dim. [Blue]	LONG REACH/ Compact Max Travel From K-DIM. [Blue]	STANDARD MAX TRAVEL FROM K-DIM. [RED]	LONG REACH/ Compact Max Travel From K-DIM. [Red]	
IT37-325/S						1.47		1.91	1.88	0.22		0.25		
IT37-350/S	1.87	1.34	1.06	0.59	1.06	1.84	1 /7	2.17	2.13	0.33	0.33	0.25	0.25	
IT37-400/S						2.15	1.47	2.66	2.63	0.44	0.00	0.33	0.20	
IT50-325/S	ļ					1.47		1.91	1.88	0.32		0.26		
IT50-350/S	2.13	1.48	1.31	0.79	1.18	1.84	1 47	1 47 2.17	2.13	0.02	0 32	0.20	0.26	
IT50-400/S						2.15	1.47	2.66	2.63	0.43	0.02	0.26	0.20	
IT62-325/S	ļ					1.47		1.91	1.88	0.37	0.37	0.29		
IT62-350/S	2.31	1.52	1.57	1.06	1.25	1.84	1 47	2.17	2.13	0.01		0.23	0.29	
IT62-400/S						2.14	1.47	2.66	2.63	0.51	0.01	0.37	0.20	
IT75-325/S	ļ					1.47		1.91	1.88	0.36		0.29		
IT75-350/S	2.58	1.67	1.81	1.3	1.32	1.84	1 /7	2.17	2.13	0.50	0.36	0.23	0.20	
IT75-400/S						2.15	1.47	2.66	2.63	0.43	0.00	0.35	0.2.3	
IT_87-325/S	ļ					1.49		1.91	1.88	0.40		0.20		
IT_87-350/S	2.68	1.73	1.91	1.38	1.4	1.84	1 17	2.17	2.13	0.40	0.40	0.2.9	0.20	
IT_87-400/S						2.15	1.47	2.66	2.63	0.42	0.40	0.32	0.29	
IT100-325/S	ļ					1.47		1.91	1.88	0.38		0.30		
IT100-350/S	2.95	1.86	2.19	2	1.6	1.84	1 /7	2.17	2.13	0.00	0.38	0.00	0.30	
IT100-400/S						2.15	1.47	2.66	2.63	0.46	0.50	0.30	0.30	
IT125-325/S	]					1.47		1.91	1.88	0.33		0.28		
IT125-350/S	3.11	1.86	2.5	2.35	1.6	1.84	1 /7	2.17	2.13	0.00	0.33	0.20	0.28	
IT125-400/S						2.15	1.47	2.66	2.63	0.41	0.00	0.30	0.20	



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\* For Light Duty Ball Lock application reference page 8 and page 9



## SHOULDER STYLE & LIGHT DUTY BALL LOCK RETAINERS METRIC

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#### SPECIFY AT TIME OF ORDER:

**STANDARD UNIT** 

- If retainer and punch are required, please purchase as additional line items at time of order.
- If panel contour is required on stripper face, please specify at time of order and provide surface data. P.O.R.
- · Denote punch point dimensions at time of order for factory machining.



## LONG REACH / COMPACT UNIT

Note: Only available in 80mm & 90mm lengths



COMPLETE Assembly Catalog No.	C	D	E	F	G	н	H-2	К	М	STANDARD MAX TRAVEL FROM K-DIM. [BLUE]	LONG REACH/ Compact Max Travel From K-Dim. (Blue)	STANDARD MAX TRAVEL FROM K-DIM. [RED]	LONG RE COMPACT TRAVEL F K-DIM. [I
MT_10-71/S						37.74		46.6	46	<u> </u>		6.2	
MT_10-80/S	47.4	33.9	27	15	26.9	46.74	37 74	55.6	55	0.5	83	0.5	63
MT_10-90/S						54.52	57.74	65.6	65	11.1	0.5	8.4	0.5
MT_13-71/S						37.74		46.6	46	8.0		65	
MT_13-80/S	54.1	37.5	32.3	20	30	46.74	37 74	55.6	55	0.0	8.0	0.0	6.5
MT_13-90/S						54.52	07.74	65.6	65	10.9	0.0	8.5	0.0
MT_16-71/S					31.8 37.74 31.8 46.74 54.52	37.74		46.6	46	9.4		74	
MT_16-80/S	58.7	38.7	40	27		46.74	37 74	55.6	55		94	1.4	74
MT_16-90/S						07.71	65.6	65	13	0.1	9.5		
MT_20-71/S						37.74	4 37 74 5	46.6	46	9.1		7.4	
MT_20-80/S	65.4	42.4	46.1	33	33.5	46.74		55.6	55		9.1		7.4
MT_20-90/S		ļ				54.52	0.11.1	65.6	65	11.0		8.9	
MT_25-71/S						37.74		46.6	46	10.1		84	
MT_25-80/S	74.9	47.1	55.6	42.5	40.6	46.74	37.74	55.6	55		10.1		8.4
MT_25-90/S	ļ					54.52	0.11.1	65.6	65	10.6		8.9	
MT_32-71/S						37.74		46.6	46	9.7		7.6	
MT_32-80/S	78.9	47.1	63.5	50.6	40.6	46.74	37.74	55.6	55	0.1	9.7		7.6
MT_32-90/S						54.52		65.6	65	11.8	0.1	7.7	7.0



#### SPECIFY AT TIME OF ORDER:

- If retainer and punch are required, please purchase as additional line items at time of order.
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- Denote punch point dimensions at time of order for factory machining.





LR LONG REACH / COMPACT UNIT

Note: Only available in 3.50" & 4.00"







CAD FILES AVAILABLE FOR DOWNLOAD AT WWW.MOELLERPUNCH.COM

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COMPLETE Assembly Catalog No.	С	D	E	F	G	н	H-2	к	м	STANDARD Max travel From K-Dim. [Blue]	LONG REACH/ COMPACT MAX TRAVEL FROM K-DIM. [BLUE]	STANDARD Max travel From K-Dim. [red]	LONG REACH/ Compact Max Travel From K-DIM. [RED]	
IT_37-300/S						1.47		2.03	2	0.33		0.25		
IT_37-325/S	1.87	1.34	1.06	0.59	1.06	1.84	1 /7	2.27	2.25	0.33	0.33	0.23	0.25	
IT_37-350/S						2.15	1.47	2.52	2.5	0.44	0.00	0.33	0.20	
IT_50-300/S	]					1.47		2.03	2	0.32		0.26		
IT_50-325/S	2.13	1.48	1.31	0.79	1.18	1.84	1 /7	2.27	2.25	0.02	0.32	0.20	0.26	
IT_50-350/S						2.15	1.47	2.52	2.5	0.43	0.02	0.26	0.20	
IT_62-300/S	ļ					1.47		2.03	2	0.37		0.20		
IT_62-325/S	2.31	1.52	1.57	1.06	1.25	1.84	1 /7	2.27	2.25	0.51	0.37	0.20	0.20	
IT_62-350/S						2.14	1.47	2.52	2.5		0.07	0.37	0.23	
IT_75-300/S	ļ					1.47		2.03	2	0.36		0.20		
IT_75-325/S	2.58	1.67	1.81	1.3	1.32	1.84	1 /7	2.27	2.25	0.00	0.36	0.23	0.20	
IT_75-350/S						2.15	1.47	2.52	2.5	0.43	0.30	0.35	0.25	
IT_87-300/S	ļ					1.47		2.03	2	0.40		0.20		
IT_87-325/S	2.68	1.73	1.91	1.38	1.4	1.84	1 /7	2.27	2.25	0.40	0.40	0.23	0.20	
IT_87-350/S						2.15	1.47	2.52	2.5	0.42	0.40	0.32	0.29	
IT_100-300/S						1.47		2.03	2	0.38		0.30		
IT_100-325/S	2.95	1.86	2.19	2	1.6	1.84	1 17	2.27	2.25	0.30	0.20	0.30	0.20	
IT_100-350/S						2.15	1.47	2.52	2.5	0.46	0.30	0.30	0.30	
IT_125-300/S						1.47		2.03	2	0.33		0.28		
IT_125-325/S	3.11	1.86	2.5	2.35	1.6	1.84	1 47	2.27	2.25	0.33	0.22	0.20	0.29	
IT_125-350/S						2.15	1.47	2.52	2.5	0.41	0.33	0.30	0.20	

# **TECHNICAL FEATURES & APPLICATION NOTES**

## **Ordering:**

- Unless optional spring is specified at time of order, all stripper units are shipped with blue-medium load springs.
- Standard style True-Strip units are adaptable to all industry standard ball lock and shoulder style retainers. The round economy style True-Strip units only adapt to the exclusive Moeller Round Economy Ball Lock Retainers.
- Please specify punch point dimensions when ordering True-Strip units. When machining True-Strip units in-house the factory recommended clearance between the stripper and the punch is .3mm per side for metric units and .012" for inch units.

## **Design/Application:**

- Maximum punch entry is calculated by subtracting the difference of M and K dimensions from the published maximum travel.
- Standard design offers up to a 15° maximum pierce angle. Consult factory for special applications.
- Long Reach/Compact True-Strip units offer more clearance between the top of the bronze and the top of the housing, allowing the unit to function in close spaces.
- · For custom multi-hole True-Strip unit applications consult factory.

Reference Page 2 for examples.

• The Moeller True-Strip unit may be utilized as a punch guide for piercing when material thickness is large relative to the size of the punch point, or when piercing small holes at an angle applying side load and resulting in punch breakage.

## Installation:

- The spring cap must be tightened to its positive stop to provide a flush mounting surface. If the cap is not fully engaged the True-Strip unit will not function properly.
- Standard hex wrench tools can be utilized for installation or removal of spring caps. Please reference hex tool sizes in the charts of this brochure. Moeller offers a unique universal hex tool that can be used for all sizes for removal of spring cap. Reference page 11.
- The spring may shift during installation of the spring cap creating interference during punch installation. The spring may be realigned by slightly tapping the stripper unit onto the punch.
- The designed overall length of each True-Strip unit is critical to prevent over stroking. All in-house alterations may result in failure if the proper amount of material is not removed from the face of the stripper.

Note: Moeller reserves the right to modify, correct or improve this literature without notice.

## **OPTIONAL STRIPPING FORCE SPRING SELECTION CHART**

				UNLESS SPECIFI	ED STANDA	RD SPRING						
STRIPPER UNIT	SUPER-LIGHT	STRIPPIN	G FORCE	LIGHT LOAD Spring	STRIPPII	NG FORCE	MEDIUM Load Spring	STRIPPIN	IG FORCE	HEAVY LOAD	STRIPPII	NG FORCE
INCH/METRIC	CATALOG NUMBER	RATE Per Mm	MAX Def.	CATALOG NUMBER	RATE Per Mm	MAX DEF.	CATALOG NUMBER	RATE PER MM	MAX DEF.	CATALOG NUMBER	RATE PER MM	MAX DEF.
IT37-325/S		5LBS	26LBS		13LBS	95LBS		22LBS	210LBS		49LBS	370LBS
IT	RTS75-100	22N	166N	RLL75-100	56N	424N	RML75-100	98N	938N	RHL75-100	216N	1650N
IT37-400/S	RTS75-125	4LBS 18N	40LBS	RLL75-125	10LBS 45N	101LBS 449N	RML75-125	16LBS 73N	203LBS 926N	RHL75-125	38LBS 168N	380LBS
IT_50-325/S_		9LBS	70LBS		23LBS	175LBS		33LBS	306LBS	-	84LBS	653LBS
MT13-80/S IT50-350/S MT13-90/S	RTS100-100	40N	310N	RLL100-100	100N	777N	RML100-100	147N	1363N	RHL100-100	375N	2903N
IT50-400/S	RTS100-125	7LBS 32N	72LBS 323N	RLL100-125	41LBS 80N	181LBS 807N	RML100-125	27LBS 118N	337LBS 1474N	RHL100-125	67LBS 297N	676LBS 3007N
IT62-325/S MT16-80/S		10LBS	95LBS		26LBS	237LBS		43LBS	459LBS		86LBS	746LBS
IT62-350/S MT16-90/S	RIS125-100	46N	422N	RIL125-100	115N	1054N	RTM125-100	192N	2049N	RTH125-100	383N	3317N
IT62-400/S MT16-100/S	RTS125-150	8LBS 37N	34LBS 151N	RLL125-150	21LBS 94N	241LBS 1072N	RML125-150	42LBS 185N	626LBS 2757N	RHL125-150	87LBS 388N	992LBS 4412N
IT75-325/S MT20-80/S	BTS175-100	13LBS	112LBS	RTL175-100	32LBS	277LBS	RTM175-100	54LBS	560LBS	BTH175-100	108LBS	936LBS
75-350/S MT20-90/S		58N	497N		144N	1234N		240N	2491N		480N	4165N
IT75-400/S MT20-100/S	RTS175-125	13LBS 58N	126LBS 562N	RTL175-125	32LBS 144N	313LBS 1395N	RTM175-125	56LBS 240N	705LBS 3136N	RTH175-125	108LBS 480N	1133LBS 5039N
IT87-325/S		14LBS	125LBS		36LBS	310LBS		60LBS	688LBS		119LBS	1032LBS
IT87-350/S N/A	RTS200-100	64N	555N	RTL200-100	159N	1378N	RTM200-100	265N	3061N	RTH200-100	530N	4589N
IT87-400/S N/A	RTS200-125	14LBS 64N	139LBS 620N	RTL200-125	36LBS 159N	346LBS 1540N	RTM200-125	60LBS 265N	737LBS 3280N	RTH200-125	119LBS 530N	1153LBS 5129N
IT100-325/S MT25-80/S	RTS215-100	15LBS	149LBS	RTI 215-100	38LBS	375LBS	RTM215-100	64LBS	728LBS	RTH215-100	128LBS	1238LBS
IT100-350/S MT25-90/S	1110210 100	68N	664N		171N	1670N	11111213 100	285N	3237N		570N	5506N
100-400/S MT25-100/S	RTS215-125	21LBS 92N	225LBS 1002N	RTL215-125	41LBS 180N	440LBS 1960N	RTM215-125	64LBS 285N	780LBS 3470N	RTH215-125	135LBS 600N	1404LBS 6245N
IT125-325/S MT32-80/S	DT0005 400	21LBS	185LBS		52LBS	464LBS	DTM005 400	86LBS	943LBS		172LBS	1526LBS
IT125-350/S MT32-90/S	RTS225-100	92N	825N	RTL225-100	230N	2063N	RTM225-100	383N	4167N	RTH225-100	767N	6788N
IT125-400/S MT32-100/S	RTS225-125	21LBS 92N	192LBS 854N	RTL225-125	52LBS 230N	480LBS 2136N	RTM225-125	86LBS 383N	1152LBS 5122N	RTH225-125	172LBS 767N	1598LBS 7108N
N/A MT_40-80/S		26LBS	229LBS		65LBS	574LBS		108LBS	1044LBS		216LBS	1830LBS
N/A MT_40-90/S_	RTS275-100	115N	1020N	RTL275-100	288N	2554N	RTM275-100	480N	4646N	RTH275-100	960N	8138N
N/A MT40-100/S	RTS275-125	26LBS 115N	237LBS 1057N	RTL275-125	65LBS 288N	595LBS 2646N	RTM275-125	108LBS 480N	1295LBS 5760N	RTH275-125	216LBS 960N	2007LBS 8926N
	Ligh	nt Green			Green			Blue			Red	

NEWTONS/LBS CONVERSION: 1 NEWTON = .2248089 LBS.

Alternate Spring Load Order Example: MTT013-090/SB Red

#### MAINTENANCE HEX TOOL (FOR SPRING REPLACEMENT) CATALOG NO. METRIC: MTA01 INCH: ITA01

