

Over 60 years of Quality and Service

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# Royal

## PINS

## PUNCHES

## PERFORATORS

and  
Specialized  
components  
for Dies  
and Molds



PRECISION



QUALITY



PERFORMANCE



**Precision Crafted Pins, Punches, Perforators, and Specialized Components for Dies and Molds**

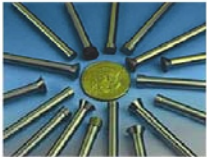
**ESTABLISHED "1946"**



Our modern plant in Warren, Rhode Island, and our large investment in highly specialized equipment ensures that all our customers receive the highest quality Punches, Pins and Perforators available in the world today.

## THE ROYAL FAMILY of PUNCHES and PINS

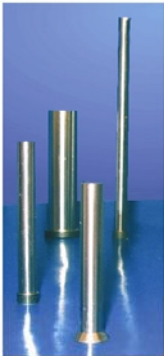
Royal Diversified Products, Inc.,



was founded in 1946 and was one of the pioneers of the economical 60 degree "bevel headed" punch.

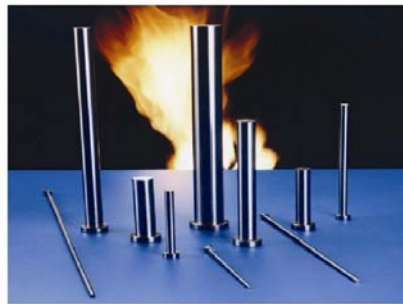
Royal offers a wide variety of Pins, Punches, and Perforators for use in the tool, die, automation, stamping, molding and related industries.

## MATERIALS & COATINGS



Royal uses only the highest quality steels for our pins and punches. A variety of coatings are available including: Ion nitriding, Titanium Nitriding, Chrome, Black Oxide and Diconite Dry-lube. All of these and other coatings are offered per quotation.

## EXPERT HEAT TREATMENT



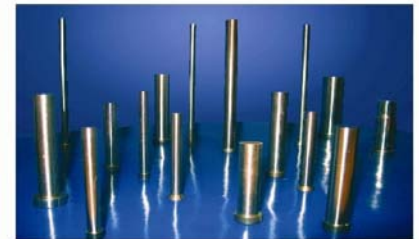
Along with traditional methods, ROYAL's in-house heat treatment department utilizes computer regulated vacuum furnaces pre-programmed with a proprietary heat treating process. This results

in M-2 High Speed Steel with superior tensile strength, hand in hand with extrordinarily high hardness. This strength and flexibility is found only in Royal Pins.



## ROYAL SERVICE

Royal ships more punches and perforators the same day, from stock, than anyone else. In most cases customer orders received before 3pm E.S.T. are shipped the same day.



## PREMIUM SERVICES In a Hurry?

When you order non standard or special pins, we make every effort to get them to you as soon as we can. However, ROYAL recognizes that sometimes you



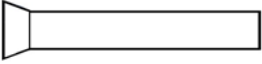

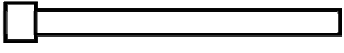
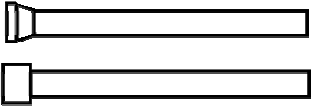
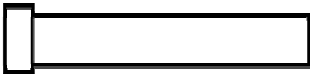
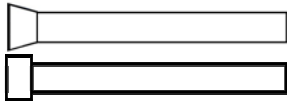
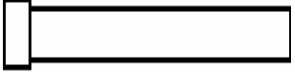
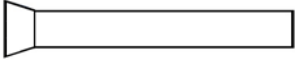
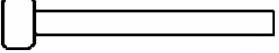



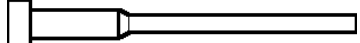
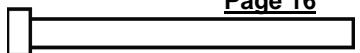


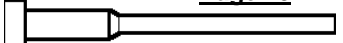

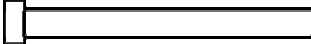


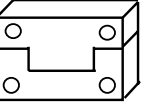
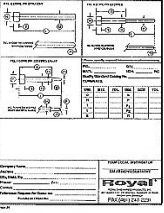
need to receive delivery earlier than our estimated shipment date. When this is the case, please call us. Usually we can offer other options to speed up delivery.

## ROYAL DIVERSIFIED PRODUCTS

287 MARKET STREET WARREN, RI 02885 • PHONE: 401-245-6900 - TOLL FREE 800-556-7916 - FAX 401-247-2231

[www.royalpins.com](http://www.royalpins.com)

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# CUSTOM MODIFICATIONS



The modifications shown below are only those most frequently requested and do not represent the limit of our capabilities with regards to size ranges and tolerances. Also please refer to the worksheet templates provided on pages 25-28.

Modification	Type	Description	Tolerances	How To Order: Examples
	<b>ML</b>	<b>REDUCED OVERALL LENGTH</b> Stock removal from front-end. Minimum length .500". Lengths under .500" per special quote only.	+ .015" - .000"	SQD .230 ML=1.063 HSS B-1 .030 ML=1.750 RQA .056 ML=1.500
	<b>CL</b>	<b>PRECISION OVERALL LENGTH</b> Same as above except closer tolerance held.	+/- .001"	RQB .175 CL=2.157 RCX-9 CL=5.312 PT-5-1/2 CL=4.093
	<b>MT</b>	<b>REDUCED HEAD THICKNESS</b> Shorter head than standard. Stock removal from back of head Shortens overall length	+ .010" - .000"	SQD .157 X2-1/2 TS, MT=.094 RC-17 L-3, MT=.156
	<b>CT</b>	<b>PRECISION HEAD THICKNESS</b> Same as above except closer tolerance held.	+/- .001"	SQD .204 X 2 HSS, CT=.118 RQB .090 X 2-1/2, CT=.090 RQA .130 X 6, CT=.083
	<b>MH</b>	<b>REDUCED HEAD DIAMETER</b> Head diameter smaller than standard. Minimum head diameter equals "D". Grinding head diameter on RQA does not change head thickness.	+/- .001"	RQB .240 X 4, MH=.280 SQD .370 X 2-1/2 HSS, MH=.437 PT-11 L-6, MH=.250
	<b>PS</b>	<b>PUNCH STEP</b> "B" = .750" Max. Specify "B" or "SBR" and "P" including tolerance	B +.06" -.00" SBR +.06" -.00" P - Specify	RQB-PS .125 X 2-1/2, P=.093 +.0003/-0, B=.500 CPB-PS-12 X 2-1/2, P=.109+.0005/-0, B=.625 PPB-PS 37 X 3, P=.290 +.0002/-0, SBR=.437 AB-20-PS .312 X 3-1/2, P=.255 +.0003/-0, B=.500
	<b>CS</b>	<b>CORE PIN STEP - STRAIGHT</b> "B" = .750" Max. Should be ordered in conjunction with "CL" modification and "CT" if required. Specify "B", "P", "CL" and "CT" if required.	B +/- .001" CL +/- .001" CT +/- .001" P - Specify	RQB-CS .067, CL=.940, B=.210, P=.050 RCX-13-CS, CL=2.590, B=.700, P=.157 PT-10-CS, CL=3.750, B=.730, P=.133
	<b>CSD</b>	<b>CORE PIN STEP - DRAFT</b> B=.750" max. Includes custom modifications "CL" and "CT" if required. Specify "B", "P1", "P2", "CL" and "CT" if required.	B +/- .001" CL +/- .001" CT +/- .001" P1 +.001"/-0 P2 +.001"/-0	RCX-19 -CSD, CL=2.187, B=.431, P1=.255, P2=.263 RQB-CSD .236, CL=.870, B=.575, P1=.197, P2=.207, CT = .125
	<b>PN</b>	<b>PILOT NOSE</b> Pilot nose is included in the overall length.	Standard	SQF-PN .250 X 2-1/2 HSS B-15-PN .238 X 3 RQA-PN .136 X 2-1/2
	<b>SR</b>	<b>SPHERICAL RADIUS</b> Radius is half the diameter. Also specify "ML" or "CL" AND "CT" If required.	Standard	RQB-SR .060 X 2-1/2 AB-7-SR .125 X 2 RCX-11-SR L-3
<b>Coatings</b>	<b>TIN</b>	<b>TITANIUM NITRIDE COATING</b> PVD wear resistant thin film coating. TiN is an excellent coating for wear part applications demanding resistance to abrasive and adhesive wear. Typical coating thickness is .00005" to 00010" per side.	Diameter tolerances are before coating only. We cannot guarantee tolerance after coating.	RQB .075 X 4 TIN
	<b>D I C R O N I T E</b>	<b>PERMANENT DRY-LUBE TREATMENT</b> A Tungsten Disulfide coating that provides a thin barrier between opposing metal surfaces and prevents metal to metal contact to improve lubricity. Applied at room temperature and unaffected by the heat of the molding process, it will extend the life of the pins while providing fail safe protection by eliminating galling and seizing. Dicronite does not migrate to the molded surface. Typical coating thickness is .000020" per side.	Diameter tolerances are before coating only. We cannot guarantee tolerance after coating.	RX-25 L-10 DICRONITE PT-5-2 L - 6 DICRONITE

# RQA TYPE



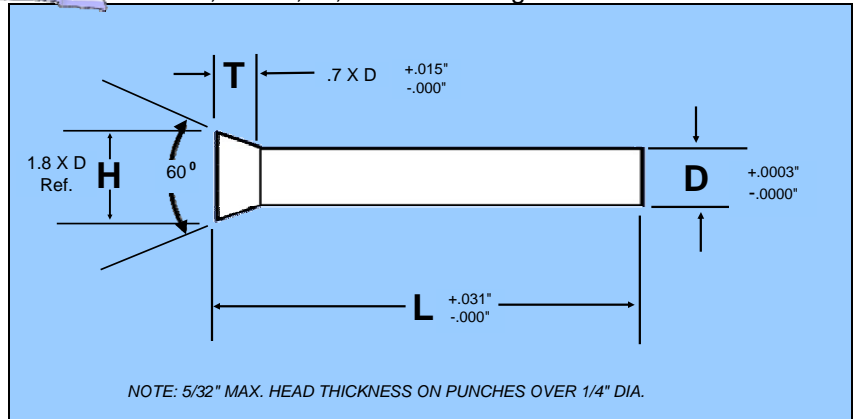
## PERFORATORS/CORE PIN BLANKS



M-2 HIGH SPEED STEEL, 60-63 RC  
PRECISION FORM-GROUND  
DIAMETERS IN .001" OR .0001" INCREMENTS

The following fractional diameters are included in the .001" increment price tables below: 1/32, 3/64, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 9/32, 5/16, & 3/8.

2", 2-1/2", 3", 4" and 6" Lengths



HOW TO ORDER: EXAMPLES				
Qty.	Type	Dia.	X	Length
25	RQA	.1875	X	4
50	RQA	.197	X	2-1/2

D DIAMETER .001" INCREMENTS	NET PRICE EACH PER QUANTITY (US \$)				
	L - LENGTH				
	2"				
	50-99	25-49	10-24	5-9	1-4
.010 - .014	3.38	3.55	3.70	4.62	5.54
.015 - .019	2.83	2.96	3.08	3.85	4.62
.020 - .029	2.26	2.37	2.47	3.10	3.71

D DIAMETER .001" INCREMENTS	NET PRICE EACH PER QUANTITY (US \$)																				ML MODIFY LENGTH ADD TO BASE PRICE
	L - LENGTH																				
	2-1/2"					3"					4"					6"					
	50-99	25-49	10-24	5-9	1-4	50-99	25-49	10-24	5-9	1-4	50-99	25-49	10-24	5-9	1-4	50-99	25-49	10-24	5-9	1-4	
.030 - .055	1.80	1.88	1.98	2.47	2.97	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	\$0.20 EACH OR \$15.00 MIN.
.056 - .087	1.94	2.02	2.11	2.63	3.16	2.48	2.60	2.70	4.72	8.77	4.18	4.38	4.57	6.60	10.64	7.58	7.92	8.27	10.29	14.33	
.088 - .131	2.16	2.25	2.36	2.95	3.53	2.71	2.84	2.97	4.99	9.03	3.86	4.03	4.20	6.23	10.27	7.25	7.58	7.90	9.92	13.96	\$0.26 EACH OR \$18.00 MIN.
.132 - .179	2.26	2.37	2.47	3.10	3.71	2.83	2.96	3.08	5.11	9.15	3.96	4.13	4.33	6.35	10.40	7.36	7.69	8.03	10.05	14.09	
.180 - .225	2.61	2.73	2.84	3.55	4.26	3.18	3.31	3.45	5.47	9.52	4.31	4.50	4.68	6.70	10.74	7.69	8.04	8.40	10.42	14.46	\$0.32 EACH OR \$23.00 MIN.
.226 - .250	2.95	3.08	3.21	4.02	4.82	3.50	3.66	3.82	5.84	9.89	4.63	4.85	5.06	7.08	11.12	8.03	8.40	8.75	10.78	14.82	
.251 - .336	3.30	3.44	3.59	4.49	5.38	3.86	4.03	4.20	6.23	10.27	4.99	5.19	5.42	7.44	11.48	8.39	8.75	9.15	11.17	15.21	\$0.32 EACH OR \$23.00 MIN.
.337 - .375	3.58	3.73	3.89	4.86	5.84	4.13	4.32	4.52	6.54	10.58	5.27	5.50	5.74	7.76	11.80	8.66	9.06	9.45	11.47	15.51	

STANDARD

NON-STANDARD

DIAMETERS IN .0001" INCREMENTS MADE TO ORDER	SETUP CHARGE - ADD TO STANDARD PRICE			
	2-1/2"	3"	4"	6"
	\$20.00		\$40.00	

QUANTITY DISCOUNTS
Based on one size, one shipment and one destination
100 Pcs.....50 Pc. Price Less 7%
Over 300 Pieces..... Call For Pricing

CUSTOM MODIFICATIONS PRICE AND DELIVERY PER QUOTATION	The following are some of the modifications which can be made to this product. Please refer to page 1 for more information on ordering this product with these modifications or use the worksheet templates provided on pages 225-28.										
	ML*	CL	MT	CT	MH	PS	CS	CSD	PN	SR	COATINGS
											TiN Dicronite

\*ML MODIFICATION IS PRICED IN THE TABLE ABOVE

Q = Price Per Quotation



## PERFORATORS/CORE PIN BLANKS

M-2 HIGH SPEED STEEL, 60-63 RC

PRECISION FORM-GROUND .001" OR .0001" INCREMENTS

D DIAMETER .001" INCREMENTS	H HEAD DIA.	T HEAD THICK.	NET PRICE EACH PER QUANTITY (US \$)				
			2"				
			50-99	25-49	12-24	5-11	1-4
.010 - .014	1/32	1/16	3.45	3.60	3.77	4.71	5.65
.015 - .019	1/32	1/16	2.88	3.01	3.14	3.93	4.71
.020 - .029	3/64	1/16	2.31	2.41	2.52	3.15	3.78

Including the popular fraction sizes:

1/32, 3/64, 1/16, 5/64, 3/32,  
7/64, 1/8, 9/64, 5/32, 3/16,  
7/32, 1/4, 9/32, 5/16, & 3/8.

D DIAMETER .001" INCREMENTS	H HEAD DIA.	T HEAD THICK	NET PRICE EACH PER QUANTITY (US \$)									
			L - LENGTH									
			2-1/2"					3"				
			50-99	25-49	12-24	5-11	1-4	50-99	25-49	12-24	5-11	1-4
.030-.036	1/16	1/16						Q	Q	Q	Q	Q
.037-.046	5/64	1/16	1.84	1.92	2.01	2.52	3.03	Q	Q	Q	Q	Q
.0469-.055	3/32	3/32										
.056-.064	7/64	3/32										
.065-.0781	1/8	3/32	1.98	2.07	2.15	2.69	3.22	2.28	2.37	2.48	3.11	3.73
.079-.087	9/64	3/32										
.088-.099	5/32	3/32										
.100-.120	11/64	3/32	2.18	2.30	2.40	2.99	3.59	2.53	2.64	2.76	3.44	4.13
.121-.131	3/16	1/8										
.132-.147	13/64	1/8										
.148-.163	7/32	1/8	2.31	2.41	2.52	3.15	3.78	2.66	2.78	2.89	3.62	4.34
.164-.179	15/64	1/8										
.180-.194	1/4	1/8										
.195-.210	17/64	1/8	2.66	2.78	2.89	3.62	4.34	3.05	3.19	3.34	4.17	5.00
.211-.225	9/32	1/8										
.226-.241	19/64	1/8										
.242-.256	5/16	3/16	3.06	3.20	3.34	4.17	5.00	3.52	3.67	3.84	4.80	5.76
.257-.272	21/64	3/16										
.273-.288	11/32	3/16										
.289-.304	23/64	3/16										
.305-.320	3/8	3/16	3.43	3.58	3.73	4.66	5.59	3.93	4.12	4.28	6.38	10.58
.321-.336	25/64	3/16										
.337-.352	13/32	3/16										
.353-.368	27/64	3/16	3.72	3.88	4.04	5.05	6.06	4.26	4.46	4.66	6.77	10.96
.369-.380	7/16	3/16										
.381-.396	29/64	3/16										
.397-.411	15/32	3/16	4.34	4.53	4.73	5.92	7.09	4.98	5.22	5.43	7.56	11.78
.412-.427	31/64	3/16										
.428-.443	1/2	3/16										
.444-.458	33/64	3/16	4.92	5.13	5.37	6.70	8.04	5.65	5.92	6.17	8.29	12.52
.459-.474	17/32	3/16										
.475-.489	35/64	3/16	5.51	5.76	6.01	7.52	9.02	6.33	6.62	6.90	9.02	13.26
.490-.505	9/16	3/16										

Q= Price Per Quotation

STANDARD

NON-STANDARD

DIAMETERS IN .0001" INCREMENTS MADE TO ORDER ADD THE FOLLOWING SET UP CHARGE TO BASE PRICE	2-1/2"	3"
	\$25.00	
OPTIONAL T = 3/16" MADE TO ORDER ADD THE FOLLOWING SET UP CHARGE TO BASE PRICE	\$10.00	

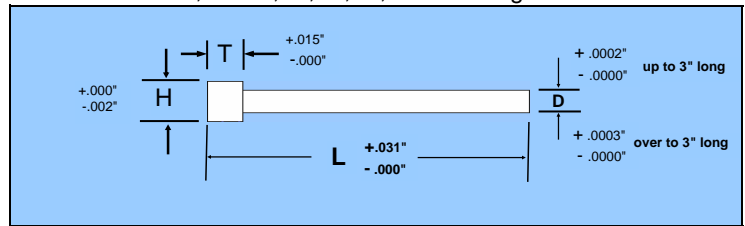
### QUANTITY DISCOUNTS

Based on one size, one shipment and one destination  
100 pieces .....50 pc. price - 7% Over 300 pieces Call for pricing



2", 2-1/2", 3", 4", 6", and 8" Lengths

HOW TO ORDER: EXAMPLE				
Qty.	Type	Dia.	X	Length
50	RQB	.128	X	2-1/2



NET PRICE EACH PER QUANTITY (US \$)															ML Modify Length Add To Base Price
L - LENGTH															
4"					6"					8"					
50-99	25-49	12-24	5-11	1-4	50-99	25-49	12-24	5-11	1-4	50-99	25-49	12-24	5-11	1-4	
Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
4.26	4.46	4.65	6.72	10.83	7.87	8.23	8.58	10.68	14.88	Q	Q	Q	Q	Q	\$0.20 EACH OR \$15.00 MIN.
3.93	4.10	4.29	6.35	10.46	7.52	7.87	8.20	10.30	14.50	11.14	11.65	12.17	17.46	28.05	
4.12	4.30	4.50	6.59	10.79	7.64	7.98	8.33	10.44	14.63	11.26	11.77	12.28	17.57	28.17	\$0.26 EACH OR \$18.00 MIN.
4.48	4.67	4.86	6.96	11.16	7.98	8.34	8.71	10.82	15.01	11.62	12.15	12.66	17.96	28.55	
4.86	5.08	5.30	7.43	11.65	8.41	8.79	9.18	11.30	15.54	11.88	12.41	12.95	18.20	28.68	
5.23	5.44	5.68	7.81	12.03	8.78	9.18	9.59	11.70	15.94	12.22	12.77	13.32	18.57	29.07	\$0.32 EACH OR \$23.00 MIN.
5.51	5.76	6.01	8.13	12.37	9.08	9.49	9.91	12.02	16.26	12.51	13.08	13.65	18.90	29.39	
6.70	7.00	7.29	9.42	13.65	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	PRICE PER QUOTE
7.89	8.24	8.59	10.72	14.95	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
8.48	8.86	9.24	11.36	15.60	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	

Q= Price Per Quotation

NON-STANDARD

4"	6"	8"
\$40.00		PER QUOTATION
	\$10.00	

CUSTOM MODIFICATIONS PRICE AND DELIVERY PER QUOTATION	The following are some of the modifications which can be made to this product. Please refer to page 1 for more information on ordering this product with these modifications or use the worksheet templates provided on pages 25-28.									
	ML*	CL	MT	CT	MH	PS	CS	CSD	PN	SR
										TIN Dicronite

\* ML Modification is priced in price table above



## QUILL PUNCHES/ CORE PIN BLANKS

MATERIAL: TOOL STEEL (TS)

OHTS, 58-60 RC, HEADS DRAWN OVER 1/16 DIA.

HIGH SPEED STEEL (HSS)

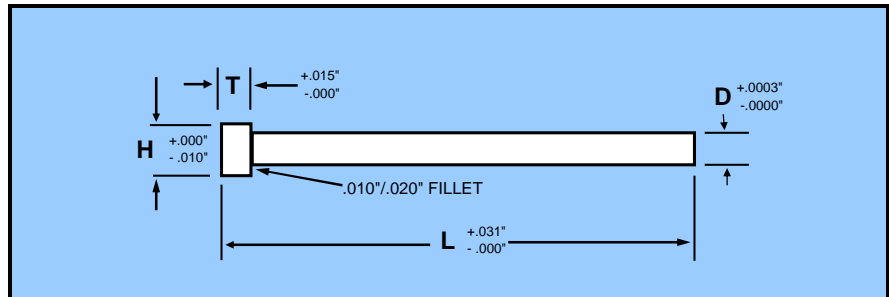
M-2, 60-63 RC

2" And 2-1/2" Lengths

PRECISION FORM - GROUND

SQF TYPE: FRACTIONAL DIAMETERS

SQD TYPE: DECIMAL DIAMETERS .030" THROUGH .374" IN .001" INCREMENTS. DIAMETERS IN .0001" INCREMENTS CAN BE MADE TO ORDER. ADD \$25.00 SET-UP CHARGE.



HOW TO ORDER: EXAMPLES					
Qty.	Type	Dia.	X	Length	Steel
50	SQF	.0937	X	2	TS
100	SQD	.136	X	2-1/2	HSS

## SQF TYPE: FRACTIONAL BLANKS

D BODY DIA. FRACTIONAL	H HEAD DIA.	T HEAD THICK	L OVERALL LENGTH	NET PRICE EACH PER QUANTITY (US\$)										ML MODIFY LENGTH ADD TO BASE PRICE	
				TOOL STEEL					HIGH SPEED STEEL						
				100	50-99	25-49	10-24	1-9	100	50-99	25-49	10-24	1-9		
.0625"	*3/32	1/8	2" 2-1/2"												\$0.20 EACH OR \$15.00 MIN
.0937"	5/32	1/8	2" 2-1/2"	1.66	1.85	1.97	2.29	2.92	2.16	2.38	2.52	2.89	3.60		
.1250"	3/16	1/8	2" 2-1/2"												
.1562"	7/32	1/8	2" 2-1/2"	1.79	1.97	2.11	2.42	3.06	2.31	2.52	2.67	3.04	3.75	\$0.26 EACH OR \$18.00 MIN	
.1875"	1/4	1/8	2" 2-1/2"												
.2187"	9/32	1/8	2" 2-1/2"	1.97	2.17	2.29	2.61	3.24	2.52	2.74	2.89	3.23	3.96		
.2500"	5/16	1/8	2" 2-1/2"											\$0.32 EACH OR \$23.00 MIN	
.3125"	7/16	3/16	2" 2-1/2"	2.42	2.61	2.73	3.06	3.70	3.38	3.60	3.75	4.11	4.83		
.3750"	1/2	3/16	2" 2-1/2"	2.55	2.73	2.87	3.19	3.82	3.60	3.82	3.96	4.32	5.05		

\* Optional Head Diameter of 1/8 can be made to order. Price upon quotation

## SQD TYPE: DECIMAL DIAMETERS IN .001" INCREMENTS

D BODY DIA. DECIMAL	H HEAD DIA.	T HEAD THICK	L OVERALL LENGTH	NET PRICE EACH PER QUANTITY (US\$)										ML MODIFY LENGTH ADD TO BASE PRICE	
				TOOL STEEL					HIGH SPEED STEEL						
				100	50-99	25-49	10-24	1-9	100	50-99	25-49	10-24	1-9		
.030" - .062"	*3/32	1/8	2" 2-1/2"												\$0.20 EACH OR \$15.00 MIN
.063" - .093"	5/32	1/8	2" 2-1/2"	1.97	2.23	2.42	2.92	3.56	2.59	2.89	3.10	3.67	4.39		
.094" - .124"	3/16	1/8	2" 2-1/2"												
.126" - .156"	7/32	1/8	2" 2-1/2"	2.11	2.36	2.55	3.06	3.70	2.74	3.04	3.23	3.82	4.54	\$0.26 EACH OR \$18.00 MIN	
.157" - .187"	1/4	1/8	2" 2-1/2"												
.188" - .218"	9/32	1/8	2" 2-1/2"	2.42	2.68	2.87	3.37	4.01	3.10	3.38	3.60	4.17	4.90		
.219" - .249"	5/16	1/8	2" 2-1/2"											\$0.32 EACH OR \$23.00 MIN	
.251" - .312"	7/16	3/16	2" 2-1/2"	2.81	3.06	3.24	3.76	4.40	3.67	3.96	4.17	4.76	5.47		
.313" - .374"	1/2	3/16	2" 2-1/2"	2.92	3.19	3.37	3.89	4.53	3.89	4.17	4.39	4.98	5.71		

\* Optional Head Diameter of 1/8 can be made to order. Price upon quotation

QUANTITY DISCOUNTS	
Based on one size, one shipment, and one destination	
Over 300 Pieces Call For Pricing	

CUSTOM MODIFICATIONS PRICE AND DELIVERY PER QUOTATION	The following are some of the modifications which can be made to this product. Please refer to page 1 for more information on ordering this product with these modifications or use the worksheet templates provided on pages 25-28										
	ML**	CL	MT	CT	MH	PS	CS	CSD	PN	SR	COATINGS
											TiN Dicronite

\*\* ML Modification is priced in price table above



# B and AB TYPES



# Royal

## PERFORATORS/CORE PIN BLANKS

Ideal for tight center to center spacing in dies and molds  
M-2 HIGH SPEED STEEL, 60-63 RC

PRECISION FORM-GROUND

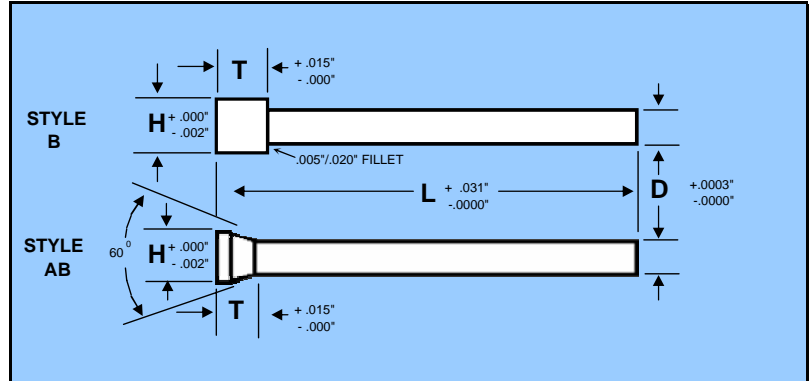
DIAMETERS IN .001" INCREMENTS

The following fractional diameters are included in the .001" increment price tables below: 1/32, 3/64, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 9/32, 5/16, & 3/8.

TYPE B: STANDARD

TYPE AB: NON-STANDARD. CAN BE MADE TO ORDER FOR PROMPT DELIVERY IN THE SAME LENGTHS AND DIAMETER RANGES AS TYPE B. SAME PRICING APPLIES

1-1/2", 2", 2-1/2", 3", 3-1/2", and 4" Lengths



### HOW TO ORDER: EXAMPLES

Qty	Cat No.	Dia.	X	Length
25	AB-4	.078	X	2-1/2
60	B-17	.269	X	3

Catalog No.		D	H	T	L					NET PRICE EACH PER QUANTITY						ML	
AB TYPE	B TYPE	BODY DIA. .001" INCREMENTS	HEAD DIA.	HEAD THICK	OVERALL LENGTHS					100	50-99	25-49	10-24	5-9	1-4	MODIFY LENGTH ADD TO BASE PRICE	
1/0	1/0	.025 - .029	.060	3/32	1-1/2	2					3.45	3.70	3.92	4.32	4.92	5.72	PER QUOTE
1	1	.030 - .040	.070	3/32	1-1/2	2	2-1/2				3.12	3.34	3.55	3.90	4.45	5.38	\$0.20 EACH OR \$15.00 MIN
2	2	.041 - .055	.085	3/32		2	2-1/2				2.99	3.16	3.40	3.74	4.25	5.05	
3	3	.056 - .070	.100	3/32		2	2-1/2				2.80	2.96	3.13	3.45	3.92	4.71	
4	4	.071 - .085	.115	3/32		2	2-1/2										
5	5	.086 - .100	.130	3/32		2	2-1/2	3			2.99	3.19	3.40	3.74	4.25	5.05	
6	6	.101 - .115	.145	3/32		2	2-1/2	3									
7	7	.116 - .130	.160	3/32		2	2-1/2	3			3.19	3.38	3.60	3.98	4.52	5.31	
8	8	.131 - .145	.175	3/32		2	2-1/2	3									
9	9	.146 - .160	.190	3/32		2	2-1/2	3			3.26	3.48	3.70	4.08	4.65	5.45	
10	10	.161 - .175	.205	1/8			2-1/2	3									
11	11	.176 - .190	.220	1/8			2-1/2	3			3.45	3.64	3.90	4.31	4.92	5.72	
12	12	.191 - .205	.235	1/8			2-1/2	3									
13	13	.206 - .220	.250	1/8			2-1/2	3			3.72	4.05	4.39	4.72	5.24	6.04	
14	14	.221 - .235	.265	1/8			2-1/2	3									
15	15	.236 - .250	.280	1/8			2-1/2	3			3.92	4.25	4.61	4.97	5.51	6.31	
16	16	.251 - .265	.295	1/8			2-1/2	3	3-1/2								
17	17	.266 - .280	.310	1/8				3	3-1/2		4.18	4.50	4.82	5.26	5.91	6.71	
18	18	.281 - .295	.325	1/8				3	3-1/2								
19	19	.296 - .310	.340	1/8				3	3-1/2		4.39	4.70	5.04	5.49	6.18	6.84	
20	20	.311 - .325	.355	3/16				3	3-1/2	4							
21	21	.326 - .340	.370	3/16				3	3-1/2	4	4.59	4.78	5.26	5.74	6.44	7.24	
22	22	.341 - .355	.385	3/16				3	3-1/2	4							
23	23	.356 - .370	.400	3/16				3	3-1/2	4	4.78	4.98	5.47	5.96	6.71	7.51	
24	24	.371 - .385	.415	3/16				3	3-1/2	4							

### QUANTITY DISCOUNTS

Based on one size, one shipment, and one destination

Over 300 Pieces ..... Call For Pricing

CUSTOM MODIFICATIONS PRICE AND DELIVERY PER QUOTATION	The following are some of the modifications which can be made to this product. Please refer to page 1 for more information on ordering this product with these modifications or use the worksheet templates provided on pages 25-28										
	ML*	CL	MT	CT	MH	PS	CS	CSD	PN	SR	COATINGS
											TIN Dicronite

\* ML Modification is priced in price table above

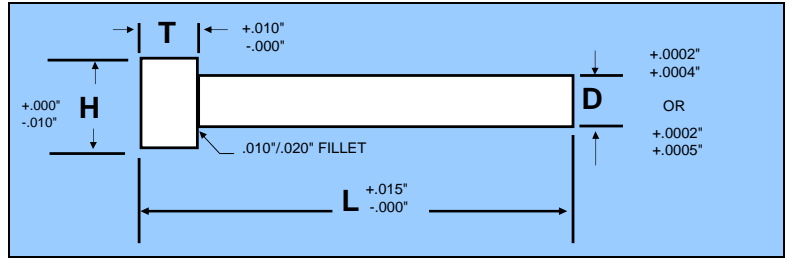
# CPB AND PPB TYPES

## PUNCH BLANKS

M-2 HIGH SPEED STEEL, 60-63 RC  
 HEADS DRAWN, 45-55 RC  
 PRECISION FORM-GROUND  
 FRACTIONAL BLANKS FROM 1/8 THROUGH 1"



2", 2-1/2", 3" and 3-1/2" Lengths



HOW TO ORDER: EXAMPLES				
QTY.	CAT. No.	DIA	X	LENGTH
12	CPB-25	1/4	X	2-1/2
6	PPB-75	3/4	X	3

### CPB (COMMERCIAL TOLERANCES) D: $+0.002''$ $+0.005''$

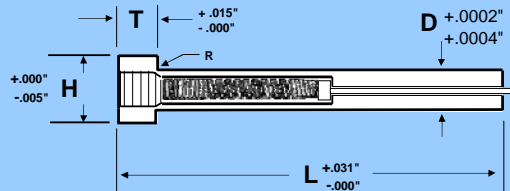
Catalog Number	D BODY DIA.	H HEAD DIA.	T HEAD THICK	L OVERALL LENGTHS				NET PRICE EACH PER QUANTITY (US \$)				ML LENGTH ADD TO BASE PRICE
				50 +	25-49	10-24	1-9					
CPB-12	1/8	1/4	1/8	2"	2-1/2"							\$0.26 EACH OR \$18.00 MIN
CPB-15	5/32	9/32	1/8	2"	2-1/2"			5.66	6.01	6.34	6.67	
CPB-18	3/16	5/16	1/8	2"	2-1/2"							
CPB-25	1/4	3/8	1/8	2"	2-1/2"	3"		6.34	6.67	7.08	7.41	\$0.32 EACH OR \$23.00 MIN
CPB-31	5/16	7/16	1/8	2"	2-1/2"	3"						
CPB-37	3/8	1/2	3/16	2"	2-1/2"	3"		7.27	7.73	8.14	8.55	
CPB-43	7/16	9/16	3/16	2"	2-1/2"	3"	3-1/2"	7.27	7.73	8.14	8.55	PER QUOTE
CPB-50	1/2	5/8	3/16	2"	2-1/2"	3"	3-1/2"	7.27	7.73	8.14	8.55	
CPB-62	5/8	3/4	1/4	2"	2-1/2"	3"	3-1/2"	10.31	10.88	11.50	12.14	
CPB-75	3/4	7/8	1/4		2-1/2"	3"	3-1/2"	13.81	14.65	15.48	16.24	
CPB-87	7/8	1"	1/4		2-1/2"	3"	3-1/2"	23.09	24.41	25.81	27.12	
CPB-100	1"	1-1/8"	1/4		2-1/2"	3"	3-1/2"					

### PPB (PRECISION TOLERANCES) D: $+0.002''$ $+0.004''$

Catalog Number	D BODY DIA.	H HEAD DIA.	T HEAD THICK	L OVERALL LENGTHS				NET PRICE EACH PER QUANTITY (US \$)				ML LENGTH ADD TO BASE PRICE
				50 +	25-49	10-24	1-9					
PPB-12	1/8	1/4	1/8	2"	2-1/2"							\$0.26 EACH OR \$18.00 MIN
PPB-15	5/32	9/32	1/8	2"	2-1/2"			6.34	6.67	7.08	7.41	
PPB-18	3/16	5/16	1/8	2"	2-1/2"							
PPB-25	1/4	3/8	3/16	2"	2-1/2"	3"		7.08	7.41	7.88	8.28	\$0.32 EACH OR \$23.00 MIN
PPB-31	5/16	7/16	3/16	2"	2-1/2"	3"						
PPB-37	3/8	1/2	3/16	2"	2-1/2"	3"		8.21	8.60	9.55	9.60	
PPB-43	7/16	9/16	3/16	2"	2-1/2"	3"	3-1/2"	8.21	8.60	9.55	9.60	PER QUOTE
PPB-50	1/2	5/8	3/16	2"	2-1/2"	3"	3-1/2"	8.21	8.60	9.55	9.60	
PPB-62	5/8	3/4	3/16		2-1/2"	3"	3-1/2"	11.08	11.71	12.33	13.04	
PPB-75	3/4	7/8	3/16		2-1/2"	3"	3-1/2"	15.41	16.32	17.29	18.13	
PPB-87	7/8	1"	3/16		2-1/2"	3"	3-1/2"	25.81	27.34	28.79	30.33	
PPB-100	1"	1-1/8"	3/16		2-1/2"	3"	3-1/2"					

### EB SLUG EJECTOR PUNCHES (WITH PPB DIMENSIONS)

CATALOG NUMBER	D BODY DIA.	H HEAD DIA.	T HEAD THICK.	L OVERALL LENGTHS				PRICE PER QUOTE
				50 +	25-49	10-24	1-9	
EB-12	1/8	1/4	1/8	2"	2-1/2"			PRICE PER QUOTE
EB-15	5/32	9/32	1/8	2"	2-1/2"			
EB-18	3/16	5/16	1/8	2"	2-1/2"			
EB-25	1/4	3/8	3/16	2"	2-1/2"			
EB-31	5/16	7/16	3/16	2"	2-1/2"	3"		
EB-37	3/8	1/2	3/16	2"	2-1/2"	3"		
EB-43	7/16	9/16	3/16	2"	2-1/2"	3"	3-1/2"	
EB-50	1/2	5/8	3/16	2"	2-1/2"	3"	3-1/2"	



CUSTOM MODIFICATIONS PRICE AND DELIVERY PER QUOTATION	The following are some of the modifications which can be made to this product. Please refer to page 1 for more information on ordering this product with these modifications or use the worksheet templates provided on pages 25 - 28.					
	ML* CL	MT CT	MH	PS	PN	COATINGS
					TIN	

\* ML Modification is priced in price table above

# MQA AND MQB TYPES



# Royal

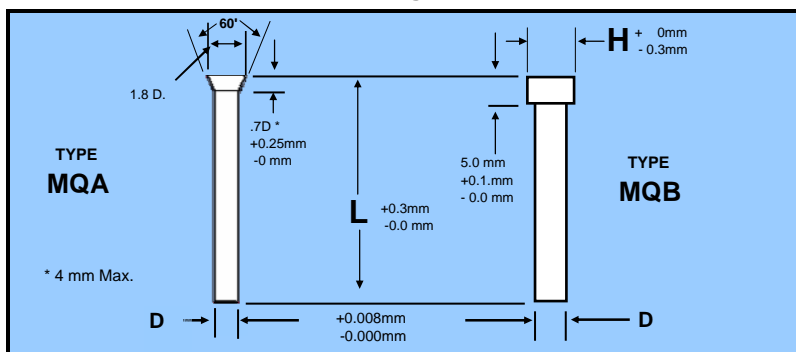
## METRIC PERFORATORS/CORE PIN BLANKS

M-2 HIGH SPEED STEEL, 60-63 RC

PRECISION FORM-GROUND DIAMETERS

MADE TO ORDER  
IN 0.01 mm INCREMENTS  
10 PIECES MINIMUM

63mm Length



HOW TO ORDER: EXAMPLES				
QTY.	TYPE	DIA	X	LENGTH
50	MQA	0.95	X	63
25	MQB	6.55	X	63

D DIAMETER RANGE MADE TO ORDER IN 0.01mm INCREMENTS	NET PRICE EACH PER QUANTITY (US \$)								MQB TYPE	H	ML MODIFY LENGTH ADD TO BASE PRICE
	MQA				MQB						
	100+	50-99	25-49	10-24	100+	50-99	25-49	10-24			
0.80mm - 1.60mm	1.91	2.43	3.23	5.37	2.89	3.52	4.74	8.78	3	\$0.26 EACH OR \$18.00 MIN	
1.61mm - 2.00mm	2.02	2.54	3.35	5.49	3.23	3.93	5.26	9.70	4		
2.01mm - 3.00mm	2.25	2.77	3.70	5.72	3.23	3.93	5.26	9.70	5		
3.01mm - 4.00mm	2.37	2.89	3.81	5.83	3.41	4.16	5.54	10.28	6	\$0.32 EACH OR \$23.00 MIN	
4.01mm - 5.00mm	2.60	3.18	3.98	6.18	3.52	4.27	5.72	10.63	7		
5.01mm - 6.00mm	2.95	3.52	4.33	6.53	3.52	4.27	5.72	10.63	8		
6.01mm - 7.00mm	3.23	3.87	4.68	6.93	3.70	4.50	6.06	11.20	9		

1.10

# MPB TYPE



# Royal

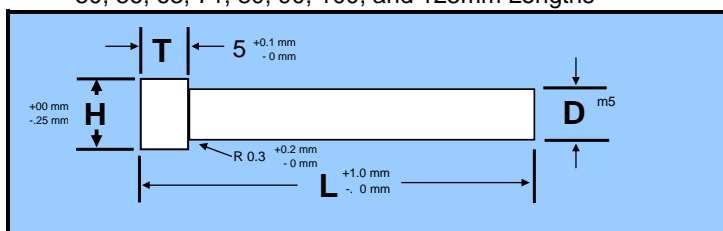
## METRIC PUNCH BLANKS

M-2 HIGH SPEED STEEL, RC 60-63

HEADS DRAWN 45-55 RC

MADE TO ORDER  
10 PIECES MINIMUM

50, 56, 63, 71, 80, 90, 100, and 125mm Lengths



HOW TO ORDER: EXAMPLES			
QTY.	CAT No.	X	LENGTH
50	MPB-3	X	63

CATALOG NUMBER	D BODY DIA		H HEAD DIA.	NET PRICE EACH PER QUANTITY (US \$)												ML MODIFY LENGTH ADD TO BASE PRICE
	NOMINAL DIA.	m <sup>5</sup> TOLERANCE		L-LENGTH												
				50, 56, & 63 mm			71 & 80 mm			90 & 100 mm			125 mm			
				50 +	25-49	10-24	50 +	25-49	10-24	50 +	25-49	10-24	50 +	25-49	10-24	
MPB-3	3	+ 0,009 + 0,004	5.0	5.35	5.94	6.61	5.96	6.62	7.36	7.45	8.28	9.19	Q	Q	Q	\$0.32 EACH OR \$23.00 MIN
MPB-4	4	+ 0,009 + 0,004	7.0	5.46	6.08	6.75	6.23	6.92	7.68	7.95	8.84	9.82	9.44	10.49	11.65	
MPB-5	5	+ 0,009 + 0,004	8.0	6.34	7.05	7.83	6.84	7.60	8.44	7.83	8.70	9.67	9.55	10.61	11.79	
MPB-6	6	+ 0,009 + 0,004	9.0	7.33	8.15	9.06	7.22	8.02	8.91	8.06	8.96	9.96	10.70	11.88	13.20	
MPB-8	8	+ 0,012 + 0,006	11.0	7.77	8.64	9.60	7.45	8.28	9.19	8.44	9.38	10.43	11.02	12.24	13.61	

# BH SERIES



# Royal

## BEVEL HEADED PUNCHES

### TOOL STEEL, (TS)

(OHTS), 58-60 RC, HEADS DRAWN

### HIGH SPEED STEEL (HSS)

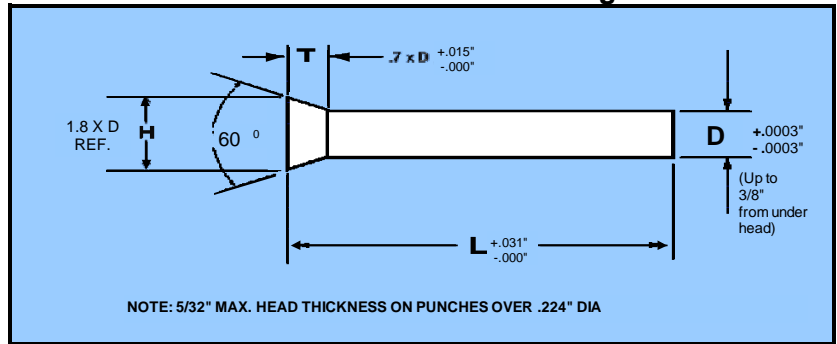
M-2, 60-63 RC

Used by tool, die, stamping, and mold manufacturers as perforators, punches, knock-out pins, gauge pins, ejectors and core pins.

Special lengths can be made to order with prompt delivery. Please refer to the "Modify Length" column in the price table below.

When closer tolerance and better wear resistance is desired, please refer to Type RQA found on page 2. RQA perforators/core pin blanks are form-ground to  $+0.0003"/-0$  diameter tolerance, and are offered in M-2 HSS in diameter increments from .010" through .375".

### Standard 2" and 2-1/2" Lengths



NOTE: 5/32" MAX. HEAD THICKNESS ON PUNCHES OVER .224" DIA

HOW TO ORDER: EXAMPLES					
QTY.	TYPE	DIA.	X	LENGTH	STEEL
100	BH	.062	X	2	TS
50	BH	.136	X	2-1/2	HSS

D STANDARD DIAMETERS .001 INCREMENTS	L LENGTHS	NET PRICE EACH PER QUANTITY (US\$)										ML MODIFY LENGTH ADD TO BASE PRICE
		TOOL STEEL					HIGH SPEED STEEL					
		100	50-99	25-49	10-24	1-9	100	50-99	25-49	10-24	1-9	
.020" - .029"	2"	0.57	0.73	0.88	1.06	1.32	0.89	0.98	1.11	1.24	1.51	PER QUOTE
	2-1/2"	0.74	0.89	1.01	1.23	1.36	0.96	1.05	1.17	1.29	1.55	
.030" - .039"	2"	0.55	0.71	0.87	1.04	1.27	0.83	0.94	1.07	1.21	1.45	\$0.20 EACH OR \$15.00 MIN.
	2-1/2"	0.71	0.86	0.98	1.20	1.34	0.90	1.01	1.13	1.27	1.53	
.040" - .0625" (1/16)	2"	0.50	0.66	0.80	0.97	1.22	0.78	0.88	1.01	1.13	1.40	
	2-1/2"	0.67	0.81	0.93	1.03	1.26	0.81	0.92	1.04	1.19	1.44	
.063" - .0781" (5/64)	2"	0.50	0.66	0.80	0.97	1.26	0.83	0.92	1.05	1.19	1.44	
	2-1/2"	0.67	0.81	0.93	1.12	1.30	0.87	0.96	1.09	1.24	1.49	
.079" - .0937" (3/32)	2"	0.50	0.66	0.80	0.97	1.30	0.89	0.98	1.11	1.24	1.51	
	2-1/2"	0.67	0.81	0.93	1.12	1.36	0.95	1.05	1.17	1.28	1.55	
.094" - .1094" (7/64)	2"	0.61	0.76	0.92	1.09	1.42	1.07	1.16	1.28	1.42	1.68	
	2-1/2"	0.79	0.96	1.10	1.28	1.52	1.11	1.21	1.34	1.47	1.73	
.110" - .125" (1/8)	2"	0.61	0.76	0.92	1.09	1.42	1.10	1.20	1.32	1.45	1.72	
	2-1/2"	0.79	0.96	1.10	1.28	1.53	1.13	1.23	1.36	1.50	1.74	
.126" .127" .128"	2"	0.75	0.89	1.06	1.23	1.56	1.30	1.40	1.53	1.68	1.93	
	2-1/2"	0.92	1.08	1.24	1.41	1.74	1.36	1.45	1.58	1.72	1.97	
⊙ .129"	2"	1.10	1.26	1.42	1.58	1.91	1.63	1.72	1.86	1.97	2.24	
	2-1/2"	1.28	1.43	1.59	1.77	2.05	1.67	1.77	1.90	2.04	2.31	
.130"	2"	0.75	0.89	1.06	1.23	1.56	1.30	1.40	1.53	1.68	1.93	
	2-1/2"	0.92	1.08	1.24	1.41	1.74	1.36	1.45	1.58	1.72	1.97	
⊙ .131" - .134"	2"	1.10	1.26	1.42	1.58	1.91	1.63	1.72	1.86	1.97	2.24	
	2-1/2"	1.28	1.43	1.59	1.77	2.05	1.67	1.77	1.90	2.04	2.31	
.135"	2"	0.75	0.89	1.06	1.23	1.56	1.30	1.40	1.53	1.68	1.93	
	2-1/2"	0.92	1.08	1.24	1.41	1.74	1.36	1.45	1.58	1.72	1.97	
⊙ .136" - .139"	2"	1.10	1.26	1.42	1.58	1.91	1.63	1.72	1.86	1.97	2.24	
	2-1/2"	1.28	1.43	1.59	1.77	2.05	1.67	1.77	1.90	2.04	2.31	
.140" .1406" (9/64)	2"	0.75	0.89	1.06	1.23	1.56	1.30	1.40	1.53	1.68	1.93	
	2-1/2"	0.92	1.08	1.24	1.41	1.75	1.36	1.45	1.58	1.72	1.97	
⊙ .141" - .156"	2"	1.10	1.26	1.42	1.58	1.91	1.63	1.72	1.86	1.97	2.24	
	2-1/2"	1.28	1.43	1.59	1.77	2.05	1.67	1.77	1.90	2.04	2.31	
.1562" (5/32)	2"	0.75	0.89	1.06	1.23	1.56	1.30	1.40	1.53	1.68	1.93	
	2-1/2"	0.92	1.08	1.24	1.41	1.74	1.36	1.45	1.58	1.72	1.97	

⊙ Denotes Form-Ground Diameters



## BEVEL HEADED PUNCHES

Standard 2" and 2-1/2" Lengths (Continued)

D STANDARD DIAMETERS .001" INCREMENTS	L LENGTHS	NET PRICE EACH PER QUANTITY (US\$)										ML MODIFY LENGTH ADD TO BASE PRICE
		TOOL STEEL					HIGH SPEED STEEL					
		100	50-99	25-49	10-24	1-9	100	50-99	25-49	10-24	1-9	
⊙ .157" - .171"	2"	1.10	1.26	1.42	1.59	1.91	2.14	2.22	2.37	2.48	2.75	\$0.26 EACH OR \$18.00 MIN.
	2-1/2"	1.28	1.43	1.60	1.77	2.10	2.17	2.26	2.40	2.53	2.81	
.1719" (11/64)	2"	0.75	0.89	1.06	1.23	1.56	1.82	1.91	2.03	2.17	2.44	
	2-1/2"	0.92	1.08	1.24	1.41	1.75	1.86	1.95	2.08	2.21	2.46	
⊙ .172" - .187"	2"	1.10	1.26	1.42	1.59	1.91	2.14	2.22	2.37	2.48	2.75	
	2-1/2"	1.28	1.43	1.60	1.77	2.10	2.17	2.26	2.40	2.53	2.81	
.1875" (3/16)	2"	0.75	0.89	1.06	1.23	1.56	1.82	1.91	2.03	2.17	2.44	
	2-1/2"	0.92	1.08	1.24	1.41	1.75	1.86	1.95	2.08	2.21	2.46	
⊙ .188" - .203"	2"	1.28	1.43	1.60	1.77	2.10	2.17	2.26	2.40	2.53	2.81	
	2-1/2"	1.47	1.61	1.79	1.94	2.30	2.21	2.31	2.44	2.58	2.84	
.2031" (13/64)	2"	0.92	1.08	1.24	1.41	1.75	1.86	1.95	2.08	2.21	2.46	
	2-1/2"	1.10	1.26	1.42	1.59	1.91	1.89	1.99	2.13	2.25	2.51	
⊙ .204" - .218"	2"	1.28	1.43	1.60	1.77	2.10	2.17	2.26	2.40	2.53	2.81	
	2-1/2"	1.47	1.61	1.79	1.94	2.30	2.21	2.31	2.44	2.58	2.84	
.2187" (7/32)	2"	0.92	1.08	1.24	1.41	1.75	1.86	1.95	2.08	2.21	2.46	
	2-1/2"	1.10	1.26	1.42	1.59	1.91	1.89	1.99	2.13	2.25	2.51	
⊙ .219" - .234"	2"	1.28	1.43	1.60	1.77	2.10	2.17	2.26	2.40	2.53	2.81	
	2-1/2"	1.47	1.61	1.79	1.94	2.30	2.21	2.31	2.44	2.58	2.84	
.2343" (15/64)	2"	0.92	1.08	1.24	1.41	1.75	1.86	1.85	2.08	2.21	2.46	
	2-1/2"	1.10	1.26	1.42	1.59	1.91	1.89	1.99	2.13	2.25	2.51	
⊙ .235" - .249"	2"	1.28	1.43	1.60	1.77	2.10	2.17	2.26	2.40	2.53	2.81	
	2-1/2"	1.47	1.61	1.79	1.94	2.30	2.21	2.31	2.44	2.58	2.84	
.250" (1/4)	2"	0.92	1.08	1.24	1.41	1.75	1.86	1.95	2.08	2.21	2.46	
	2-1/2"	1.10	1.26	1.42	1.59	1.91	1.89	1.99	2.13	2.25	2.51	
⊙ .251" - .2812" (9/32)	2"	1.47	1.61	1.79	1.94	2.30	2.26	2.37	2.48	2.63	2.90	
	2-1/2"	1.72	1.88	2.04	2.21	2.55	2.31	2.40	2.53	2.67	2.92	
⊙ .282" - .3125" (5/16)	2"	1.59	1.73	1.90	2.07	2.39	2.39	2.47	2.62	2.74	3.00	
	2-1/2"	1.84	2.01	2.15	2.33	2.67	2.43	2.51	2.66	2.77	3.05	
⊙ .313" - .3437" (11/32)	2"	1.64	1.79	1.94	2.13	2.46	2.55	2.64	2.76	2.90	3.16	
	2-1/2"	1.88	2.04	2.21	2.36	2.72	2.59	2.67	2.82	2.93	3.20	
⊙ .344" - .375" (3/8)	2"	1.64	1.79	1.94	2.13	2.46	2.77	2.88	3.01	3.15	3.43	
	2-1/2"	1.88	2.04	2.21	2.36	2.72	2.82	2.91	3.06	3.19	3.47	
⊙ .3906" (25/64) .4062" (13/32) .4219" (27/64) .4375" (7/16)	2"	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
	2-1/2"	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
⊙ .4531" (29/64) .4688" (15/32) .4844" (31/64) .5000" (1/2)	2"	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
	2-1/2"	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	

⊙ Denotes Form-Ground Diameters

Q = PRICE PER QUOTATION

### QUANTITY DISCOUNTS

Based on one size, one shipment, and one destination

500 Pieces ..... 100 pc. Price Less 10%

1,000 Pieces ..... 100 pc. Price Less 15%

CUSTOM MODIFICATIONS PRICE AND DELIVERY PER QUOTATION	The following are some of the modifications which can be made to this product. Please refer to page 1 for more information on ordering this product with these modifications or use the worksheet templates provided on pages 25 - 28.		
	ML**	MT	MH

\*\* ML Modification is priced in the price table above

# BH SERIES

## BEVEL HEADED PUNCHES



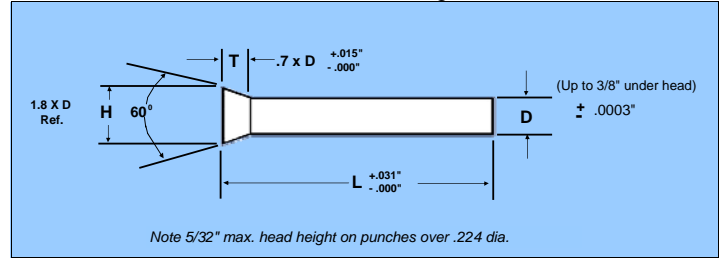
### MATERIAL:

TOOL STEEL, (TS)  
(OHTS), 58-60 RC, HEADS DRAWN  
HIGH SPEED STEEL (HSS)  
M-2, 60-63 RC

Used by tool, die, stamping, and mold manufacturers as perforators, punches, knock-out pins, gauge pins, ejectors and core pins.

When closer tolerance and better wear resistance is desired, please refer to Type RQA found on page 2. RQA Perforators/Core Pin Blanks are form-ground to  $\pm .0003$ "/-0" diameter tolerance, and are offered in M-2 HSS in diameter increments from .010" through .375".

Standard 4" and 6" Lengths



HOW TO ORDER: EXAMPLES					
QTY.	TYPE	DIA.	X	LENGTH	STEEL
100	BH	5/32	X	6	TS
50	BH	15/64	X	4	HSS

FRACTIONAL DIAMETERS											DECIMAL DIAMETERS TOOL STEEL ONLY - FOR DECIMAL DIAMETERS IN M-2 HSS PLEASE REFER TO RQA TYPE ON PAGE 2 (10 PC. MINIMUM)				ML MODIFY LENGTH ADD TO BASE PRICE					
D STANDARD DIAMETERS	L LENGTHS	NET PRICE EACH PER QUANTITY (US \$)										D NON-STANDARD DECIMAL DIA.	NET PRICE EACH PER QUANTITY (US \$)							
		TOOL STEEL					HIGH SPEED STEEL						TOOL STEEL							
		100	50-99	25-49	10-24	1-9	100	50-99	25-49	10-24	1-9	100	50-99	25-49	10-24					
1/16, 5/64	4"	1.29	1.51	1.83	2.14	2.57	2.53	2.89	3.31	3.82	4.50	.047"-.078"	2.75	3.37	4.89	8.79	Q	Q	Q	Q
	6"	1.64	1.87	2.19	2.56	3.01	3.22	3.63	4.11	4.69	5.50									
3/32, 7/64	4"	1.28	1.48	1.77	2.06	2.44	2.44	2.77	3.19	3.67	4.32	.079"-.109"	2.65	3.18	4.57	8.02	3.05	3.95	5.72	9.25
	6"	1.63	1.82	2.14	2.45	2.87	2.90	3.26	3.70	4.22	4.94									
1/8	4"	1.12	1.30	1.56	1.80	2.14	2.36	2.63	3.00	3.44	4.04	.110"-.124"	2.33	2.80	4.02	7.07	2.49	3.20	4.65	7.55
	6"	1.32	1.48	1.75	2.01	2.33	2.58	2.86	3.23	3.66	4.26									
9/64, 5/32	4"	1.14	1.32	1.58	1.82	2.15	2.63	2.93	3.30	3.73	4.33	.126"-.156"	2.40	2.89	4.08	7.14	2.56	3.30	4.73	7.62
	6"	1.34	1.52	1.77	2.03	2.36	2.86	3.15	3.52	3.96	4.55									
11/64, 3/16	4"	1.21	1.35	1.61	1.88	2.21	3.08	3.37	3.73	4.18	4.77	.157"-.187"	2.49	2.97	4.17	7.38	2.65	3.71	6.10	8.98
	6"	1.37	1.56	1.80	2.06	2.38	3.30	3.60	3.96	4.40	4.99									
13/64, 7/32	4"	1.65	1.82	2.08	2.33	2.67	3.66	3.96	4.33	4.77	5.35	.188"-.218"	2.80	3.30	4.48	7.70	3.12	4.17	6.58	9.47
	6"	2.03	2.19	2.45	2.69	3.03	3.88	4.18	4.55	4.99	5.57									
15/64, 1/4	4"	1.76	1.91	2.16	2.44	2.76	3.73	4.04	4.40	4.84	5.43	.219"-.249"	2.97	3.44	4.65	7.86	3.20	4.26	6.66	9.53
	6"	2.14	2.32	2.57	2.81	3.16	3.96	4.26	4.62	5.07	5.65									
17/64, 9/32	4"	2.76	2.93	3.18	3.44	3.78	4.07	4.37	4.74	5.16	5.75	.251"-.281"	4.20	4.75	6.10	9.75	4.82	5.86	8.25	11.14
	6"	3.13	3.30	3.55	3.80	4.15	5.13	5.43	5.80	6.24	6.81									
19/64, 5/16	4"	2.84	3.01	3.26	3.51	3.85	4.07	4.37	4.74	5.16	5.75	.282"-.312"	4.28	4.83	6.20	9.84	4.99	6.01	8.42	11.31
	6"	3.22	3.38	3.64	3.91	4.23	5.35	5.65	6.02	6.46	7.03									
21/64, 11/32	4"	3.12	3.28	3.54	3.79	4.14	4.31	4.61	4.98	5.41	5.99	.313"-.343"	4.57	5.11	6.47	10.12	5.21	6.27	8.66	11.55
	6"	3.49	3.66	3.92	4.16	4.50	5.73	6.02	6.38	6.81	7.40									
23/64, 3/8	4"	3.35	3.50	3.77	4.01	4.35	4.31	4.61	4.98	5.41	5.99	.344"-.374"	4.75	5.30	6.66	10.31	5.38	6.42	8.82	11.72
	6"	3.71	3.90	4.14	4.39	4.73	6.02	6.31	6.68	7.11	7.70									

QUANTITY DISCOUNTS	
Based on one size, one shipment, and one destination	
500 Pieces .....	100 pc. Price Less 10%
1,000 Pieces .....	100 pc. Price Less 15%

CUSTOM MODIFICATIONS PRICE AND DELIVERY PER QUOTATION	The following are some of the modifications which can be made to this product. Please refer to page 1 for more information on ordering this product with these modifications or use the worksheet templates provided on pages 25-28.		
	ML*	MT	MH

\* ML Modification is priced in the price table above

Q = Price Per Quotation

# EP SERIES



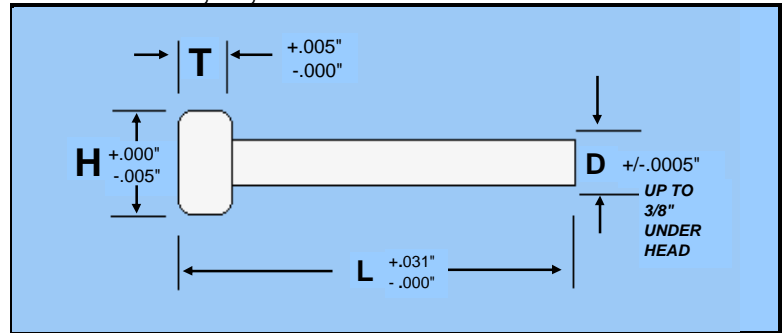
# Royal

## DIE KICKER PINS - FORGED HEADS

MATERIAL : OIL HARDENING TOOL STEEL  
 HARDNESS : 58-62 RC, HEADS ANNEALED

This series is not recommended for Molding or Die Casting applications. Please refer to pages 15-21 for Ejector Pins and Core Pins for use in Molding and Die Casting.

4", 6", AND 10" LENGTHS



HOW TO ORDER: EXAMPLES				
Qty.	Cat No.	Dia.	X	Length
24	EP-9	1/8	X	6

CATALOG NUMBER	D BODY DIA.	H HEAD DIA.	T HEAD THICK	NET PRICE EACH PER QUANTITY (US \$)									ML MODIFY LENGTH ADD TO BASE PRICE
				L - LENGTHS									
				4"			6"			10"			
				100	50-99	1-49	100	50-99	1-49	100	50-99	1-49	
EP-5	1/16	7/64	3/64	2.20	2.42	2.63	2.90	3.09	3.31	Q	Q	Q	\$0.20 EACH OR \$15.00 MIN
EP-6	5/64	9/64	3/64	2.06	2.24	2.43	2.70	2.88	3.07	Q	Q	Q	
EP-7	3/32	5/32	5/64	1.97	2.17	2.35	2.59	2.77	2.97	Q	Q	Q	
EP-8	7/64	3/16	5/64	2.06	2.24	2.43	2.66	2.86	3.05	Q	Q	Q	
EP-9	1/8	7/32	3/32	1.82	1.97	2.13	2.35	2.51	2.68	3.17	3.37	3.54	
EP-10	9/64	1/4	7/64	1.82	1.97	2.13	2.35	2.51	2.68	3.17	3.37	3.54	\$0.26 EACH OR \$18.00 MIN
EP-11	5/32	17/64	1/8	1.82	1.97	2.13	2.35	2.51	2.68	3.17	3.37	3.54	
EP-12	11/64	5/16	1/8	1.91	2.08	2.24	2.44	2.63	2.78	3.28	3.45	3.64	
EP-13	3/16	5/16	9/64	1.91	2.08	2.24	2.44	2.63	2.78	3.28	3.45	3.64	
EP-14	13/64	11/32	5/32	2.10	2.26	2.42	2.53	2.70	2.86	3.38	3.56	3.74	
EP-15	7/32	3/8	5/32	2.27	2.43	2.61	2.72	2.88	3.05	3.58	3.75	3.94	\$0.32 EACH OR \$23.00 MIN
EP-16	15/64	13/32	11/64	2.35	2.51	2.68	2.90	3.07	3.23	3.66	3.86	4.04	
EP-17	1/4	7/16	3/16	2.35	2.51	2.68	2.90	3.07	3.23	3.66	3.86	4.04	
EP-18	17/64	7/16	1/4	2.79	2.97	3.14	3.08	3.25	3.41	3.77	3.95	4.13	
EP-19	9/32	7/16	1/4	2.79	2.97	3.14	3.08	3.25	3.41	3.77	3.95	4.13	
EP-20	19/64	1/2	1/4	2.99	3.16	3.31	3.17	3.32	3.50	3.96	4.15	4.32	\$0.32 EACH OR \$23.00 MIN
EP-21	5/16	1/2	1/4	2.99	3.16	3.31	3.17	3.32	3.50	3.96	4.15	4.32	
EP-22	21/64	9/16	1/4	3.08	3.25	3.42	3.34	3.52	3.69	4.47	4.65	4.84	
EP-23	11/32	9/16	1/4	3.08	3.25	3.42	3.34	3.52	3.69	4.47	4.65	4.84	
EP-24	23/64	5/8	1/4	3.17	3.32	3.50	3.54	3.72	3.87	4.87	5.05	5.24	
EP-25	3/8	5/8	1/4	3.17	3.32	3.50	3.54	3.72	3.87	4.87	5.05	5.24	

QUANTITY DISCOUNTS	
Based on one size, one shipment, and one destination	
500 Pieces ..... 100 pc. Price Less 10%	1,000 Pieces ..... 100 pc. Price Less 15%

CUSTOM MODIFICATIONS PRICE AND DELIVERY PER QUOTATION	The following are some of the modifications which can be made to this product. Please refer to page 1 for more information on ordering this product with these modifications or use the worksheet templates provided on pages 25-28.			
	ML*	MT	MH	COATINGS
				Dicronite

\* ML Modification is priced in the price table above

Q = Price Per Quotation

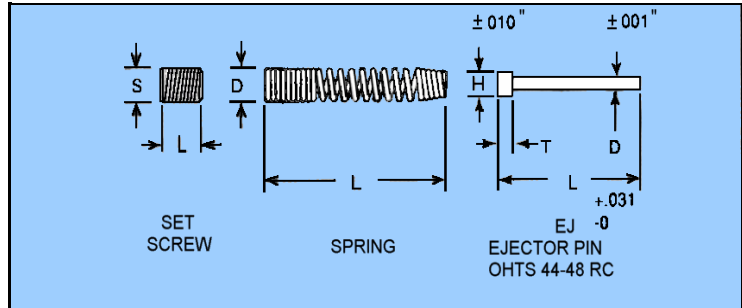
# EJ TYPE

## SLUG EJECTOR COMPONENTS



REPLACEMENT SLUG EJECTOR COMPONENTS FOR SHOULDER HEAD AND BALL-LOCK TYPE EJECTOR PUNCHES.

HOW TO ORDER: EXAMPLES	
Qty.	Cat. No.
20	EJ-3
50	CS-6



## PINS ONLY (MINIMUM ORDER QTY. 10 PCS.)

CATALOG NUMBER	D	H	T	L	NET PRICE EACH PER QUANTITY (US \$)			
	PIN DIA.	HEAD DIA.	HEAD THICK	LENGTH	100	50-99	25-49	10-24
EJ-2	.015"	.048"	.031"	1.11"	2.32	2.65	3.03	3.48
EJ-2A	.020"	.048"	.031"	1.11"	1.20	1.58	2.03	2.54
EJ-3	.027"	.078"	.047"	1.38"	1.14	1.52	1.96	2.47
EJ-4	.041"	.094"	.062"	1.94"	1.14	1.52	1.96	2.47
EJ-6	.058"	.125"	.062"	1.94"	1.14	1.52	1.96	2.47
EJ-9	.089"	.156"	.094"	2.22"	1.20	1.59	2.03	2.54
EJ-12	.120"	.188"	.094"	2.22"	1.64	2.14	2.78	3.47

## COMPONENT SETS (MINIMUM ORDER QTY. 10 PCS.)

(INCLUDES PINS, SPRINGS, & SET SCREWS)

CATALOG NUMBER	SPRING		SET SCREW		NET PRICE EACH PER QUANTITY (US \$)			
	D	L	S	L	100	50-99	25-49	10-24
	DIA.	LENGTH	THREAD	LENGTH				
CS-2	.062"	2"	2-56	.125"	3.37	3.70	4.08	4.53
CS-2A	.062"	2"	2-56	.125"	2.25	2.63	3.08	3.59
CS-3	.093"	2-1/2"	5-40	.125"	2.19	2.57	3.01	3.52
CS-4	.093"	2-1/2"	6-32	.125"	2.19	2.57	3.01	3.52
CS-6	.125"	3"	8-32	.125"	2.19	2.57	3.01	3.52
CS-9	.187"	3"	1/4-20	.250"	2.25	2.64	3.08	3.59
CS-12	.187"	3"	1/4-20	.250"	2.69	3.19	3.83	4.52

\* Also available with 1/4-28 set screw at same price. Please specify when ordering

### QUANTITY DISCOUNTS

Apply to EJ & CS , Based on one size, one shipment, and one destination

Over 300 Pieces ..... Call For Pricing

# GF-1000

## RIGHT-ON™ PIN GRINDING FIXTURE



Why spend thousands of dollars on a pin cut-off machine?

This specialized precision-machined fixture is designed for fast and easy cut-off and grinding of ejector pins, cores, and sleeves, right on your surface grinder. It gives accurate and repeatable results when cutting pins and sleeves from 1/16" to 3/4" diameter, in lengths up to 14".

Jaw clamp has a 1-1/4" linear grip which holds pins firmly in position, thus preventing the nicks and dents that sometimes occur when using a single point V-Block.

Fixture can be used in the horizontal position or vertically, when clamped to an adequate right angle plate.

CATALOG NO.	NET PRICE EACH (US \$)
GF-1000	\$415



# MPT TYPE

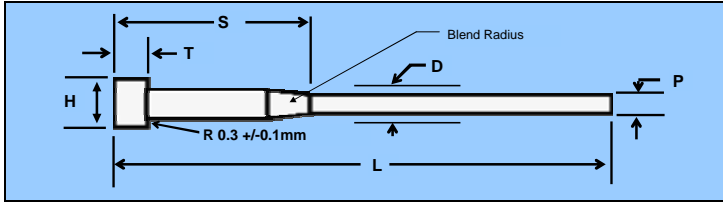


## METRIC M-2 **TRUE-HARD™** SERIES EJECTOR PINS NON-STANDARD

MATERIAL: M-2 HIGH SPEED STEEL  
THROUGH-HARDENED TO 60-63 RC  
HEADS DRAWN TO 40-55 RC (SIZES 4.0 - 6.0 ONLY)



### SHOULDER STYLE

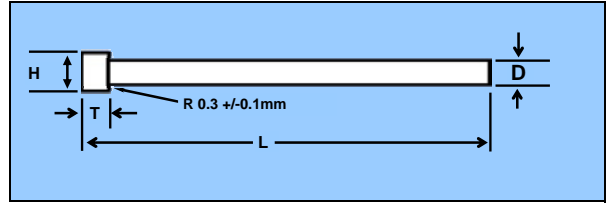


TOLERANCES (METRIC ISO)					
P	D	H	T	S	L
-0.002 mm	+0.00 mm	+0.00 mm	+0.00 mm	-1 mm	+1 mm
-0.008 mm	-0.02 mm	-0.2 mm	-0.05 mm	-2 mm	-0 mm

HOW TO ORDER: EXAMPLES		
Qty.	Cat No.	Length
24	MPT-10-50	L-150
48	MPT-20-75	L-150

D SHLD. DIA.	H HEAD DIA.	T HEAD THICK	P PIN DIA.	S SHLD. LGTH.	CATALOG NUMBER	NET PRICE EACH (US \$)		PKG. QTY.
						L-150	L-200	
2	4	2	0.8	50	MPT-08-50	11.20	Q	12
				75	MPT-08-75	11.20	Q	
			0.9	50	MPT-09-50	11.20	Q	
				75	MPT-09-75	11.20	Q	
			1.0	35	MPT-10-35	11.20	Q	
				50	MPT-10-50	11.20	13.57	
			75	MPT-10-75	10.91	11.84		
			1.1	50	MPT-11-50	11.20	11.78	
				75	MPT-11-75	10.91	11.20	
			1.2	50	MPT-12-50	11.20	11.78	
				75	MPT-12-75	10.91	11.20	
			1.3	50	MPT-13-50	10.28	11.67	
				75	MPT-13-75	9.99	11.09	
			1.4	50	MPT-14-50	10.28	11.55	
				75	MPT-14-75	9.99	10.97	
			3	6	3	1.5	35	
50	MPT-15-50	9.12					10.16	
75	MPT-15-75	8.84					9.59	
1.6	50	MPT-16-50				8.72	10.05	
	75	MPT-16-75				8.66	9.47	
1.7	50	MPT-17-50				8.60	9.93	
	75	MPT-17-75				8.55	9.36	
1.8	50	MPT-18-50				8.43	9.82	
	75	MPT-18-75				8.37	9.24	
1.9	50	MPT-19-50				8.14	9.70	
	75	MPT-19-75				8.09	9.12	
2.0	50	MPT-20-50				7.80	9.47	
	75	MPT-20-75				7.74	8.89	
2.2	50	MPT-22-50				7.57	9.24	
	75	MPT-22-75				7.51	8.66	
2.5	35	MPT-25-35				7.28	9.99	
	50	MPT-25-50	7.28	8.84				
	75	MPT-25-75	7.22	8.26				

### STRAIGHT STYLE



TOLERANCES (METRIC ISO)				
D	H	T	L	
0 to 3	-0.002 mm -0.008 mm	+0.0 mm	+0.00 mm	+1 mm
3.5 to 6	-0.004 mm -0.012 mm	-0.2 mm	-0.05 mm	-0 mm

HOW TO ORDER: EXAMPLE		
Qty.	Cat No.	Length
24	MPT-35	L-150

1.10

PIN DIA.	HEAD DIA.	HEAD THICK	CATALOG NUMBER	NET PRICE EACH (US \$)		PKG. QTY.
				L-150	L-200	
2.0	4	2	MPT-20	7.62	13.40	12
2.5	5	2	MPT-25	7.28	11.55	
3.0	6	3	MPT-30	5.49	9.12	
3.5	7	3	MPT-35	5.54	9.18	
4.0	8	3	MPT-40	5.54	9.18	
5.0	10	3	MPT-50	6.93	10.40	
6.0	12	5	MPT-60	6.93	10.40	

### QUANTITY DISCOUNTS

Based on one shipment and one destination.

Apply to all MPT's in catalog and are combinable with PT, RHX, RX, ME, RC, and RCX Ejector Pins and Core Pins.

300 Pcs. (one size).....Less 5%  
500 Pcs. (cumulative).....Less 5%  
1200 Pcs. (cumulative).....Less 7%

Q = Price Per Quotation

# PT AND PTD TRUE-HARD<sup>SM</sup> SERIES



# Royal

TIGHTEST TOLERANCE IN THE INDUSTRY (.0003")

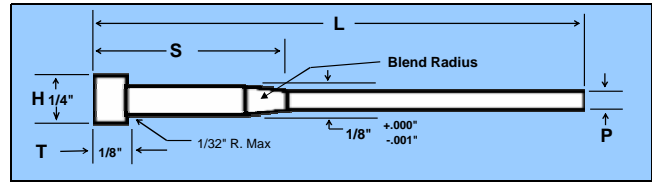
## M-2 EJECTOR/CORE PINS

MATERIAL : M-2 HIGH SPEED STEEL  
THROUGH-HARDENED TO 60-63 RC

## SHOULDER STYLE

STANDARD FRACTIONAL AND .0001" INCREMENT DIAMETERS

Royal TRUE-HARD<sup>SM</sup> Ejector/Core Pins are made from superior quality, wear resistant M-2 high speed steel, through hardened and double tempered to 60-63 RC in our specially developed vacuum heat treating equipment which is computer regulated to produce maximum toughness and durability. The diameters are precision ground after hardening to insure the high accuracy and finish.



TOLERANCES					
P		H	T	L	
PT	-.0005" -.0008"	PTD +.0000" -.0003"	+ .000" -.010"	+ .000" -.002"	+.375" -.000"

HOW TO ORDER : EXAMPLES			
Qty.	Cat. No.	Length	P (If PTD)
12	PT-5-3	L-8	
36	PTD-7-2	L-6	P= .0925

PT TYPE STANDARD FRACTIONAL DIAMETERS 12 PINS PER PACKAGE					PTD TYPE NON-STANDARD DECIMAL DIAMETERS .0001" INCREMENTS											ML MODIFY LENGTH ADD TO BASE PRICE				
P		S	CAT. NO.	L-6"	L-8"	P	S	CAT. NO.	L-6"					L-8"						
NOM. PIN DIA.	ACTUAL PIN DIA.	SHL. LGTH.		STD. DIA.	STD. DIA.				DIA. RANGE	SHL. LGTH	NET PRICE EACH PER QUANTITY (US \$)						NET PRICE EACH PER QUANTITY (US \$)			
								50-99	25-49	10-24	5-9	1-4	50-99	25-49	10-24		5-9	1-4		
1/32	.0308" .0305"	1/2	PT-2-1/2	9.10	Q	UNDER .0312"	1/2	PTD-2-1/2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
		2"	PT-2-2	8.37	8.98		2"	PTD-2-2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
		3"	PT-2-3	Q	8.98		3"	PTD-2-3	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
		4"	PT-2-4	Q	7.65		4"	PTD-2-4	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
3/64	.0464" .0461"	1/2	PT-3-1/2	5.76	Q	.0313" THRU .0469"	1/2	PTD-3-1/2	7.98	9.63	12.38	14.58	17.88	Q	Q	Q	Q	Q	Q	
		2"	PT-3-2	5.64	7.28		2"	PTD-3-2	7.87	9.52	12.27	14.47	17.77	11.00	12.65	15.40	17.60	20.90		
		3"	PT-3-3	Q	7.28		3"	PTD-3-3	Q	Q	Q	Q	Q	11.00	12.65	15.40	17.60	20.90		
		4"	PT-3-4	Q	6.55		4"	PTD-3-4	Q	Q	Q	Q	Q	10.34	11.99	14.74	16.94	20.24		
1/16	.0620" .0617"	1/2	PT-5-1/2	4.97	9.22	.0470" THRU .0625"	1/2	PTD-5-1/2	7.26	8.91	11.66	13.86	17.16	12.76	14.41	17.16	22.66	33.66		
		2"	PT-5-2	4.79	6.55		2"	PTD-5-2	7.10	8.75	11.50	13.70	17.00	10.34	11.99	14.74	16.94	20.24		
		3"	PT-5-3	Q	6.55		3"	PTD-5-3	Q	Q	Q	Q	Q	10.34	11.99	14.74	16.94	20.24		
		4"	PT-5-4	Q	5.94		4"	PTD-5-4	Q	Q	Q	Q	Q	9.79	11.44	14.19	16.39	19.69		
5/64	.0776" .0773"	1/2	PT-6-1/2	4.97	9.22	.0626" THRU .0781"	1/2	PTD-6-1/2	7.26	8.91	11.66	13.86	17.16	12.76	14.41	17.16	22.66	33.66		
		2"	PT-6-2	4.79	6.55		2"	PTD-6-2	7.10	8.75	11.50	13.70	17.00	10.34	11.99	14.74	16.94	20.24		
		3"	PT-6-3	Q	6.55		3"	PTD-6-3	Q	Q	Q	Q	Q	10.34	11.99	14.74	16.94	20.24		
		4"	PT-6-4	Q	5.94		4"	PTD-6-4	Q	Q	Q	Q	Q	9.79	11.44	14.19	16.39	19.69		
3/32	.0933" .0930"	1/2	PT-7-1/2	4.61	7.28	.0782" THRU .0938"	1/2	PTD-7-1/2	6.93	8.58	11.33	13.53	16.83	11.00	12.65	15.40	20.90	31.90		
		2"	PT-7-2	4.42	5.70		2"	PTD-7-2	6.77	8.42	11.17	13.37	16.67	9.57	11.22	13.97	16.17	19.47		
		3"	PT-7-3	Q	5.70		3"	PTD-7-3	Q	Q	Q	Q	Q	9.57	11.22	13.97	16.17	19.47		
		4"	PT-7-4	Q	5.46		4"	PTD-7-4	Q	Q	Q	Q	Q	9.35	11.00	13.75	15.95	19.25		
7/64	.1089" .1086"	1/2	PT-8-1/2	4.61	7.28	.0939" THRU .1094"	1/2	PTD-8-1/2	6.93	8.58	11.33	13.53	16.83	11.00	12.65	15.40	20.90	31.90		
		2"	PT-8-2	4.42	5.70		2"	PTD-8-2	6.77	8.42	11.17	13.37	16.67	9.57	11.22	13.97	16.17	19.47		
		3"	PT-8-3	Q	5.70		3"	PTD-8-3	Q	Q	Q	Q	Q	9.57	11.22	13.97	16.17	19.47		
		4"	PT-8-4	Q	5.46		4"	PTD-8-4	Q	Q	Q	Q	Q	9.35	11.00	13.75	15.95	19.25		
Q = Price Per Quotation							.1095" THRU .1245"	1/2	PTD-9-1/2	5.23	6.88	9.63	11.83	15.13	8.69	10.34	13.09	18.59	29.59	
								2"	PTD-9-2	5.06	6.77	9.46	11.66	14.96	8.53	10.18	12.93	15.13	18.43	
								3"	PTD-9-3	Q	Q	Q	Q	Q	8.53	10.18	12.93	15.13	18.43	
								4"	PTD-9-4	Q	Q	Q	Q	Q	8.31	9.96	12.71	14.91	18.21	

CUSTOM MODIFICATIONS PRICE AND DELIVERY PER QUOTATION	The following are some of the modifications which can be made to this product. Please refer to page 1 for more information on ordering this product with these modifications or use the worksheet templates provided on pages 25-28.						
	ML* CL	MT CT	MH	CS	CSD	SR	COATINGS
							TIN Dicronite

\* ML Modification is priced in price table above

# PT AND PTD TRUE-HARD™ SERIES



# Royal

## M-2 EJECTOR/CORE PINS

TIGHTEST TOLERANCE IN THE INDUSTRY (.0003")

MATERIAL : M-2 HIGH SPEED STEEL  
THROUGH-HARDENED TO 60-63 RC  
HEADS DRAWN TO 40-55 RC (PT-11 THROUGH PT-17)

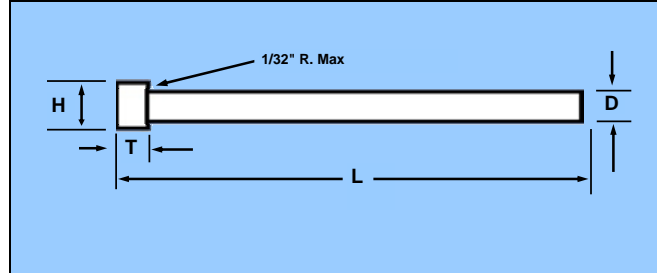
Royal TRUE-HARD™ Ejector/Core Pins are made from superior quality, wear resistant M-2 high speed steel, through hardened and double tempered to 60-63 RC in our specially developed vacuum heat treating equipment which is computer regulated to produce maximum toughness and durability. The diameters are precision ground after hardening to insure the high accuracy and finish.

TOLERANCES				
D		H	T	L
PT -.0005" -.0008"	PTD +.0000" -.0003"	+ .000" -.010"	+ .000" -.002"	+ .375" -.000"

HOW TO ORDER : EXAMPLES			
Qty.	Cat. No.	Length	D (if PTD)
12	PT-9	L-8	
36	PTD-5	L-6	D= .0595

### STRAIGHT STYLE

STANDARD FRACTIONAL AND .0001" INCREMENT DIAMETERS



PT TYPE STANDARD FRACTIONAL DIAMETERS 12 PINS PER PACKAGE					PTD TYPE NON-STANDARD DECIMAL DIAMETERS .0001" INCREMENTS										ML MODIFY LENGTH ADD TO BASE PRICE																
D -.0005" -.0008"		H	T	CAT. NO.	L-6"		L-8"		D +.0000" -.0003"	H	T	CAT. NO.	L-6"					L-8"													
NOM. PIN DIA.	ACTUAL PIN DIA.	HD. DIA.	HD. TK.		STD. DIA.	STD. DIA.	DIAMETER RANGE	HD. DIA.					HD. THK.	NET PRICE EACH PER QUANTITY (US \$)					NET PRICE EACH PER QUANTITY (US \$)												
													50-99	25-49		10-24	5-9	1-4	50-99	25-49	10-24	5-9	1-4								
1/32	.0308" .0305"	1/4	1/8	PT-2	9.10	Q	UNDER .0312"		1/4	1/8	PTD-2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q					
3/64	.0464" .0461"			PT-3	5.76	Q	.0313"-.0469"				PTD-3	8.36	10.12	12.98	15.18	18.48	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
1/16	.0620" .0617"			PT-5	4.98	9.22	.0470"- .0625"				PTD-5	7.65	9.35	12.27	14.47	17.77	13.42	15.13	18.04	23.54	34.54										
5/64	.0776" .0773"			PT-6	4.98	9.22	.0626"- .0781"				PTD-6	7.65	9.35	12.27	14.47	17.77	13.42	15.13	18.04	23.54	34.54										
3/32	.0933" .0930"			PT-7	4.61	7.28	.0782"- .0938"				PTD-7	7.26	9.02	11.88	14.08	17.38	11.55	13.31	16.17	21.67	32.67										
7/64	.1089" .1086"			PT-8	4.61	7.28	.0939"- .1094"				PTD-8	7.26	9.02	11.88	14.08	17.38	11.55	13.31	16.17	21.67	32.67										
1/8	.1245" .1242"			PT-9	3.12	4.91	.1095"- .1250"				PTD-9	5.50	7.21	10.12	12.32	15.62	9.13	10.84	13.75	19.25	30.25										
9/64	.1401" .1398"			PT-10	3.23	5.20	.1251"- .1406"				PTD-10	5.56	7.26	10.18	12.38	15.68	9.19	10.89	13.81	19.31	30.31										
5/32	.1558" .1555"			9/32	5/32	PT-11	3.23	6.06			.1407"- .1562"		9/32	5/32	PTD-11	5.56	7.26	10.18	12.38	15.68	9.19	10.89	13.81	19.31	30.31						
11/64	.1714" .1711"			11/32	3/16	PT-12	4.25	6.06			.1563"- .1719"		11/32	3/16	PTD-12	6.93	8.69	11.55	13.75	17.05	10.40	12.10	15.02	20.52	31.52						
3/16	.1870" .1867"	3/8	3/16	PT-13	4.25	6.06	.1720"- .1875"		3/8	3/16	PTD-13	6.93	8.69	11.55	13.75	17.05	10.40	12.10	15.02	20.52	31.52										
13/64	.2026" .2023"	3/8	3/16	PT-14	4.25	6.06	.1876"- .2031"		3/8	3/16	PTD-14	6.93	8.69	11.55	13.75	17.05	10.40	12.10	15.02	20.52	31.52										
7/32	.2183" .2180"	13/32	3/16	PT-15	4.25	6.06	.2032"- .2187"		13/32	3/16	PTD-15	6.93	8.69	11.55	13.75	17.05	10.40	12.10	15.02	20.52	31.52										
15/64	.2339" .2336"	13/32	3/16	PT-16	4.25	6.06	.2188"- .2343"		13/32	3/16	PTD-16	6.93	8.69	11.55	13.75	17.05	10.40	12.10	15.02	20.52	31.52										
1/4	.2495" .2492"	7/16	3/16	PT-17	4.25	6.06	.2344"- .2500"		7/16	3/16	PTD-17	6.93	8.69	11.55	13.75	17.05	10.40	12.10	15.02	20.52	31.52										

QUANTITY DISCOUNTS	
ONE SHIPMENT AND ONE DESTINATION	
APPLY TO PT ONLY AND ARE COMBINABLE WITH RHX, RX, RC, RCX, ME AND MPT EJECTOR AND CORE PINS	
300 Pieces (ONE SIZE).... Less 5%	500 Pieces (CUMULATIVE) ... Less 5%
	1200 PCS. (CUMULATIVE)... Less 7%

Q = Price Per Quotation

## H-13 "HARDENED-THROUGH" HOTWORK EJECTOR PINS

TIGHTEST TOLERANCE IN THE INDUSTRY (.0003")

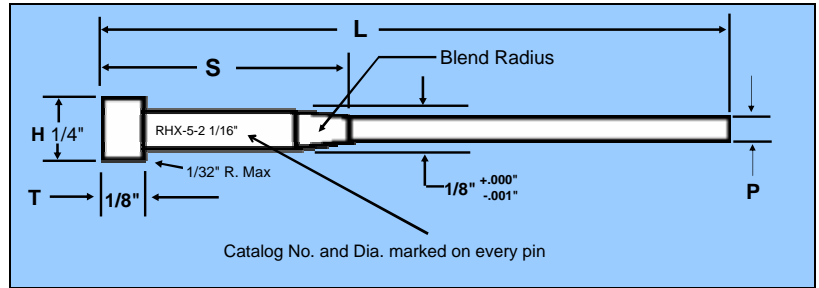
MATERIAL : H-13 HOTWORK DIE STEEL

CORE: THROUGH-HARDENED TO 50-55 RC

SURFACE: ION NITRIDED TO 65-74 RC

### SHOULDER STYLE

FRACTIONAL AND .005" OVERSIZED DIAMETERS



TOLERANCES			
P	H	T	L
-.0005"	+.000"	+.000"	+.375"
-.0008"	-.010"	-.002"	-.000"

HOW TO ORDER: EXAMPLES			
Qty.	Cat No.	(IF .005" O.S.)	Length
24	RHX-7-1/2	+.005	L-10
48	RHX-3-2		L-6

CATALOG NUMBER	P		S	NET PRICE EACH PER QUANTITY (US \$)					PKG. QTY.	
	PIN DIA.			SHOULDER LENGTH	L-6"	L-10"		L-14"		
	NOMINAL DIA.	DECIMAL EQUIV.			STANDARD DIA.	STANDARD DIA.	+.005" OVERSIZED DIA.	STANDARD DIA.		+.005" OVERSIZED DIA.
RHX-2-1/2	1/32	0.03125	1/2	7.35	Q	Q	Q	Q	12	
RHX-2-2			2"	7.25	Q	Q	Q	Q		
RHX-2-3			3"	Q	9.15	10.10	Q	Q		
RHX-2-4			4"	Q	9.15	10.10	Q	Q		
RHX-3-1/2	3/64	0.0469	1/2	4.25	Q	Q	Q	Q		
RHX-3-2			2"	4.05	4.65	5.40	Q	Q		
RHX-3-3			3"	Q	5.10	6.15	Q	Q		
RHX-3-4			4"	Q	5.70	6.15	Q	Q		
RHX-5-1/2	1/16	0.0625	1/2	3.95	4.90	5.60	Q	Q		
RHX-5-2			2"	3.85	4.50	5.40	6.20	7.15		
RHX-5-3			3"	Q	4.75	5.85	Q	Q		
RHX-5-4			4"	Q	5.30	6.45	Q	Q		
RHX-6-1/2	5/64	0.0781	1/2	3.95	4.90	5.70	Q	Q		
RHX-6-2			2"	3.85	4.50	5.10	6.20	7.15		
RHX-6-3			3"	Q	4.75	5.85	Q	Q		
RHX-6-4			4"	Q	5.30	6.45	Q	Q		
RHX-7-1/2	3/32	0.0938	1/2	3.60	4.55	5.10	Q	Q		
RHX-7-2			2"	3.40	4.30	4.90	5.80	6.75		
RHX-7-3			3"	Q	4.30	5.35	Q	Q		
RHX-7-4			4"	Q	4.75	5.85	Q	Q		
RHX-8-1/2	7/64	0.1094	1/2	3.60	4.55	5.10	Q	Q		
RHX-8-2			2"	3.40	4.05	4.60	5.80	6.75		
RHX-8-3			3"	Q	4.30	5.35	Q	Q		
RHX-8-4			4"	Q	4.75	5.85	Q	Q		

CUSTOM MODIFICATIONS PRICE AND DELIVERY PER QUOTATION	The following are some of the modifications which can be made to this product. Please refer to page 1 for more information on ordering this product with these modifications or use the worksheet templates provided on pages 25 -28.								
	ML	CL	MT	CT	MH	CS	CSD	SR	COATINGS
									TIN DICRONITE

Q = Price Per Quotation

## H-13 "HARDENED-THROUGH" HOTWORK EJECTOR PINS

TIGHTEST TOLERANCES IN THE INDUSTRY (.0003")

MATERIAL : H-13 HOTWORK DIE STEEL

**STRAIGHT STYLE**

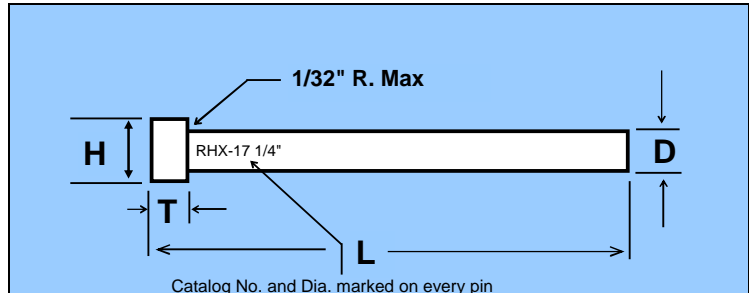
CORE: THROUGH-HARDENED TO 50-55 RC

SURFACE: ION NITRIDED TO 65-74 RC

FRACTIONAL AND .005" OVERSIZED DIAMETERS

TOLERANCES			
D	H	T	L
-.0005"	+000"	+.000"	+375"
-.0008"	-.010"	-.002"	-.000"

HOW TO ORDER: EXAMPLES			
Qty.	Cat No.	(IF .005" O.S.)	Length
24	RHX-13	+.005	L-10
48	RHX-9		L-10



Catalog No. and Dia. marked on every pin

CATALOG NUMBER	D		H	T	NET PRICE EACH PER QUANTITY (US \$)					PKG. QTY.		
	PIN DIA.				HEAD DIA.	HEAD THICK.	L-6"	L-10"			L-14"	
	NOMINAL DIA.	DECIMAL EQUIV.					STANDARD DIA.	STANDARD DIA.	+.005" OVERSIZED DIA.		STANDARD DIA.	+.005" OVERSIZED DIA.
RHX-3	3/64	0.0469	1/4	1/8	4.30	Q	Q	Q	Q	12		
RHX-5	1/16	0.0625			4.05	4.75	5.30	Q	Q			
RHX-6	5/64	0.0781			4.05	4.75	5.30	Q	Q			
RHX-7	3/32	0.0938			3.65	4.10	4.85	Q	Q			
RHX-8	7/64	0.1094			3.65	4.10	4.85	Q	Q			
RHX-9	1/8	0.1250			1.95	2.15	2.25	2.50	2.80			
RHX-10	9/64	0.1406	2.15	2.35	3.15	3.05	Q					
RHX-11	5/32	0.1563	9/32	5/32	2.05	2.30	2.40	2.80	3.05			
RHX-12	11/64	0.1719	11/32	3/16	2.30	2.50	3.35	3.05	Q			
RHX-13	3/16	0.1875	3/8	3/16	2.10	2.45	2.55	3.10	3.30			
RHX-14	13/64	0.2031	3/8	3/16	2.55	2.70	Q	3.25	Q			
RHX-15	7/32	0.2188	13/32	3/16	2.30	2.70	2.95	3.35	Q			
RHX-16	15/64	0.2344	13/32	3/16	2.85	3.00	Q	3.70	Q			
RHX-17	1/4	0.2500	7/16	3/16	2.45	3.00	3.10	3.70	4.00			
RHX-18	17/64	0.2656	7/16	1/4	3.25	3.35	Q	4.05	Q			
RHX-19	9/32	0.2813	7/16	1/4	2.75	3.45	3.55	4.20	Q			
RHX-20	19/64	0.2969	1/2	1/4	3.65	3.80	Q	4.70	Q			
RHX-21	5/16	0.3125	1/2	1/4	3.05	3.80	3.90	4.75	5.25			
RHX-22	21/64	0.3281	9/16	1/4	4.00	4.20	Q	5.30	Q			
RHX-23	11/32	0.3438	9/16	1/4	3.40	4.30	4.55	5.50	Q			
RHX-24	23/64	0.3594	5/8	1/4	4.40	4.75	Q	5.95	Q			
RHX-25	3/8	0.3750	5/8	1/4	3.65	4.85	5.05	6.00	6.35			
RHX-26	25/64	0.3906	37/64	1/4	5.35	5.90	Q	Q	Q			
RHX-27	13/32	0.4063	11/16	1/4	4.00	5.30	5.70	6.90	Q			
RHX-28	27/64	0.4219	11/16	1/4	5.25	6.75	Q	Q	Q			
RHX-29	7/16	0.4375	11/16	1/4	4.35	5.90	6.15	7.60	8.40			
RHX-30	29/64	0.4531	45/64	1/4	5.70	7.05	Q	Q	Q			
RHX-31	15/32	0.4688	3/4	1/4	5.10	6.45	6.85	9.30	Q			
RHX-32	31/64	0.4844	3/4	1/4	6.20	8.15	Q	Q	Q			
RHX-33	1/2	0.5000	3/4	1/4	5.15	6.95	7.45	9.15	9.75			

### QUANTITY DISCOUNTS

Apply to all standard RHX Shoulder and Straight Styles, and are combinable with PT, RX, RC, RCX, MPT, and ME Ejector and Core Pins

300 Pieces (one size).....Less 5%      500 Pieces (cumulative).....Less 5%      1200 Pieces (cumulative).....Less 7%

See previous page for custom modification information

Q = Price Per Quotation

## H-13 HOTWORK EJECTOR PINS

TIGHTEST TOLERANCES IN THE INDUSTRY (.0003")

MATERIAL : H-13 HOTWORK DIE STEEL

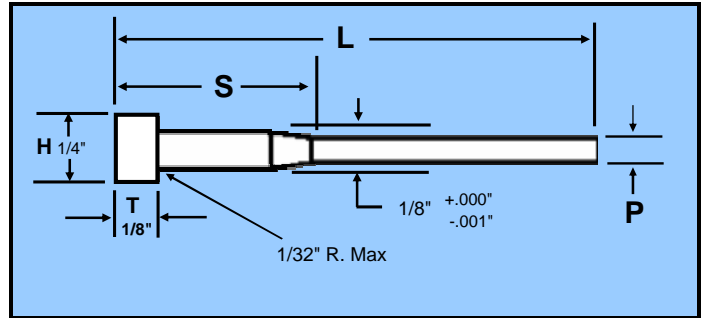
CORE: THROUGH-HARDENED TO 41-45 RC

SURFACE: ION NITRIDED TO 65-74 RC

Royal KNIGHTRIDE™ Series Ejector Pins are precision crafted from the finest grade of H-13 thermal shock resistant hotwork die steel. The heads are hot forged and stress relieved for uniform grain flow and high tensile strength. The core is hardened throughout to 41-45 RC and the surface is ion nitrided to 65-74 RC in a proprietary process, designed to create a diffusion layer between the nitrided case and the hardened core. The process produces the ideal combination of toughness and long life and it also prevents surface nicking and flaking which may be a problem with other nitrided pins. The diameters are precision ground to a high surface finish (5-10 Ra) and tight tolerance (.0003") which reduces friction and increases pin life.

### SHOULDER STYLE

STANDARD FRACTIONAL AND .005" OVERSIZED DIAMETERS



HOW TO ORDER: EXAMPLES			
Qty.	Cat No.	(IF .005" O.S.)	Length
24	RX-3-2		L-6
48	RX-5-1/2	+.005	L-10

TOLERANCES			
P	H	T	L
-.0005"	+000"	+.000"	+.375"
-.0008"	-010"	-.002"	-000"

P		S	CATALOG NUMBER	L-4"	L-6"	L-10"		L-14"	PKG. QTY.
NOMINAL PIN DIA.	ACTUAL PIN DIA.	SHOULDER LENGTH		STANDARD DIA.	STANDARD DIA.	STANDARD DIA.	+.005" DIA.	STANDARD DIA.	
1/32	.0308" .0305"	1/2	RX-2-1/2	Q	7.23	Q	Q	Q	12
		2"	RX-2-2	Q	7.12	Q	Q	Q	
		3"	RX-2-3	Q	Q	8.93	Q	Q	
		4"	RX-2-4	Q	Q	8.93	Q	Q	
3/64	.0464" .0461"	1/2	RX-3-1/2	4.15	4.20	5.42	5.98	6.94	
		2"	RX-3-2	4.06	4.11	4.79	5.76	6.72	
		3"	RX-3-3	Q	Q	4.79	Q	Q	
		4"	RX-3-4	Q	Q	4.79	Q	Q	
1/16	.0620" .0617"	1/2	RX-5-1/2	3.91	3.96	5.07	5.64	6.53	
		2"	RX-5-2	3.81	3.87	4.83	5.42	6.17	
		3"	RX-5-3	Q	Q	4.64	Q	Q	
		4"	RX-5-4	Q	Q	4.83	Q	Q	
5/64	.0776" .0773"	1/2	RX-6-1/2	3.91	3.96	5.07	5.64	6.62	
		2"	RX-6-2	3.81	3.87	4.83	5.42	6.27	
		3"	RX-6-3	Q	Q	4.64	Q	Q	
		4"	RX-6-4	Q	Q	4.83	Q	Q	
3/32	.0933" .0930"	1/2	RX-7-1/2	3.51	3.57	4.60	5.18	6.27	
		2"	RX-7-2	3.42	3.47	4.37	4.95	6.02	
		3"	RX-7-3	Q	Q	4.18	Q	Q	
		4"	RX-7-4	Q	Q	4.37	Q	Q	
7/64	.1089" .1086"	1/2	RX-8-1/2	3.51	3.57	4.60	5.18	6.27	
		2"	RX-8-2	3.42	3.47	4.37	4.95	5.90	
		3"	RX-8-3	Q	Q	4.18	Q	Q	
		4"	RX-8-4	Q	Q	4.37	Q	Q	

QUANTITY DISCOUNTS		
Apply to all standard RX Shoulder and Straight Styles, and are combinable with PT, RHX, RC, RCX, MPT, and ME Ejector and Core Pins		
300 Pieces (one size).....	Less 5%	500 Pieces (cumulative).....
		Less 5%
		1200 Pieces (cumulative).....
		Less 7%

CUSTOM MODIFICATIONS PRICE AND DELIVERY PER QUOTATION	The following are some of the modifications which can be made to this product. Please refer to page 1 for more information on ordering this product with these modifications or use the worksheet templates provided on pages 25 - 28.			
	ML	CL	MT	CT
	MH			COATINGS
				Dicronite

Please refer to pages 15 and 16 for our M-2 High Speed Steel **TRUE-HARD™** Series Ejector/Core Pins. The **TRUE-HARD™** pins are stocked in standard fractional diameters, up to 1/4" (PT Type) and are available for quick delivery in .0001" increment diameters (PTD TYPE)

Q=Price Per Quotation

# RX KNIGHTRIDE™ SERIES



## H-13 HOTWORK EJECTOR PINS

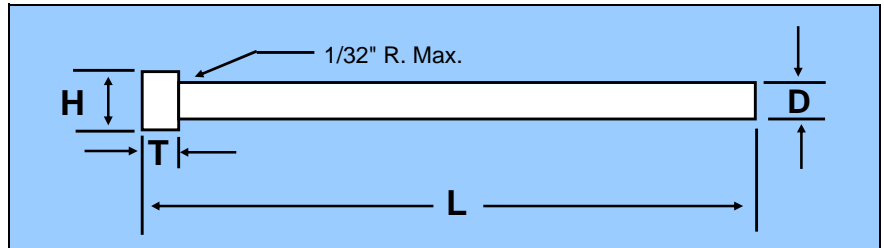
TIGHTEST TOLERANCES IN THE INDUSTRY(.0003")

MATERIAL: H-13 HOTWORK DIE STEEL  
 CORE: THROUGH-HARDENED TO 41-45 RC  
 SURFACE: ION NITRIDED TO 65-74 RC

### STRAIGHT STYLE

FRACTIONAL AND .005" OVERSIZED AND LETTER SIZE DIAMETERS

TOLERANCES				
D	H	T	L	
UP TO 1/2" DIA AND UP TO 14" LG.	-0.0005" -0.0008"	+0.000" -0.010"	+0.000" -0.002"	+0.375" -0.000"
OVER 1/2" DIA OR OVER 14" LG.	-0.0003" -0.0008"			
HOW TO ORDER: EXAMPLES				
Qty.	Cat No.	(IF .005" O.S.)	Length	
25	RX-13	+0.005	L-10	
50	RX-5		L-10	



D		H	T	CATALOG NUMBER	L-4"	L-6"	L-10"	L-14"	L-18"	L-25"	L-36"	PKG. QTY.				
PIN DIA.		HEAD DIA.	HEAD THICK.		STD DIA.	STD DIA.	STD DIA.	+0.005" DIA.	STD DIA.	+0.005" DIA.	STD DIA.		STD DIA.			
NOMINAL DIA.	DECIMAL EQUIV.															
1/32	0.0313	1/4	1/8	RX-2	q	q	q	q	q	q	q	q	12			
3/64	0.0469			RX-3	4.24	4.30	q	q	q	q	q	q		q		
1/16	0.0625			RX-5	3.95	4.00	5.17	6.02	q	q	q	q		q		
5/64	0.0781			RX-6	3.95	4.00	4.83	6.02	q	q	q	q		q		
3/32	0.0938			RX-7	3.56	3.61	4.06	5.28	q	q	q	q		q		
7/64	0.1094			RX-8	3.56	3.61	4.06	5.28	q	q	q	q		q		
1/8	0.1250			RX-9	1.90	1.96	2.20	2.48	2.75	2.95	6.38	q		q	q	
9/64	0.1406			RX-10	q	2.30	2.35	2.67	3.20	q	6.07	q		q	q	
5/32	0.1563			9/32	5/32	RX-11	1.99	2.05	2.30	2.59	2.96	3.26		4.13	q	q
11/64	0.1719			11/32	3/16	RX-12	2.39	2.45	2.50	2.84	3.32	q		q	q	q
3/16	0.1875	3/8	3/16	RX-13	2.05	2.10	2.45	2.76	3.26	3.50	4.28	Q	6.12	Q		
13/64	0.2031	3/8	3/16	RX-14	q	q	2.74	q	3.52	q	q	q	q	q		
7/32	0.2188	13/32	3/16	RX-15	2.19	2.24	2.73	3.06	3.62	q	q	q	6.63	q		
15/64	0.2344	13/32	3/16	RX-16	q	q	3.00	q	3.88	q	q	q	q	q		
B	0.2380	7/16	3/16	RX-B	q	q	4.39	q	q	q	q	q	q	q		
C	0.2420	7/16	3/16	RX-C	q	q	4.44	q	q	q	q	q	q	q		
D	0.2460	7/16	3/16	RX-D	q	q	4.59	q	q	q	q	q	q	q		
1/4	0.2500	7/16	3/16	RX-17	2.34	2.39	2.98	3.34	3.86	4.27	4.95	5.60	7.13	Q		
F	0.2570	7/16	3/16	RX-F	q	q	4.64	q	q	q	q	q	q	q		
G	0.2610	7/16	1/4	RX-G	q	q	4.69	q	q	q	q	q	q	q		
17/64	0.2656	7/16	1/4	RX-18	q	q	3.52	q	4.21	q	q	q	7.55	q		
I	0.2720	7/16	1/4	RX-I	q	q	4.85	q	q	q	q	q	q	q		
J	0.2770	7/16	1/4	RX-J	q	q	4.90	q	q	q	q	q	q	q		
9/32	0.2813	7/16	1/4	RX-19	2.77	2.87	3.65	3.75	4.35	q	5.80	q	8.05	q		
L	0.2900	1/2	1/4	RX-L	q	q	5.20	q	q	q	q	q	q	q		
M	0.2950	1/2	1/4	RX-M	q	q	5.25	q	q	q	q	q	q	q		
19/64	0.2969	1/2	1/4	RX-20	q	q	3.86	q	4.85	q	q	q	q	q		
N	0.3020	1/2	1/4	RX-N	q	q	5.36	q	q	q	q	q	q	q		
5/16	0.3125	1/2	1/4	RX-21	3.06	3.16	4.06	4.15	4.85	5.40	6.38	6.99	8.66	32.13		
P	0.3230	9/16	1/4	RX-P	q	q	5.66	q	q	q	q	q	q	q		
21/64	0.3281	9/16	1/4	RX-22	q	q	4.35	q	5.64	q	q	q	9.37	q		
Q DIA	0.3320	9/16	1/4	RX-Q	q	q	5.87	q	q	q	q	q	q	q		
R	0.3390	9/16	1/4	RX-R	q	q	5.97	q	q	q	q	q	q	q		
11/32	0.3438	9/16	1/4	RX-23	3.51	3.56	4.55	4.70	5.73	q	q	q	9.70	q		
23/64	0.3594	5/8	1/4	RX-24	q	q	4.85	q	6.13	q	q	q	q	q		
U	0.3680	5/8	1/4	RX-U	q	q	6.48	q	q	q	q	q	q	q		
3/8	0.3750	5/8	1/4	RX-25	3.71	3.75	5.05	5.24	6.19	6.77	8.35	9.18	11.88	31.61		
V	0.3770	5/8	1/4	RX-V	q	q	6.63	q	q	q	q	q	q	q		
W	0.3860	5/8	1/4	RX-W	q	q	6.63	q	q	q	q	q	q	q		
X	0.3970	11/16	1/4	RX-X	q	q	6.99	q	q	q	q	q	q	q		
Y	0.4040	11/16	1/4	RX-Y	q	q	7.14	q	q	q	q	q	q	q		
13/32	0.4063	11/16	1/4	RX-27	4.11	4.15	5.63	5.90	7.28	q	9.60	q	13.82	q		
7/16	0.4375	11/16	1/4	RX-29	4.46	4.55	6.19	6.43	7.87	8.62	10.70	q	15.45	34.31		
15/32	0.4688	3/4	1/4	RX-31	5.73	5.83	6.78	7.02	11.29	q	11.82	q	17.58	q		
1/2	0.5000	3/4	1/4	RX-33	5.29	5.44	7.37	7.71	9.69	10.29	12.80	q	19.02	37.98		
9/16	0.5625	13/16	1/4	RX-35	q	6.72	9.17	q	11.68	q	15.25	q	21.82	q		
5/8	0.6250	7/8	1/4	RX-37	q	7.79	10.76	q	13.56	q	17.60	q	24.63	q		
11/16	0.6875	15/16	1/4	RX-39	q	10.26	12.69	q	17.89	q	20.76	q	28.75	q		
3/4	0.7500	1	1/4	RX-41	q	10.86	14.58	q	18.55	q	23.76	q	32.69	q		
7/8	0.8750	1-1/8	1/4	RX-45	q	23.30	27.40	q	46.55	q	65.75	q	84.85	q		
1	1.0000	1-1/4	1/4	RX-47	q	24.40	27.40	q	53.95	q	69.80	q	90.35	q		

See previous page for Custom Modification information and Quantity Discounts.

Q= Price Per Quota

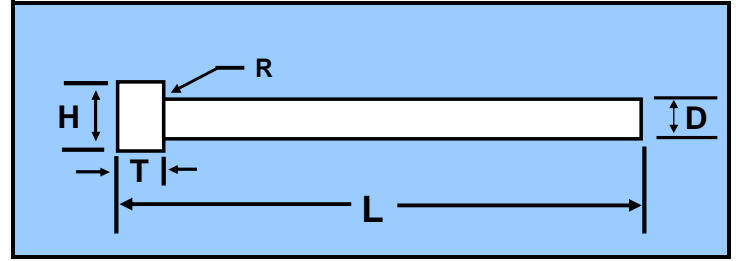
## METRIC *KNIGHTRIDE*™ SERIES H-13 HOTWORK EJECTOR PINS

MATERIAL : H-13 HOTWORK DIE STEEL

CORE: THROUGH-HARDENED TO 41-45 RC

SURFACE: ION NITRIDED TO 65-74 RC

### STRAIGHT STYLE



TOLERANCES (METRIC ISO)				
PIN DIA. (D)g6		R	Head Dia. (H)	+0.0 mm -0.2 mm
SIZE	TOLERANCE			
0 to 3 mm	-.002 mm -.008 mm	0.3 mm	Head Thick (T)	+0.00 mm -0.05 mm
3.5 to 6 mm	-.004 mm -.012 mm	0.3 mm		
6.5 to 10 mm	-.005 mm -.014 mm	0.5 mm	Length (L)	+2.0 mm -0.0 mm
11 to 18 mm	-.006 mm -.017 mm	0.8 mm		
20 to 25 mm	-.007 mm -.020 mm	0.8 mm		

HOW TO ORDER: EXAMPLE		
QTY.	CAT. NO.	LENGTH
24	ME-2.5	L-160

CATALOG NUMBER	D PIN DIA.	H HEAD DIA.	T HEAD THICK	NET PRICE EACH (US \$)				PKG. QTY
				LENGTHS				
				L-160	L-250	L-315	L-400	
ME-2.0	2.0	4	2	3.32	3.42	Q	Q	12
ME-2.5	2.5	5	2	3.37	3.67	4.28	Q	
ME-3.0	3.0	6	3	2.60	3.83	4.08	4.56	
ME-3.5	3.5	7	3	3.98	4.69	5.66	Q	
ME-4.0	4.0	8	3	2.81	4.18	4.49	5.30	
ME-4.5	4.5	8	3	4.39	5.51	6.27	Q	
ME-5.0	5.0	10	3	3.01	3.88	4.95	6.14	
ME-5.5	5.5	10	3	4.64	5.87	6.73	Q	
ME-6.0	6.0	12	5	3.77	5.41	6.27	7.88	
ME-6.5	6.5	12	5	5.15	7.19	8.31	Q	
ME-7.0	7.0	12	5	5.51	7.85	8.98	Q	
ME-8.0	8.0	14	5	4.90	7.19	8.52	10.61	
ME-9.0	9.0	14	5	6.63	10.10	11.63	Q	
ME-10.0	10.0	16	5	5.76	8.67	10.15	12.50	
ME-11.0	11.0	16	5	8.77	13.46	15.91	Q	
ME-12.0	12.0	20	7	6.78	9.79	13.46	Q	
ME-12.5	12.5	20	7	8.26	11.73	15.35	Q	
ME-14.0	14.0	22	7	8.57	12.65	Q	Q	6
ME-16.0	16.0	22	7	9.59	14.59	Q	Q	
ME-18.0	18.0	26	7	Q	19.18	Q	Q	
ME-20.0	20.0	26	8	Q	22.44	Q	Q	4
ME-25.0	25.0	32	10	Q	39.22	Q	Q	2

Q = Price Per Quotation

QUANTITY DISCOUNTS			
Apply to all standard ME Pins, and are combinable with PT, RHX, RC, RCX, MPT, and RX Ejector and Core Pins - One shipment, one destination			
300 Pieces (one size).....Less 5%	500 Pieces (cumulative).....Less 5%	1200 Pieces (cumulative).....Less 7%	

CUSTOM MODIFICATIONS PRICE AND DELIVERY PER QUOTATION	The following are some of the modifications which can be made to this product. Please refer to page 1 for more information on ordering this product with these modifications or use the worksheet templates provided on pages 25 - 28.							
	ML	CL	MT	CT	MH	COATINGS		
						Dicronite		



# RC AND RCX TYPES



## STANDARD H-13 CORE PINS

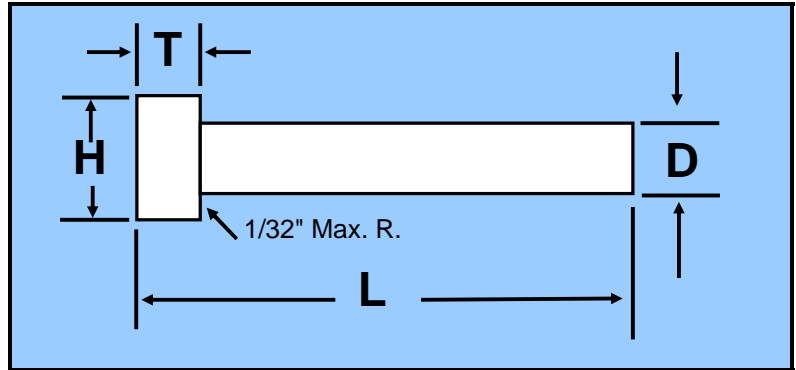
3", 6" and 10" Lengths

### TWO HARDNESS RANGES

**STANDARD HARDNESS** - RC TYPE: 30-35 RC

**HIGH HARDNESS** - RCX TYPE: 50-55-RC

30 STOCK DIAMETERS \*



HOW TO ORDER: EXAMPLES		
QTY.	CAT NO.	LENGTH
24	RC-9	L-6
12	RCX-13	L-3

RC TYPE STANDARD HARDNESS 30-35 RC				D	H	T	RCX TYPE HIGH HARDNESS 50-55 RC				PKG. QTY.			
CATALOG NUMBER	NET PRICE EACH (US \$)						BODY DIA.	HEAD DIA.	HEAD THICK.	CATALOG NUMBER		NET PRICE EACH (US \$)		
	STANDARD LENGTHS											STANDARD LENGTHS		
	L-3"	L-6"	L-10"					L-3"	L-6"	L-10"				
RC-3	4.90	5.51	Q	3/64	1/4	1/8	RCX-3	5.10	5.76	Q	12			
RC-5	4.64	5.15	Q	1/16	1/4	1/8	RCX-5	4.85	5.41	Q				
RC-6	4.23	4.64	Q	5/64	1/4	1/8	RCX-6	4.44	4.90	Q				
RC-7	3.62	3.72	4.34	3/32	1/4	1/8	RCX-7	3.83	3.98	4.69				
RC-8	3.72	3.88	4.59	7/64	1/4	1/8	RCX-8	3.93	4.08	4.90				
RC-9	2.24	2.30	3.06	1/8	1/4	1/8	RCX-9	2.40	2.50	3.21				
RC-10	2.24	2.35	3.06	9/64	1/4	1/8	RCX-10	2.40	2.60	3.21				
RC-11	2.30	2.40	3.11	5/32	9/32	5/32	RCX-11	2.50	2.60	3.21				
RC-12	2.30	2.40	3.21	11/64	11/32	3/16	RCX-12	2.55	2.65	3.42				
RC-13	2.35	2.45	3.26	3/16	3/8	3/16	RCX-13	2.55	2.70	3.42				
RC-14	2.40	2.50	3.32	13/64	3/8	3/16	RCX-14	2.60	2.75	3.57				
RC-15	2.45	2.60	3.42	7/32	13/32	3/16	RCX-15	2.65	2.81	3.57				
RC-16	3.42	3.98	Q	15/64	13/32	3/16	RCX-16	3.62	4.23	Q				
RC-17	2.65	2.75	3.67	1/4	7/16	3/16	RCX-17	2.86	3.01	3.88				
RC-18	3.67	4.23	Q	17/64	7/16	1/4	RCX-18	3.93	4.54	Q				
RC-19	2.91	3.01	4.03	9/32	7/16	1/4	RCX-19	3.16	3.32	4.34				
RC-20	3.98	4.54	Q	19/64	1/2	1/4	RCX-20	4.23	4.85	Q				
RC-21	3.21	3.32	4.44	5/16	1/2	1/4	RCX-21	3.47	3.62	4.79				
RC-22	4.23	4.85	Q	21/64	9/16	1/4	RCX-22	4.54	5.20	Q				
RC-23	3.47	3.62	4.79	11/32	9/16	1/4	RCX-23	3.77	3.98	5.30				
RC-24	4.64	5.25	Q	23/64	5/8	1/4	RCX-24	4.90	5.61	Q				
RC-25	3.88	4.03	5.30	3/8	5/8	1/4	RCX-25	4.13	4.39	5.81				
RC-27	4.34	4.54	5.76	13/32	11/16	1/4	RCX-27	4.64	4.95	6.32				
RC-29	4.69	4.85	6.32	7/16	11/16	1/4	RCX-29	5.00	5.20	6.94				
RC-31	5.20	5.41	6.89	15/32	3/4	1/4	RCX-31	5.56	5.97	7.60				
RC-33	5.56	5.76	7.40	1/2	3/4	1/4	RCX-33	5.87	6.27	8.21				
RC-35	Q	6.89	9.18	9/16	13/16	1/4	RCX-35	Q	7.50	10.00				
RC-37	Q	8.21	10.76	5/8	7/8	1/4	RCX-37	Q	8.77	11.88				
RC-39	Q	13.26	Q	11/16	15/16	1/4	RCX-39	Q	14.18	Q				
RC-41	Q	11.12	14.69	3/4	1	1/4	RCX-41	Q	12.09	16.32				

TOLERANCES		
D	PIN DIA.	+0.001" -0.000"
H	HEAD DIA.	+0.000" -0.010"
T	HEAD THICK.	+0.000" -0.002"
L	OVERALL LENGTH	+0.375" -0.000"

QUANTITY DISCOUNTS	
Based on one shipment and one destination	
Combinable with PT, RX, ME, RHX, and MPT Ejector pins.	
300 Pcs. (one size)...Less 5%	
500 Pcs. (cumulative)...Less 5%	
1200 Pcs. (cumulative)...Less 7%	

\* Decimal diameters can be made to order for prompt delivery. Also, please refer to pages 2, 3, 4, 5, & 6 for core pin blanks stocked in .001" increments from 0.010" diameter.

Q = Price Per Quotation

CUSTOM MODIFICATIONS PRICE AND DELIVERY PER QUOTATION	The following are some of the modifications which can be made to this product. Please refer to page 1 for more information on ordering this product with these modifications or use the worksheet templates provided on pages 25 - 28.											
	ML	CL	MT	CT	MH	CS	CSD	SR	COATINGS			
									TiN Dicronite			

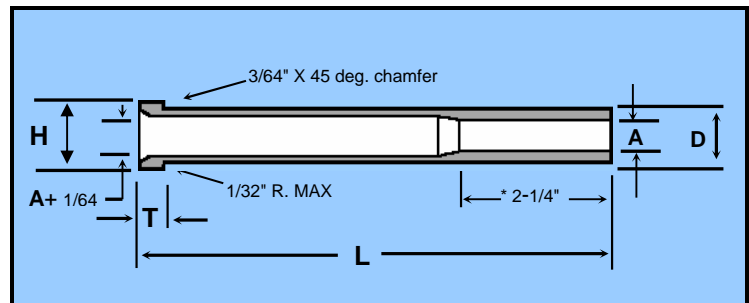
## KNIGHTRIDE™ SERIES H-13 HOTWORK EJECTOR SLEEVES

MATERIAL: H-13 HOTWORK DIE STEEL  
I. D. & O. D. NITRIDED TO 65-74 RC

NITRIDED O.D. & I.D.

TOLERANCES				
I.D.	O.D.	HEAD DIA.	HD. THICK	O.A.L.
A	D	H	T	L
+0.0005"	-0.0003"	+0.000"	+0.000"	+0.125"
-0.0000"	-0.0008"	-0.010"	-0.002"	-0.000"

HOW TO ORDER: EXAMPLES		
QTY.	Cat. NO.	Length
10	RSL-15	L-4
6	RSL-29	L-7



\*RSL-13 and RSL-15 have a 1-3/4" bearing length

CATALOG NUMBER	A I.D.	D O.D.	H HEAD DIA.	T HEAD THICK	NET PRICE EACH PER QUANTITY (US \$)									
					L-3"		L-4"		L-5"		L-6"		L-7"	
					1-24	25 +	1-24	25 +	1-24	25 +	1-24	25 +	1-24	25 +
RSL-13	3/32	3/16	3/8	3/16	26.35	25.03	28.65	27.22	31.45	29.88	33.95	32.25	37.00	35.15
RSL-15	1/8	7/32	13/32	3/16	25.10	23.85	27.90	26.51	30.90	29.36	33.45	31.78	36.50	34.68
RSL-17	5/32	1/4	7/16	3/16	Q	Q	21.30	20.24	22.30	21.19	24.10	22.90	26.35	25.03
RSL-21	3/16	5/16	1/2	1/4	Q	Q	21.80	20.71	23.05	21.90	25.10	23.85	27.65	26.27
RSL-23	7/32	11/32	9/16	1/4	Q	Q	22.05	20.95	23.60	22.42	25.60	24.32	28.40	26.98
RSL-25	1/4	3/8	5/8	1/4	Q	Q	22.55	21.42	24.10	22.90	26.35	25.03	28.90	27.46
RSL-29	5/16	7/16	11/16	1/4	Q	Q	23.05	21.90	25.60	24.32	28.15	26.74	30.90	29.36
RSL-33	3/8	1/2	3/4	1/4	Q	Q	23.60	22.42	27.90	26.51	30.40	28.88	33.45	31.78
RSL-37	7/16	5/8	7/8	1/4	Q	Q	25.35	24.08	30.40	28.88	35.50	33.73	38.50	36.58
RSL-39	1/2	11/16	15/16	1/4	Q	Q	26.60	25.27	31.45	29.88	37.00	35.15	40.55	38.52
RSL-41	9/16	3/4	1"	1/4	Q	Q	33.00	31.35	36.50	34.68	40.00	38.00	44.00	41.80
RSL-45	5/8	7/8	1-1/8	1/4	Q	Q	37.50	35.63	41.00	38.95	45.00	42.75	49.00	46.55
RSL-47	3/4	1"	1-1/4	1/4	Q	Q	41.50	39.43	45.50	43.23	49.50	47.03	54.00	51.30

CATALOG NUMBER	A I.D.	D O.D.	H HEAD DIA.	T HEAD THICK	NET PRICE EACH PER QUANTITY (US \$)									
					L-8"		L-9"		L-10"		L-11"		L-12"	
					1-24	25 +	1-24	25 +	1-24	25 +	1-24	25 +	1-24	25 +
RSL-17	5/32	1/4	7/16	3/16	28.90	27.46	31.95	30.35	36.00	34.20	Q	Q	Q	Q
RSL-21	3/16	5/16	1/2	1/4	30.40	28.88	33.45	31.78	37.50	35.63	41.50	39.43	46.50	44.18
RSL-23	7/32	11/32	9/16	1/4	31.45	29.88	35.50	33.73	39.05	37.10	Q	Q	Q	Q
RSL-25	1/4	3/8	5/8	1/4	31.95	30.35	36.00	34.20	40.05	38.05	44.50	42.28	49.50	47.03
RSL-29	5/16	7/16	11/16	1/4	34.45	32.73	38.50	36.58	42.55	40.42	47.50	45.13	52.50	49.88
RSL-33	3/8	1/2	3/4	1/4	37.00	35.15	44.05	41.85	45.60	43.32	50.50	47.98	56.00	53.20
RSL-37	7/16	5/8	7/8	1/4	42.55	40.42	46.60	44.27	51.20	48.64	56.50	53.68	62.00	58.90
RSL-39	1/2	11/16	15/16	1/4	44.60	42.37	49.15	46.69	54.20	51.49	59.50	56.53	65.00	61.75
RSL-41	9/16	3/4	1"	1/4	48.00	45.60	53.00	50.35	57.50	54.63	63.00	59.85	68.50	65.08
RSL-45	5/8	7/8	1-1/8	1/4	53.50	50.83	58.50	55.58	63.50	60.33	69.50	66.03	75.00	71.25
RSL-47	3/4	1"	1-1/4	1/4	58.50	55.58	64.00	60.80	69.50	66.03	75.00	71.25	81.50	77.43

NOTE: Quantity Prices on Ejector Sleeves are per size only and are based on one shipment and one destination.

Ejector Sleeves are not combinable with any other components for cumulative pricing.

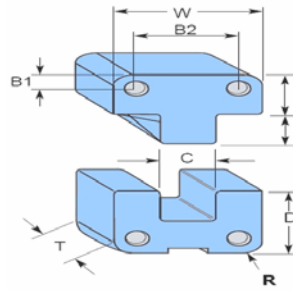
Q = Price Per Quotation

# SIDE LOCKS

MALE - MATERIAL: Tool Steel With Black Oxide

HARDNESS: 58-62 RC

FEMALE - D-2: With Titanium Nitride Coating

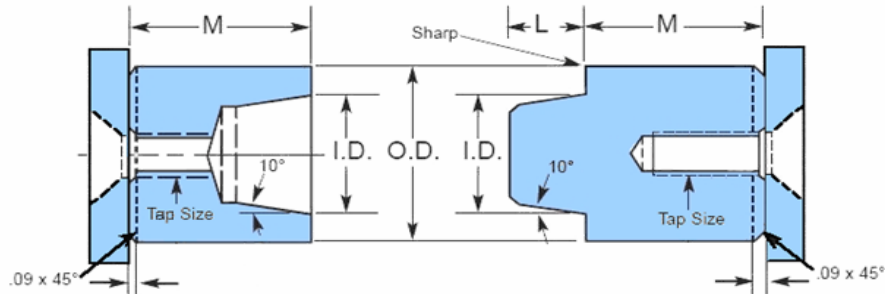


CATALOG NUMBER	W +.0000" -.0004"	T +.000" -.002"	C	E +.000" -.002"	F +.000" -.010"	OVERALL HEIGHT	B1 +.010" -.010"	B2 +.010" -.010"	D +.000" -.002"	R <sup>+.010"</sup> -.000" RADIUS	SHCS (4)	PRICE
SL-100	1.0000	.375	.500	.875	.530	2.000	.250	.500	1.125	.187	10-32 X 1/2	123.50
SL-125	1.2500	.500	.500	.875	.660	2.000	.250	.750	1.125	.187	8-32 X 5/8	134.45
SL-150	1.5000	.500	.563	.875	.560	1.750	.250	1.000	.875	.187	8-32 X 5/8	136.42
SL-200	2.0000	.500	.750	.875	.660	2.250	.312	1.375	1.375	.250	10-32 X 5/8	146.40
SL-300	3.0000	.750	1.250	.875	1.130	2.750	.375	2.250	1.875	.250	1/4-20 X 1	190.25
SL-400	4.0000	1.000	1.500	1.375	1.130	3.750	.500	3.000	2.7375	.500	3/8-16 X 1-1/4	235.95
SL-500	5.0000	1.250	2.0000	1.375	1.630	4.250	.625	3.750	2.875	.500	1/2-13 X 1-1/2	292.75
SL-600	6.0000	1.500	2.500	1.375	1.630	4.250	.625	4.750	2.875	.500	1/2-13 X 1-3/4	383.35

# TAPERED INTERLOCKS (ROUND)

MATERIAL: D2

HARDNESS: 58-62 RC



FEMALE					
CATALOG NUMBER	PRICE	O.D. +.0000" -.0005"	I.D.	M +.015" -.020"	TAP SIZE
TIF-051	21.99	.5000	.312	.875	10-24
TIF-052	22.35			1.187	
TIF-053	22.55			1.375	
TIF-071	22.18	.7500	.500	.875	1/4-20
TIF-072	22.29			1.187	
TIF-073	22.37			1.375	
TIF-101	23.32	1.0000	.625	.875	1/4-20
TIF-102	23.47			1.187	
TIF-103	23.70			1.375	
TIF-150	29.88	1.5000	1.000	1.125	5/16-18
TIF-151	30.30			1.375	
TIF-152	30.75			1.625	

MALE						
CATALOG NUMBER	PRICE	O.D. +.0000" -.0005"	I.D.	L	M +.015" -.000"	TAP SIZE
TIM-051	20.66	.5000	.312	.312	.875	10-24
TIM-052	20.99				1.187	
TIM-053	21.15				1.375	
TIM-071	20.80	.7500	.500	.281	.875	1/4-20
TIM-072	20.90				1.187	
TIM-073	21.00				1.375	
TIM-101	22.05	1.0000	.625	.343	.875	1/4-20
TIM-102	22.25				1.187	
TIM-103	22.40				1.375	
TIM-150	28.50	1.5000	1.000	.500	1.125	5/16-18
TIM-151	28.88				1.375	
TIM-152	29.31				1.625	

# WORKSHEET MASTER COPY

## Special Punches and Perforators

## Special Ejector Sleeves

FIG. 1 STRAIGHT

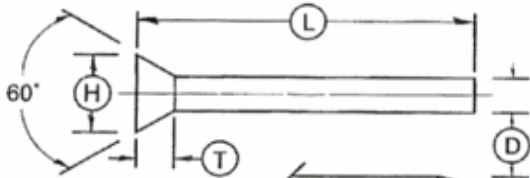


FIG. 1A STRAIGHT PILOT NOSE

FIG. 1B STEPPED

FIG. 1C STEPPED PILOT NOSE

FIG. 3 STRAIGHT

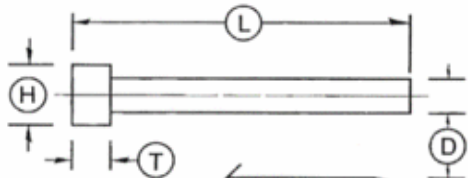


FIG. 3A STRAIGHT PILOT NOSE

FIG. 3B STEP

FIG. 3C STEP PILOT NOSE

FIG. 2 STRAIGHT

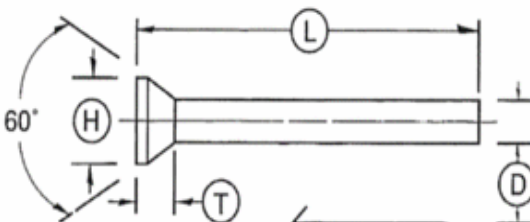


FIG. 2A STRAIGHT PILOT NOSE

FIG. 2B STEP

FIG. 2C STEP PILOT NOSE

FIG. 13 EJECTOR SLEEVE - STRAIGHT

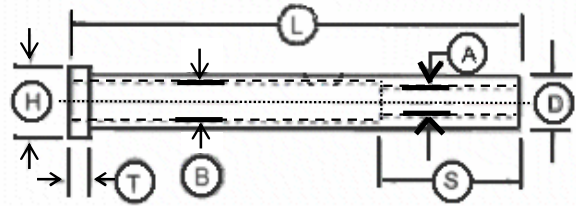
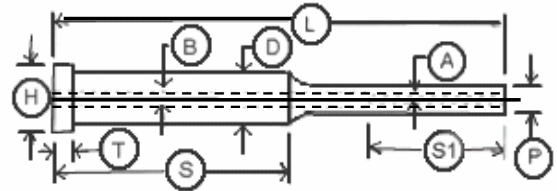


FIG. 14 EJECTOR SLEEVE - STEP



Please specify required tolerances on all dimensions.

FIG. \_\_\_\_\_ QTY. \_\_\_\_\_

MATL. \_\_\_\_\_ HDN. \_\_\_\_\_ RC

Modify Standard Catalog No. \_\_\_\_\_

COMMENTS:

DIM.	SIZE	TOL.	DIM.	SIZE	TOL.
D			S		
H			S1		
T			P		
L			A		
L1			B		
			G		
			B		
			P		
			R		

Company Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City, State, Zip \_\_\_\_\_  
 Phone \_\_\_\_\_ Fax \_\_\_\_\_  
 Contact \_\_\_\_\_  
 E-Mail Address \_\_\_\_\_  
 Reference: Request for Quote No. \_\_\_\_\_

YOUR LOCAL DISTRIBUTOR

SALES REPRESENTATIVE

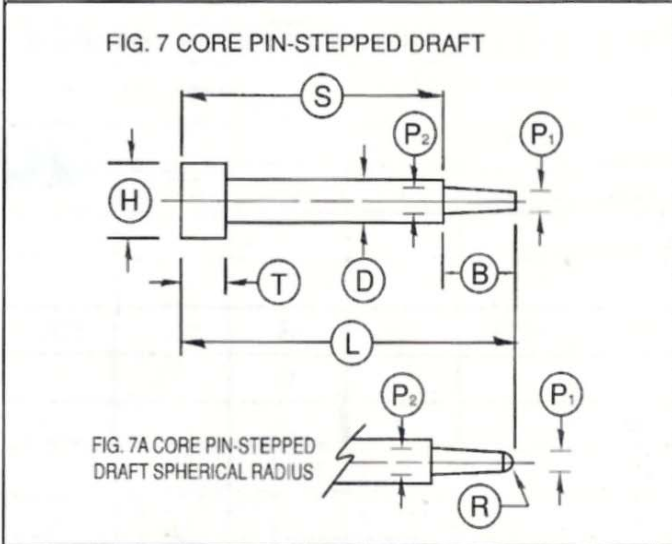
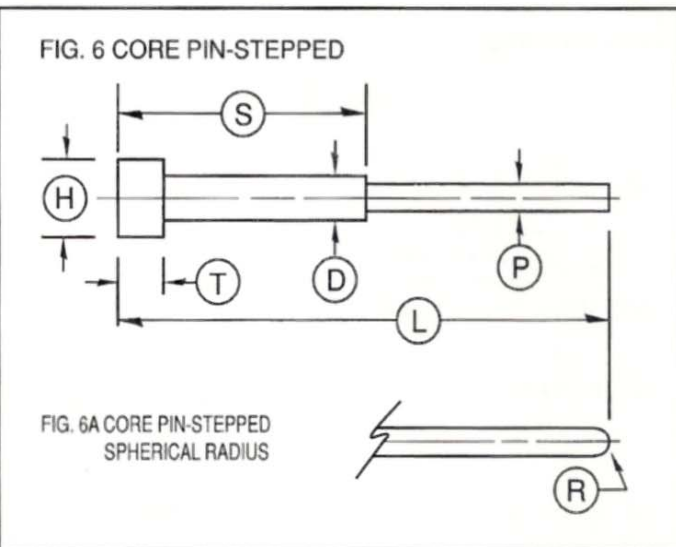
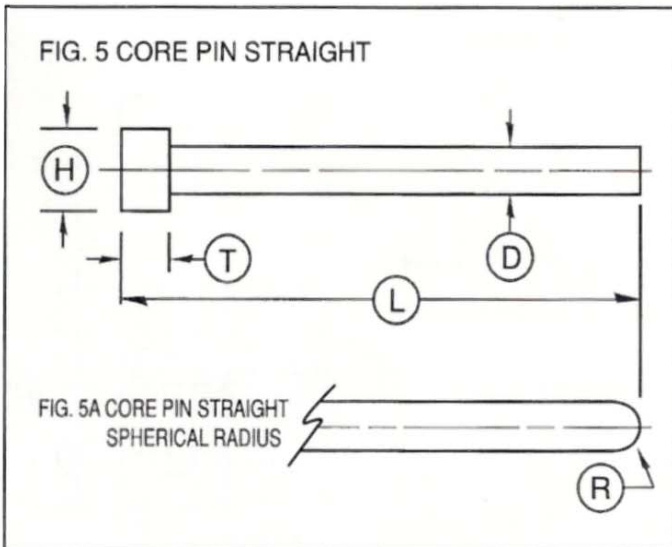
**Royal**<sup>®</sup>

ROYAL DIVERSIFIED PRODUCTS, INC.  
 287 MARKET ST., PO BOX 444, WARREN, RI 02885  
 PHONE (401) 245-6900

FAX (401) 247-2231

# WORKSHEET MASTER COPY

## CORE PINS



**Please specify required tolerances on all dimensions.**

FIG. \_\_\_\_\_ QTY. \_\_\_\_\_

MATL. \_\_\_\_\_ HDN. \_\_\_\_\_ RC

Modify Standard Catalog No. \_\_\_\_\_

COMMENTS:

DIM.	SIZE	TOL.	DIM.	SIZE	TOL.
D			S		
H			P		
T			P1		
L			P2		
B			R		

**FIG. 8 SPECIAL TO YOUR SKETCH**


Company Name \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Contact \_\_\_\_\_

E-Mail Address \_\_\_\_\_

Reference: Request for Quote No. \_\_\_\_\_

YOUR LOCAL DISTRIBUTOR

\_\_\_\_\_  
SALES REPRESENTATIVE

**Royal**<sup>®</sup>

ROYAL DIVERSIFIED PRODUCTS, INC.  
287 MARKET ST., PO BOX 444, WARREN, RI 02885  
PHONE (401) 245-6900  
**FAX (401) 247-2231**

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## EJECTOR PINS

FIG. 9 EJECTOR - STRAIGHT

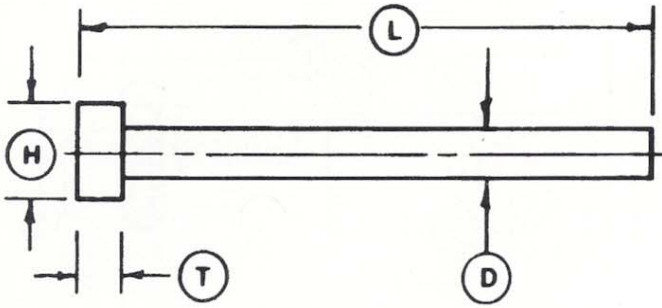


FIG. 10 EJECTOR - SHOULDER

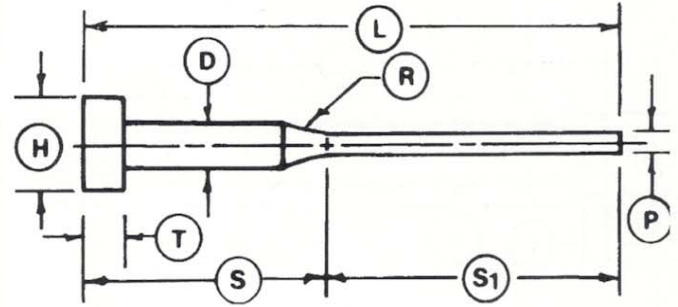
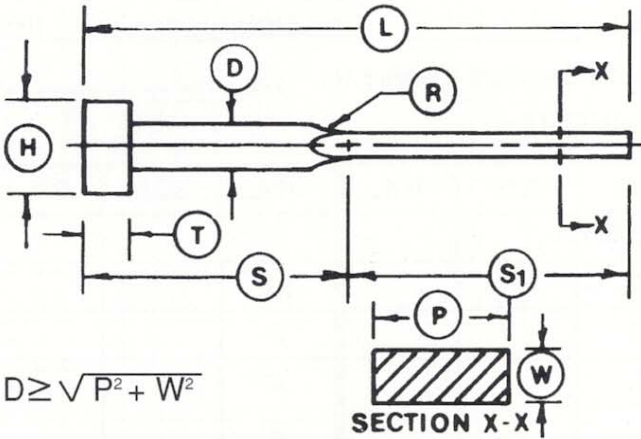


FIG. 11 EJECTOR - BLADE



Please specify required tolerances on all dimensions.

FIG. \_\_\_\_\_ QTY. \_\_\_\_\_

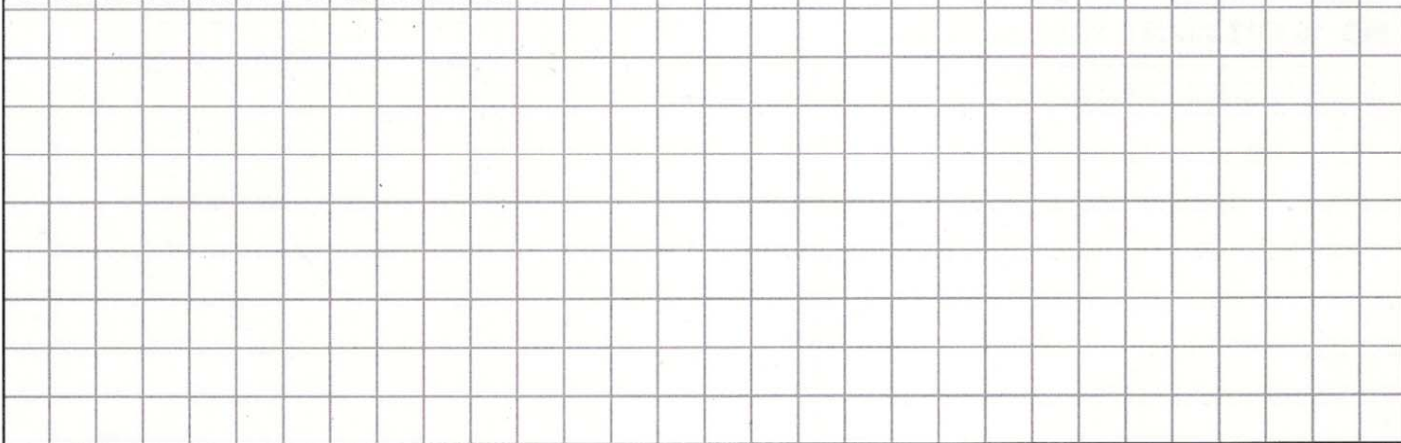
MATL. \_\_\_\_\_ HDN. \_\_\_\_\_ RC

Modify Standard Catalog No. \_\_\_\_\_

COMMENTS:

DIM.	SIZE	TOL.	DIM.	SIZE	TOL.
D			S		
H			S1		
T			R		
L			W		
P					

FIG. 12 SPECIAL TO YOUR SKETCH



Company Name \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Contact \_\_\_\_\_

E-Mail Address \_\_\_\_\_

Reference: Request for Quote No. \_\_\_\_\_

YOUR LOCAL DISTRIBUTOR

SALES REPRESENTATIVE

## Royal®

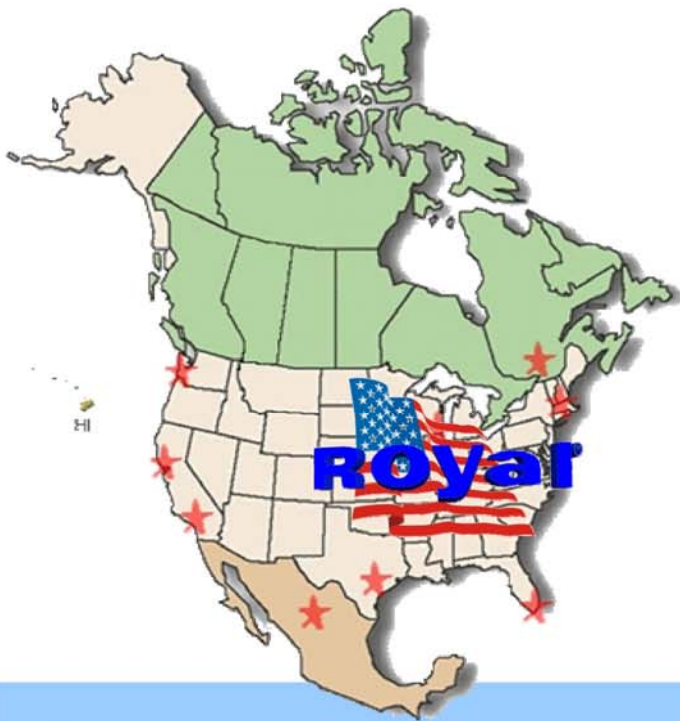
ROYAL DIVERSIFIED PRODUCTS, INC.  
287 MARKET ST., PO BOX 444, WARREN, RI 02885  
PHONE (401) 245-6900

FAX (401) 247-2231

# ROYAL DISTRIBUTORSHIP

Here at ROYAL, we pride ourselves on being associated with well informed and knowledgeable distributors. It has become a ROYAL tradition to sell our line of products through localized distributorships who stock large supplies of ROYAL pins. By doing this a distributor can quickly respond to our customer's needs.

If you are interested in becoming a ROYAL distributor, or if you are a ROYAL customer and would like one of your vendors to become a stocking ROYAL distributor, please call us at 401-245-6900. We can help! Most of our existing distributors were referred to us by satisfied customers of ROYAL DIVERSIFIED PRODUCTS!



**TERMS:** Net 30 days. 1-1/2% monthly late charge

**Prices:** Subject to change without notice.

**Minimum Order:** \$35

**Shipments:** F.O.B. Shipping Point. Unless otherwise instructed by customer, shipping will be via UPS or the least expensive carrier. We cannot assume Charges or responsibility due to transportation difficulties. **Please Note\*** No parts will be accepted for replacement or return if we are not notified within 10 days of shipment receipt.

**Quotations:** Valid for 30 days only except by special arrangement. We reserve the right to advise the customer of any change in price upon receipt of order, if quoted incorrectly.

### Confirmation/acknowledgements

**Standard Catalog Products:** Since most orders for catalog standard products are shipped before receipt of a mailed confirmation, ROYAL's policy on telephone orders is a verbal "read back" by our customer service representative.

**Non-Standard Products:** Orders containing non-standard products are acknowledged via fax within 24 hours from the time it is entered into our system. It is the customer's responsibility to check the acknowledgement for correctness of billing and shipping address, terms, shipping instructions, order quantities, size and description and pricing of item(s) ordered. *The customer is to report any discrepancies immediately.*

Otherwise ROYAL will assume order to be correct as acknowledged and will proceed accordingly.

**Cancellations:** Cancellations will be subject to a charge of \$10 plus any applicable material and labor costs for work in progress. We do not ship partially finished goods on cancelled orders.

**Returns:** Prior approval must be obtained within 30 days from the shipping date for all returns. When permission is granted, there is a 15% re-stocking charge with a 5 dollar minimum. Return shipping is the customer's responsibility. If the return proves to be the fault of ROYAL, the return shipping cost will be credited back to the customer. **Unless** there is a manufacturing discrepancy, specials **are not returnable.**

**The following are not standard stock items and are not returnable:**

- ☛ RQA TYPE PINS, 3" LENGTH AND OVER
- ☛ RQB TYPE PINS, 3" LENGTH OVER .288 IN DIA.
- ☛ RQB TYPE PINS, 4" AND OVER OR WITH "OPTIONAL T" HD. THK. OF 3/16"
- ☛ AB STYLE PINS, ALL DIAMETERS
- ☛ MQA and MQB TYPE PINS
- ☛ MPB TYPE PINS
- ☛ BH SERIES PINS, 4" & 6" LENGTHS, ALL DECIMAL DIAMETERS
- ☛ PTD TYPE PINS, ALL DIAMETERS
- ☛ MPT TYPE PINS, ALL DIAMETERS
- ☛ ANY PRODUCTS WITH CUSTOM MODIFICATIONS
- ☛ ANY PIN WITH 4 PLACE DECIMAL DIAMETER
- ☛ ANY PRODUCT SUPPLIED IN LARGER QUANTITIES THAN NORMALLY STOCKED

**OVER/UNDER SHIPMENTS:** ROYAL Reserves the right to overship or undership up to 10% of non-standard products. If an exact quantity is desired "DO NOT OVER OR UNDERSHIP" must be specified when the quotation is requested.

**Warranty:** Royal proudly guarantees that all of our products will conform to your requested physical specifications.

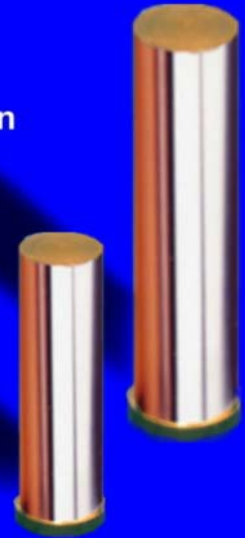
**IT IS AGREED BY THE BUYER IN PURCHASING MATERIAL HERUNDER THAT THE LIABILITY OF ROYAL SHALL BE LIMITED SOLELY TO THE REPAIR OR REPLACEMENT OF THE MATERIAL SOLD. ROYAL SHALL NOT OTHERWISE INCUR LIABILITY FOR ANY DIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OR EXPENSES.**



Pay a visit to our website at [www.royalpins.com](http://www.royalpins.com) It provides a company overview and complete product information on our line of pins, punches, and perforators.

Visitors can view product and company information, place an order, request catalogs, view or download a digital version of this catalog, or

request a quotation with our easy to use "point-and-click" E-Quote system. After placing an order you can even track packages shipped via UPS or Federal Express.



Whether its one of our many thousands of standard parts in stock, or an intricate, high precision special pin, ROYAL DIVERSIFIED PRODUCTS has a precision crafted and economical solution to any of your pin requirements.



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