



PARAMOUNT DIE

DRAWING SYSTEMS FOR THE WIRE INDUSTRY



WIRE DRAWING SYSTEMS

METRIC MEASUREMENTS

INSERT DRAWING SYSTEMS



Carbide drawing insert

- Six standard insert sizes cover a drawing range from 0.15 - 22.50mm.
- Extensive inventory of standard specifications maintained for rapid turnaround.
- Tapered outside diameter is precision ground for a secure fit and optimal heat transfer.
- Available in a broad spectrum of approach angles, tolerances, and finishes.



Carbide pressure insert

- Five standard pressure insert sizes to correspond with each draw insert type.
- For use with all ParaLoc pressure system holders.
- Range of sizes accommodates all reductions, drafts and pressure clearances.
- Specially designed O.D. back chamfer creates a seal with the ParaLoc holder base.



ParaLoc™ pressure holder

- Precision manufactured from the highest quality stainless steel.
- Sustains extreme lubricant pressure without leaking or failing.
- Available in a large range of sizes and dimensions to fit almost all die boxes.
- Maximizes the life of the drawing insert by optimizing wire lubrication.



ParaLoc™ non-pressure holder

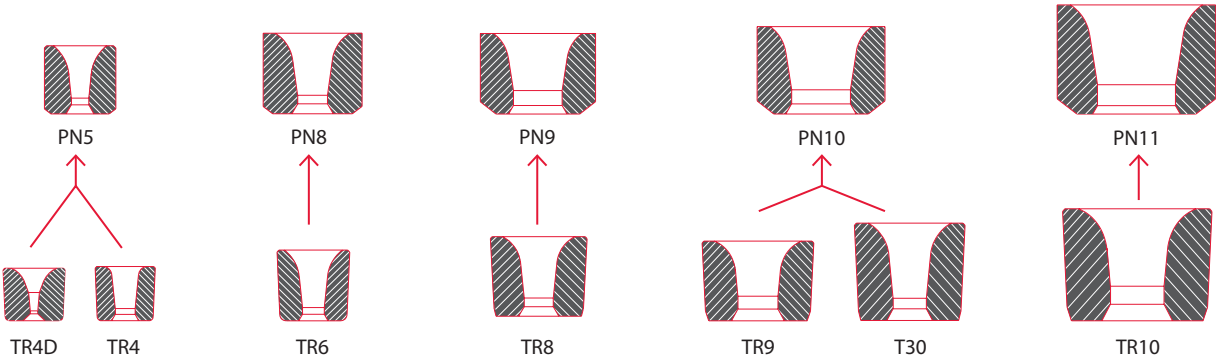
- Precision manufactured from the highest quality stainless steel.
- Provides an alternative insert holder if the pressure holder exceeds die box limitations.
- Generates less lubricant carry-through than the ParaLoc Pressure System.
- Locks the drawing insert into place for machines that have excessive back tension.



The Paracase reusable casing

- Precision manufactured from the highest quality stainless steel.
- Holds inserts securely in most applications.
- Available in standard wire die casing sizes.
- The simplest and quickest to change of all the insert holder options.

CARBIDE INSERTS



Drawing insert standards			
Draw Insert Type	Standard Angles	Standard Size Range	Stock Increment
TR4D	9°	0.15 - 0.64	*
		0.65 - 1.50	0.01
TR4	9°	0.75 - 1.99	0.01
		2.00 - 5.00	0.02
	12°	0.75 - 1.99	0.01
		2.00 - 4.98	0.02
TR6	16°	5.00 - 5.85	0.05
		1.80 - 2.99	*
	8°	3.00 - 5.85	0.05
		4.00 - 8.45	0.02
TR8	12°	4.00 - 8.90	0.02
		3.80 - 5.49	*
	16°	5.50 - 8.90	0.05
T30	12°	5.30 - 13.00	*
		4.50 - 7.50	*
	18°	6.00 - 13.00	*
TR9	10°	4.90 - 12.50	*
		6.50 - 16.50	*
TR10	18°	12.60 - 16.50	*
TR10	12° / 18°	16.50 - 22.50	*

Pressure insert standards			
Pressure Insert Type	Standard Angles	Standard Size Range	Standard Increment
PN5	16°	0.75 - 0.99	*
		1.00 - 2.54	0.02
		2.55 - 6.05	0.05
		6.06 - 7.50	*
PN8	18°	4.80 - 11.00	*
PN9	18°	7.25 - 16.00	*
PN10	18°	6.00 - 20.00	*
PN11	18°	18.40 - 29.00	*

Standard tolerance drawing inserts		
Size Range	Bearing Length	Internal Diameter
0.15 - 0.499	20 - 50 %	+ .002 / - .002
0.50 - 0.649	25 - 50 %	+ .003 / - .003
0.65 - 0.749	25 - 50 %	+ .000 / - .010
0.75 - 2.499	30 - 50 %	+ .000 / - .010
2.50 - 4.999	30 - 50 %	+ .010 / - .010
5.00 - 7.499	25 - 45 %	+ .010 / - .010
7.50 - 9.99	20 - 40 %	+ .010 / - .010
10.00 - 12.69	20 - 35 %	+ .010 / - .010
12.70 >	20 - 30 %	+ .010 / - .010

Insert geometries listed are standard.
Stock increment sizes have faster lead-time.

Other diameters, approach angles, bearing lengths and tolerances available upon request.

** Sizes made to order from available raw material.*

ITEM NUMBER EXPLANATION

Inserts	
T	T = Taper, R = Round
R	R = Round
4	4 = TR4, 6 = TR6, 8 = TR8, 9 = TR9, 10 = TR10, 30 = T30
-	Spacer
1	Approach Angle (Included angle in degrees)
2	
J	Carbide Material Grade
1	Metric measurements begin with a number (Sample shown is 1.050)
.	
0	
5	
0	
-	Casing Type (All non-cased inserts are coded with a dash "-")
3	Bearing Length as a percentage of internal diameter (1st two characters are the minimum tolerance and the second two characters are the maximum tolerance)
0	
5	
0	
S	Finish: S = Standard, A = High Polish/Blended, M = Medium Blend Profile, F = Full Blend Profile. CVD coated inserts, Y = Standard, X = Well Blended (see Drawings Below)
0	I.D. Tolerance (1st character is the plus specification, second is the minus specification, Increments are .001) (Sample shown is +.000/ -.005)
5	



Straight Profile

Standard non-blended profile. Excellent for most ferrous wire drawing as an industry standard.



Medium Profile

Slightly blended profile providing increased lubricant and material flow. Excellent solution for high-carbon, rubber reinforcement, and many more.



Full Profile

Fully blended profile providing maximum lubricant and material flow. Excellent solution for galvanize, non-ferrous, and many more.

ParaLoc™ & Paracase Holders	
P	Pressure Type: P = Pressure ParaLoc, N = Non-Pressure ParaLoc
S	O.D. Type: T = Tapered O.D, S = Straight O.D.
3	Outside Diameter of holder (mm)
8	
X	Spacer
4	Assembled Lenght of holder (mm)
4	
-	Spacer
4	Draw Insert Type: 4 = TR4, 6 = TR6, 8 = TR8, 9 = TR9, 10 = TR10, 30 = T30
5	Pressure Insert Type: 5 = PN5, 6 = PN6, 8 = PN8, 9 = PN9, 10 = PN10, 11 = PN11
B	Holder Type - A = Para-Case (No Drive or Locking Cap), B = Two Piece with Locking Cap (Hex Drive), C = Two Piece With Locking Cap (No Drive)
F	ParaLoc Option: F = Cooling Fins (If OD Type = "T" this would be a number that equals the OD taper of the holder (Included Angle))
R	ParaLoc Option: R = O-ring seals (Used For Direct Water Cooling Die Boxes)

Type A - Paracase

Type B - ParaLoc™



Type B (non-pressure)



Type C - ParaLoc™



PARACASE & PARALOC™ NON-PRESSURE HOLDERS

NS Holders (Non-Pressure, Straight O.D.)						
Holder Type	Die Box Diameter	Available Draw Insert Types	Item Number	Outside Diameter	Assembled Height	Socket Type
 Type "A"	28mm	TR4/TR4D	NS28X16-4A	28mm	16mm	-
	43mm	TR4/TR4D	NS43X27-4A	43mm	27mm	-
		TR6	NS43X27-6A	43mm	27mm	-
	53mm	TR4/TR4D	NS53X35-4A	53mm	35mm	-
		TR6	NS53X35-6A	53mm	35mm	-
		TR8	NS53X35-8A	53mm	35mm	-
	75mm	TR6	NS75X44-6A	75mm	44mm	-
		TR8	NS75X44-8A	75mm	44mm	-
		TR10	NS75X44-10A	75mm	44mm	-
		TR30	NS75X44-30A	75mm	44mm	-
 Type "B"	43mm	TR4/TR4D	NS43X27-4B	43mm	27mm	4
	53mm	TR4/TR4D	NS53X35-4B	53mm	35mm	5
		TR6	NS53X35-6B			
		TR8	NS53X35-8B			
	75mm	TR4/TR4D	NS75X44-4B	75mm	44mm	6
		TR6	NS75X44-6B			
		TR8	NS75X44-8B			
		TR10	NS75X44-10B			
		T30	NS75X44-30B			

NS Holder Types:

- Type "A" - Type "A" holders are the most basic holder type and are recommended for use in most non-direct water cooled die boxes or in wet drawing applications where excessive back tension during string up is not a concern for pulling the insert out of the casing.
- Type "B" - Type "B" holders include a threaded cap which provides security against the draw insert pulling back out of the casing during string up. Type "B" holders are recommended for use in all die boxes except for those with direct water cooling. Type "B" holders require the use of a hex socket for assembly.
- All holder types are heat treated for exceptional durability and service life.

NT Holders (Non-Pressure, Tapered O.D.)						
Holder Type	Die Box Diameter	Available Draw Insert Types	Item Number	Outside Diameter	O.D. Taper (Including Angle)	Socket Type
 Type "B"	43mm	TR4/TR4D	NT43X27-4B6	43mm	6°	4
	53mm	TR4/TR4D	NT53X35-4B6	53mm	6°	5
		TR6	NT53X35-6B6			
	75mm	TR4/TR4D	NT75X44-4B6	75mm	6°	6.5
		TR6	NT75X44-6B6			
		TR8	NT75X44-8B6			
		TR10	NT75X44-10B6			
		TR30	T75X44-30B6			

PARALOC™ PRESSURE HOLDERS

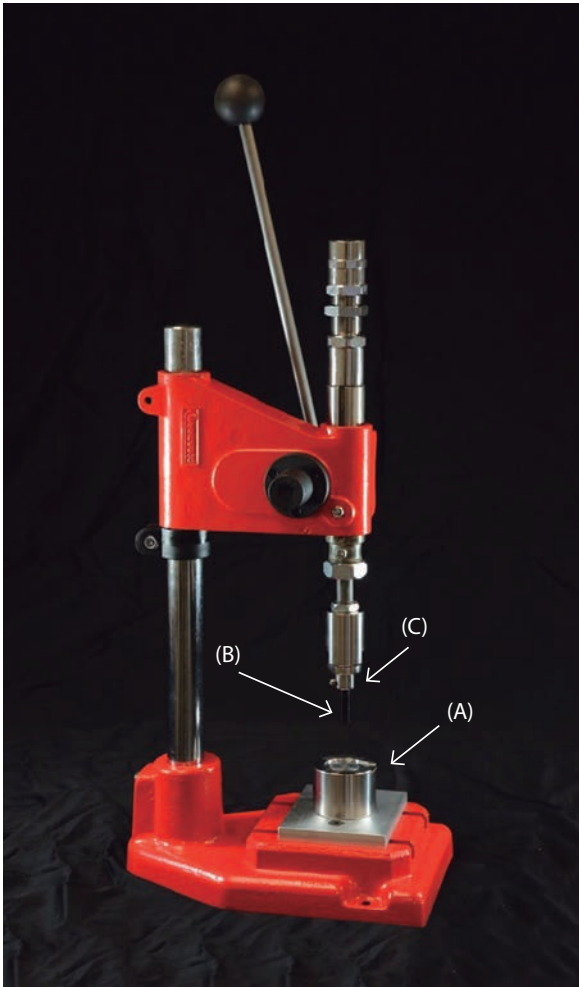
PS Holders (Pressure Application, Straight O.D.)						
Holder Type	Die Box Diameter	Available Draw Insert Types	Item Number	Outside Diameter	Assembled Height	Socket Type
 Type "B" with external O-ring seal	43mm	TR4/TR4D	PS43X44-45BFR	43mm	44mm	4
	53mm	TR4/TR4D	PS53X57-45BFR	53mm	57mm	5
		TR6	PS53X57-68BFR			
	75mm	TR4/TR4D	PS75X65-45BFR	75mm	65mm	8
		TR6	PS75X65-68BFR			
		TR8	PS75X65-89BFR			
		T30	PS75X70-3010BFR			
	100mm	TR6	PS100X90-68B	100mm	90mm	12
		TR8	PS100X90-89B			
		TR9	PS100X90-910B			

PT Holders (Pressure Application, Tapered O.D.)						
Holder Type	Die Box Diameter	Available Draw Insert Types	Item Number	Assembled Height	O.D. Taper (Including Angle)	Socket Type
 Type "B"	43mm	TR4/TR4D	PT43X44-45B6	44mm	6°	3
	53mm	TR4/TR4D	PT53X57-45B6	57mm	6°	5
		TR6	PT53X57-68B6			
	75mm	TR4/TR4D	PT75X80-45B6	80mm	6°	7
		TR6	PT75X80-68B6			
		TR8	PT75X80-89B6			
		T30	PT75X80-300B6			
	100mm	TR6	PT100X90-68B6	90mm	6°	12
		TR8	PT100X90-89B6			
		TR10	PT100X90-1011B6			

Pressure Holder Information:

- Pressure holders are designed to increase draw insert lubrication by enabling the drawing lubricant to pressurize during the drawing process. Pressure holders are recommended predominately for use with dry lubricants however can be utilized with grease and emulsions by adjusting the pressure insert clearance.
- All pressure holders require the use of a pressure insert in conjunction with the draw insert. The inner diameter of the pressure insert is sized to be larger than the incoming wire size based on a percentage of clearance. The following pressure insert sizes are paired with the following draw inserts: PN5 = TR4, PN8 = TR6, PN9 = TR8, PN10 = T30, PN11 = T40.
- Type "B" pressure holders are designed with cooling fins to provide additional cooling capability. The O-ring seals are designed to compress into the cap's grooves to provide an exceptional water seal while at the same time allowing the holder to contact the locking cap of the die box. The "PS" Type "B" holders are also offered without O-ring seals and cooling fins for non-direct water cooling applications.

P-IP3 IMPACT PRESS



- 3-Ton Impact Press Unit (P-IP3), includes Ram, Centering Plate Adapter, Extended Handle with Comfort Ball Grip, one Centering Plate, one Extraction Pin Holder and one Extraction Pin.
 - Heavy duty cast iron head and base press frame.
 - Durable hardened steel internal mechanisms and hardened stainless steel ram adapter.
 - Hardened steel and precision ground press pins are available separately to match your insert sizes.
 - Press base is pre-drilled to allow for easy and secure mounting.
- 3-Ton Impact Press Cap Socket Plate (P-IP3-CSP), mounts to your holder changing station or workbench to provide easy assembly and disassembly of ParaLoc holders.
 - Cap sockets are available to fit all "B" type ParaLoc holders with hex caps and bases.
- Benefits and Advantages.
 - No special tooling needed.
 - Fast and accurate alignment of extraction pin to center of insert.
 - Durable and easy to maintain.
 - Fully adjustable impact force settings.

Complete Unit as Shown

P-IP3

Complete Unit

Note: Complete unit includes once centering plate and one extraction pin/holder combo.

3-Ton Impact Press Accessories

P-IP3-CSP

Cap Socket Plate

P-CS

Cap Socket

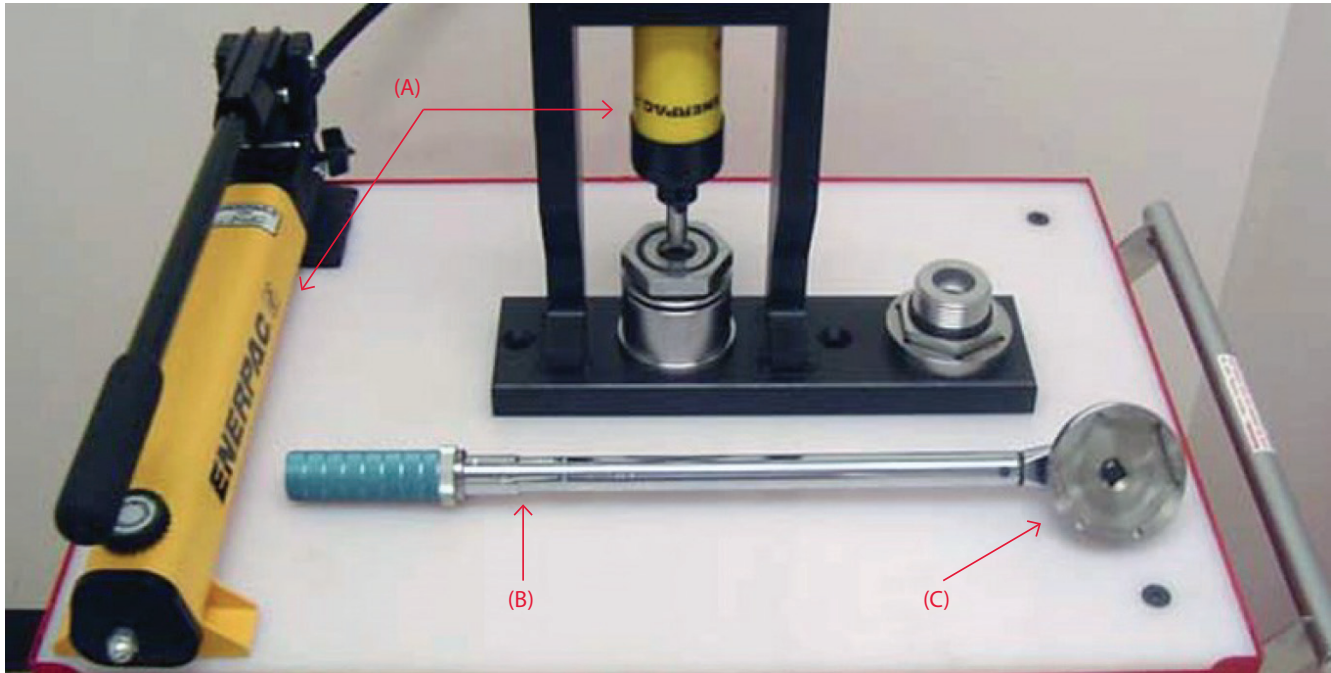
Note: Cap Sockets are specific to holder size.

	Part #	Description
(A)	P-CP	Centering Plate
(B)	P-IP3-EP	Extraction Pin
(C)	P-IP3-PH	Extraction Pin Holder

Note: Parts are specific to holder and insert size.



P-HP HYDRAULIC PRESS

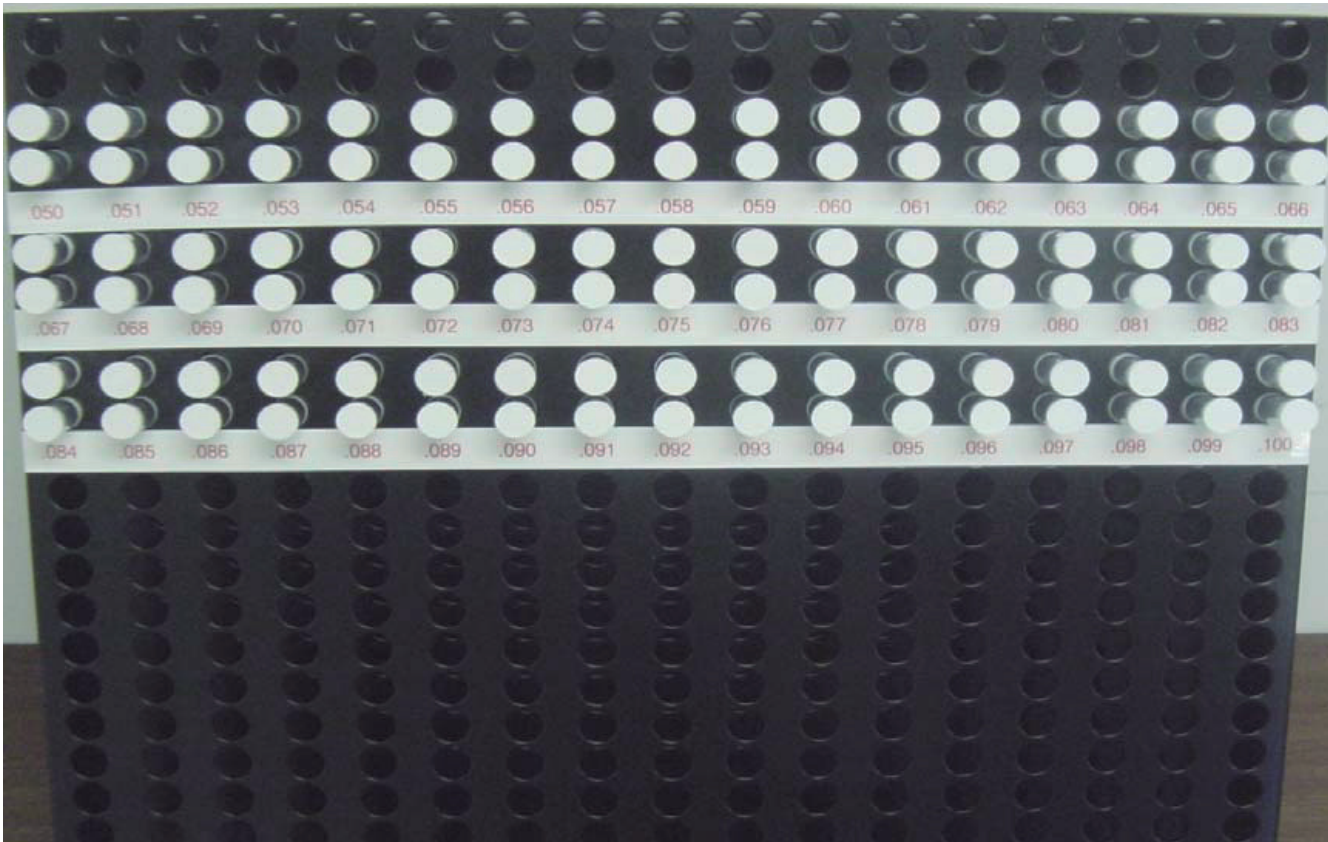


	Part #	Description
(A)	P-HP	Hydraulic Press Unit
(B)	P-TW	Torque Wrench
(C)	*	Base Socket

Note: Base Sockets are specific to holder size.
Note: P-HP recommended for removal of TR8 and larger inserts.

- Hydraulic Press Unit (P-HP), includes Cap Socket and Centering Plate (Torque Wrench & Base Socket sold separately).
 - Precision machined press frame with mounting holes.
 - 10,000 PSI Hydraulic Single acting solid plunger cylinder.
 - Two speed (10,000 PSI) hydraulic hand pump.
 - Hardened steel and precision ground press pin.
 - Centering Plate (use to accurately align the ParaLoc holders).
 - 2-in1 Cap Socket (Used to hold the ParaLoc caps for easy assembly and disassembly).
 - Pre-Drilled mounting holes with mounting hardware (included).

PARAMOUNT STORAGE RACK SYSTEMS



Part #	Description
P-TR-TR4	TR4 Rack
P-TR-TR8-T30	TR8/T30 Rack
P-TR-PN5	PN5 Rack
P-TR-MTAPE	Magnetic Label Tape

- Welded and rigid, fabricated from 16 GA. (.0625") steel.
- Black semi gloss powder coat finish.
- Supplied with magnetic Label Holders.
- Keyholes (4 places) on the back of the racks for easy mounting to a wall or other flat surface.
- Unit will hold 408 Tubes, or a maximum of 4080 TR4 carbide draw inserts (slightly fewer for the PN5 rack). (Actual numbers depend on the labeling layout).
- Easy to read parts numbers, sizes, and quantities.
- Effective method to organize and track inventory.
- Units are supplied with 8 strips of magnetic label tape (single strips can be purchased separately).

PARALOC™ & PARACASE HOLDER MAINTENANCE



Part #	Description
P-TG-TR4	TR4 Bore Gauge
P-TG-TR6	TR6 Bore Gauge
P-TG-TR8	TR8 Bore Gauge
P-TG-TR9	TR9 Bore Gauge
P-TG-TR10	TR10 Bore Gauge
P-TG-T30	T30 Bore Gauge

Part #	Description
P-TBB-TR4	TR4 Bore Brush
P-TBB-TR6	TR6 Bore Brush
P-TBB-TR8	TR8 Bore Brush
P-TBB-TR9	TR9 Bore Brush
P-TBB-TR10	TR10 Bore Brush
P-TBB -T30	T30 Bore Brush

Clean bore free of damage



Damaged / Contaminated bore



Holder Maintenance to reduce die breakage

- Visually inspect bore condition.
- Clean bore using Paramount Tapered Bore Brush.
- Perform a second visual inspection to assure there is no holder damage present.
- Insert Tapered Bore Gauge
 - Assure gauge is seated properly into taper.
 - Attempt to shift the bore gauge shaft to detect “play”.
- Replace holder if movement is detected.

THINGS TO KNOW ABOUT RECUT DIES

The main argument against recutting inserts is that very few of these recuts are returned to an “As good as new” condition. Many die rooms simply lack the production equipment and/or inspection equipment to guarantee consistent control of the many important parameters in a wire die. Improperly manufactured wire dies translate to inconsistent and typically less than optimal wire drawing performance. The wire die is a very important part of the wire drawing process and the same level of consistency needs to be maintained with both new and recut inserts. Paramount guarantees that all recut inserts are returned to an “As good as new” condition.

Key Parameters To Consider For Both New And Recut Dies



Good Die
Bearing Zone is round and Cylindrical (near zero taper). Bearing length is optimal and is even on all sides. The bearing/angle intersection is slightly blended.
Sub-Micron Finish (Angle & Bearing).
Correct Back Relief Depth (Needed for Support).



Asymmetrical Bearing
Bearing length uneven, may result in oval/out of round wire, cast & helix problems and also “Cork Screwed” wire.



Over Blended Bearing
Over blended bearings, may result in shorter die life due to the actual bearing length being very short.



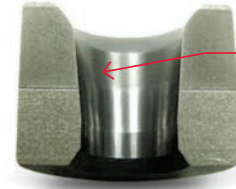
Short Back Relief Angle
The back relief angle provides support for the bearing, a very short back angle may result in die breakage starting in this area.



Cracked Die
Cracked or broken dies are known to start from small hairline fractures. Paramount inspects 100% of recuts for cracks using Eddy current testing.



Long Bearing Length
Excessively long bearings will result in higher friction/more heat, require more power to draw, and may result in “Suck Down” (small diameter). Also reduces the length of the available reduction angle.



Poor Surface Finishes
Poor surface finishes in the angle or bearing areas can lead to scratches on the wire and in some cases will result in “Galling”.

Other important Facts

Many die rooms are recutting only a few dies to a given size at a time requiring constant changeover. Many die rooms also do not have the luxury of removing the ideal amount of carbide stock with every recut. By processing over 1,000,000 used inserts per year, Paramount Die has the luxury of setting up highly efficient and automated production runs. Since Paramount Die sells virtually every diameter size to a wide range of customers, we can remove the optimal level of material which guarantees clean up of the wear zone without removing more material than is necessary.

Paramount Die Europe
Heberlein GmbH, Ihmerter Str. 297, 58675 Hemer, Germany
+49-2372-96965-0 | www.paradie.com
customer-service@heberlein-gmbh.de

© 2022 Paramount Die. All rights reserved.



PARAMOUNT DIE