

TECHNICAL MANUAL



ACR[®] TRI-WING[®] Drive Systems

Includes comprehensive engineering Head Standards, Driver Bit Standards, Gaging Standards, Punch Standards and Quality Standards.



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ACR® TRI-WING®

Drive System Technical Manual



Click on the colored heading to go directly to the respective section

Table of Contents	PAGE
Head Standard Section	3 - 9
Driver Bit Standard Section	10 - 12
Gage Standard Section	13 - 33
Punch Standard Section	34 - 48
Quality Standard Section	49 - 62



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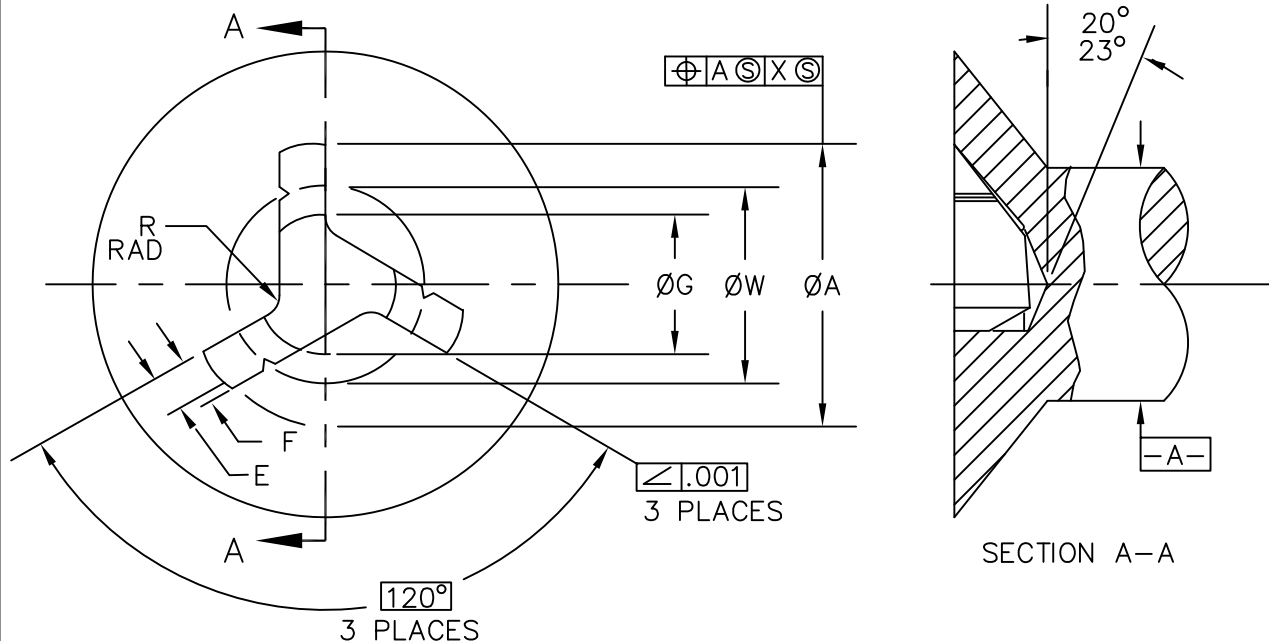
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Issue: 10/11

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9-2-14

ACR[®] ribbed TRI-WING[®] ENGINEERING MANUAL
HEAD STANDARDS

<u>SHEET NUMBER</u>	<u>DESCRIPTION</u>	<u>DATE</u>
PSC-748-1	ACR ribbed TRI-WING Recess Dimensions	9-2-14
PSC-748-2	100° Flush Head	9-2-14
PSC-748-3	Flat Pan Head, Flat Fillister Head, Recessed Hexagon Head	9-2-14
PSC-748-4	100° Oval Head	9-2-14
PSC-748-5	Truss (Mushroom) Head	9-2-14
PSC-748-6	100° Reduced Crown Head	9-2-14



ACR® ribbed TRI-WING® RECESS

RECESS SIZE	DIMENSIONS										X
	E		F		G		R		W		
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	
0	.0185	.0170	.0205	.0185	.036	.034	.008	.003	.047	.039	.008 FIM
1	.0225	.0210	.0245	.0225	.051	.049			.066	.058	
2	.0295	.0280	.0315	.0295	.066	.064			.085	.077	
3	.0370	.0350	.0395	.0375	.081	.079	.022	.019	.106	.094	.016 FIM
4	.0420	.0400	.0445	.0425	.095	.092			.135	.123	
5	.0480	.0460	.0505	.0485	.142	.138			.175	.163	
6	.0600	.0580	.0625	.0605	.182	.178	.027	.024	.220	.207	.024 FIM
7	.0730	.0705	.0755	.0735	.185	.181			.229	.216	
8	.0850	.0825	.0875	.0855	.172	.168			.248	.235	
9	.0970	.0945	.1005	.0975	.197	.192	.034	.029	.288	.275	.024 FIM
10	.1090	.1055	.1125	.1095	.222	.217			.329	.314	
11	.1215	.1175	.1265	.1225	.248	.242			.369	.354	
12	.1335	.1295	.1385	.1345	.270	.264	.064	.059	.409	.392	.024 FIM
13	.1595	.1555	.1645	.1605	.336	.330			.508	.491	
14	.1845	.1805	.1895	.1855	.541	.535			.646	.629	
15	.2095	.2055	.2145	.2105	.601	.595	.084	.079	.727	.710	

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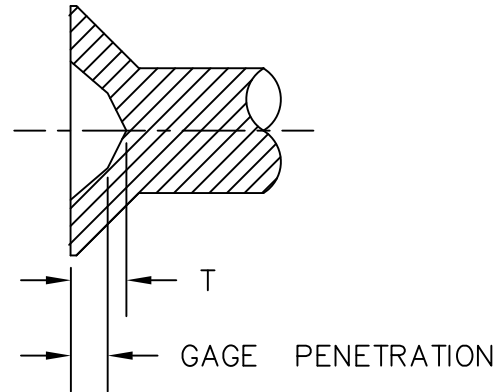
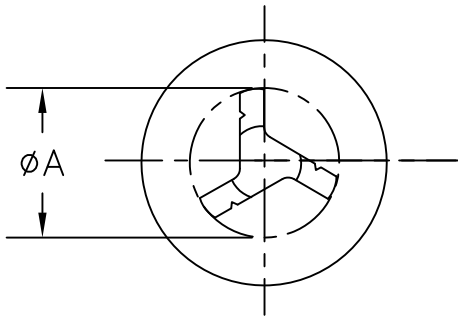
TITLE: **ACR® RIBBED TRI-WING® RECESS**
DIMENSIONS

DRAWN S.O.BRENNAN	DATE 11DEC84	DRAWING NUMBER PSC-748
CHECKED: J.GRADY	DATE 11DEC84	SHEET 1 OF 6
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

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REVISION REDRAWN 12/11/84 7/24/89 UPDATE 9-2-14

100° FLUSH HEADS



THREAD SIZE		RECESS SIZE	Ø A		T		RECESS GAGE PENETRATION	
TENSION HEAD	SHEAR HEAD		MAX	MIN	MAX	MIN	MAX	MIN
.0600-80		0	.082	.072	.030	.022	.0220	.0135
.0860-56		1	.115	.105	.042	.032	.0310	.0210
.1120-40		2	.148	.138	.054	.043	.0400	.0290
.1380-32		3	.182	.172	.066	.054	.0495	.0370
.1640-32	.1900-32	4	.215	.205	.078	.064	.0590	.0455
.1900-32	.2500-28	4J	.248	.238	.094	.079	.0755	.0605
		5	.248	.238	.079	.064	.0520	.0370
.2500-28	.3125-24	6	.325	.315	.105	.088	.0705	.0530
.3125-24	.3750-24	7	.395	.385	.139	.118	.1035	.0830
.3750-24	.4375-20	8	.427	.417	.159	.136	.1260	.1025
.4375-20	.5000-20	9	.498	.488	.188	.162	.1490	.1225
.5000-20	.5625-18	10	.568	.558	.215	.186	.1715	.1420
.5625-18	.6250-18	11	.638	.628	.242	.210	.1935	.1610
.6250-18	.7500-16	12	.708	.698	.270	.234	.2175	.1820
.7500-16	.8750-14	13	.880	.870	.335	.294	.2705	.2290
.8750-14	1.0000-12	14	1.120	1.110	.390	.342	.2880	.2405
1.0000-12		15	1.260	1.250	.440	.386	.3280	.2745

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TITLE:

ACR[®] RIBBED TRI-WING[®]
100° FLUSH HEAD

DRAWN:
S. O. BRENNAN

DATE:
11DEC84

DRAWING NUMBER

PSC-748

CHECKED:
J. GRADY

DATE:
11DEC84

SHEET 2 OF 6

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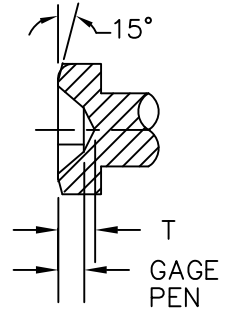
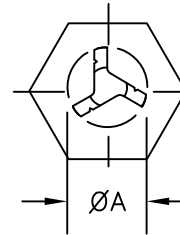
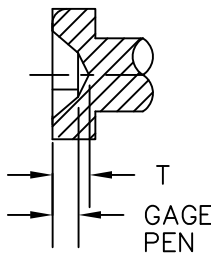
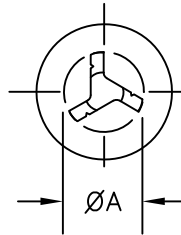
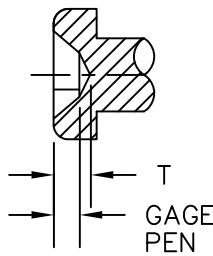
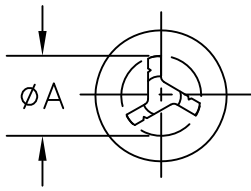
REVISION
1/ECO 10
FEB. 28, 1980
REISSUED
DEC. 21, 1987
UPDATE
SEPT. 2, 2014

FLAT PAN HEADS



FLAT FILLISTER HEADS CHEESE HEADS (METRIC)

RECESSED HEXAGON HEADS



THREAD SIZE	RECESS SIZE	FLAT PAN HEAD						FLAT FILLISTER HEAD					
		Ø A		T		RECESS GAGE PENETRATION		Ø A		T		RECESS GAGE PENETRATION	
		MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
.0600-80	0	.082	.072	.030	.022	.0220	.0135	.082	.072	.030	.022	.0220	.0135
.0860-56	1	.115	.105	.042	.032	.0310	.0210	.115	.105	.042	.032	.0310	.0210
.1120-40	2	.148	.138	.054	.043	.0400	.0290	.148	.138	.054	.043	.0400	.0290
.1380-32	3	.182	.172	.066	.054	.0495	.0370	.182	.172	.066	.054	.0495	.0370
.1640-32	4	.215	.205	.078	.064	.0590	.0455	.215	.205	.078	.064	.0590	.0455
.1900-32	4J	.248	.238	.094	.079	.0755	.0605	.248	.238	.094	.079	.0755	.0605
.1900-32	5	.248	.238	.079	.064	.0520	.0370	.248	.238	.079	.064	.0520	.0370
.2500-28	6	.304	.294	.095	.078	.0600	.0425	.325	.315	.105	.088	.0705	.0530
.3125-24	7	.359	.349	.121	.100	.0855	.0605	.395	.385	.139	.118	.1035	.0830
.3750-24	8	.407	.397	.149	.126	.1160	.0925	.427	.417	.159	.136	.1260	.1025
.4375-20	9	.470	.460	.173	.146	.1350	.1085	.498	.488	.188	.162	.1490	.1225
.5000-20	10	.536	.526	.198	.168	.1555	.1260	.568	.558	.215	.186	.1715	.1420
THREAD SIZE	RECESS SIZE	RECESSED HEXAGON HEAD											
		Ø A		T		RECESS GAGE PENETRATION							
		MAX	MIN	MAX	MIN	MAX	MIN						
.1120-40	2	.148	.138	.054	.043	.0400	.0290						
.1380-32	3	.182	.172	.066	.054	.0495	.0370						
.1640-32	4	.215	.205	.078	.064	.0590	.0455						
.1900-32	4J	.248	.238	.094	.079	.0755	.0605						
.1900-32	5	.248	.238	.079	.064	.0520	.0370						

NOTE:

△ PREFERRED PAN HEAD DESIGN. SEE NASM1515, REQT 106 FOR ENVELOPE DIMENSIONS.

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TITLE:

ACR[®] RIBBED TRI-WING[®]
FLAT PAN, FLAT[°]FILLISTER, RECESSED HEXAGON

DRAWN:
S. O. BRENNAN

DATE:
11DEC84

DRAWING NUMBER

PSC-748

CHECKED:
J. GRADY

DATE:
11DEC84

SHEET 3 OF 6

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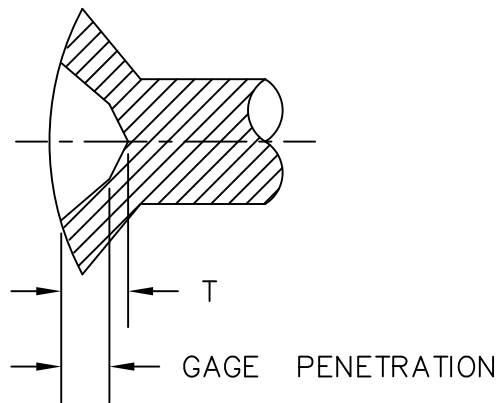
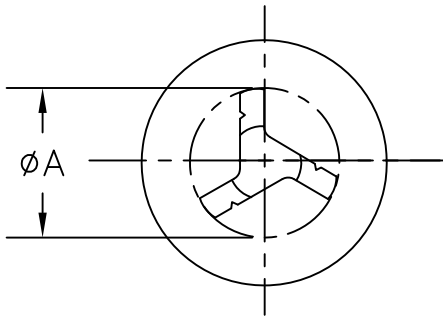
UPDATE
SEPT. 2, 2014

7/24/89

REDRAWN
12/11/84

REVISION

100° OVAL HEADS



TENSION HEAD	RECESS SIZE	Ø A		T		RECESS GAGE PENETRATION	
		MAX	MIN	MAX	MIN	MAX	MIN
.0600-80	0	.082	.072	.029	.021	.0225	.0140
.0860-56	1	.115	.105	.041	.031	.0320	.0220
.1120-40	2	.148	.138	.053	.042	.0415	.0305
.1380-32	3	.182	.172	.065	.053	.0520	.0395
.1640-32	4	.215	.205	.077	.063	.0620	.0485
.1900-32	4J	.248	.238	.093	.078	.0830	.0680
	5	.248	.238	.078	.063	.0535	.0385
.2500-28	6	.325	.315	.104	.087	.0730	.0555
.3125-24	7	.395	.385	.138	.118	.1080	.0875
.3750-24	8	.427	.417	.158	.135	.1280	.1045

T values are smaller than corresponding sizes of 100° flush heads due to the influence of the "P" recess fillet radius and the "O" head radius.

Recess gage penetration values are larger than 100° flush heads due to the influence of the "B" gaging diameter and the "O" head radius.

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TITLE:

**ACR® RIBBED TRI-WING®
100° OVAL HEAD**

DRAWN:
S. O. BRENNAN

DATE:
11DEC84

DRAWING NUMBER

PSC-748

CHECKED:
J. GRADY

DATE:
11DEC84

SHEET 4 OF 6

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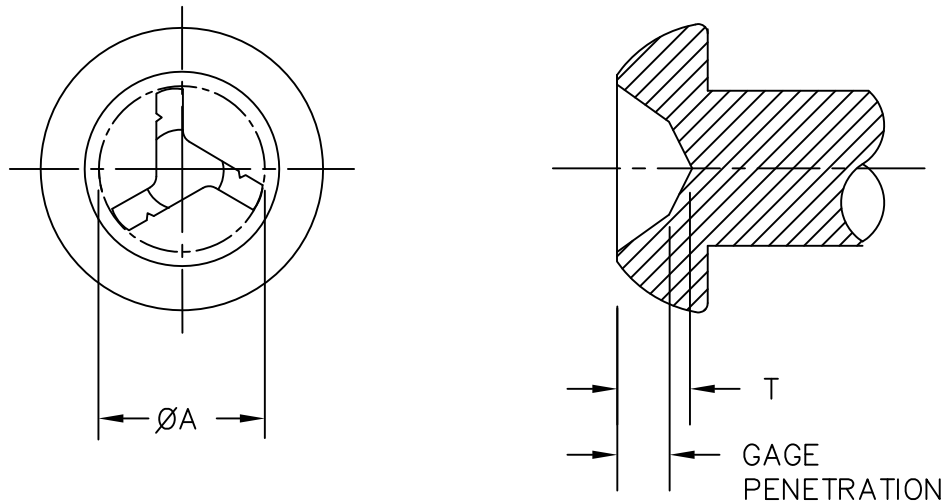
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SEPT. 2, 2014

7/24/89

REDRAWN
12/11/84

REVISION

TRUSS (MUSHROOM) HEAD



THREAD SIZE	RECESS SIZE	Ø A		T		RECESS GAGE PENETRATION	
		MAX	MIN	MAX	MIN	MAX	MIN
.1640-32 (M4)	4	.215	.205	.078	.064	.0590	.0455
.1900-32 (M5)	4J	.248	.238	.094	.079	.0755	.0605
	5	.248	.238	.079	.064	.0520	.0370
.2500-28 (M6)	6	.304	.294	.095	.078	.0600	.0425
.3125-24 (M8)	7	.359	.349	.121	.100	.0855	.0605
.3750-24 (M10)	8	.407	.397	.149	.126	.1160	.0925
.4375-20 (M12)	9	.470	.460	.173	.146	.1350	.1085
.5000-20	10	.536	.526	.198	.168	.1555	.1260

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TITLE:

**ACR[®] RIBBED TRI-WING[®]
TRUSS (MUSHROOM) HEAD**

DRAWN:
S. O. BRENNAN

DATE:
11DEC84

DRAWING NUMBER

PSC-748

CHECKED:
J. GRADY

DATE:
11DEC84

SHEET 5 OF 6

PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A.

UPDATE
SEPT. 2, 2014

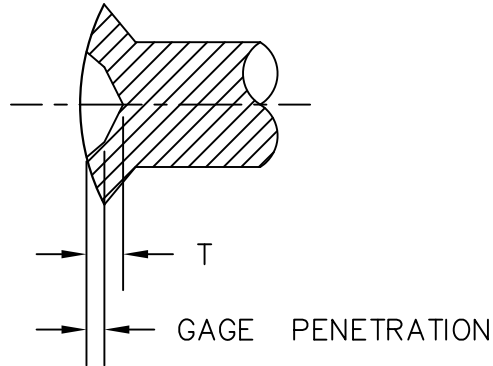
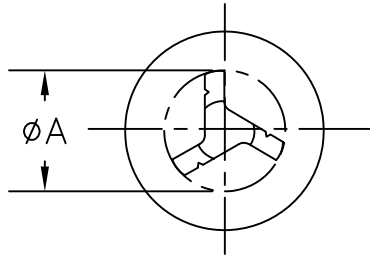
JUL 24, 1989

ECO 50
6/14/85

REDRAWN
12/11/84

REVISION

100° REDUCED CROWN HEAD



SCREW SIZE	RECESS SIZE	Ø A		T		RECESS GAGE PENETRATION	
		MAX	MIN	MAX	MIN	MAX	MIN
M5	4	.215	.205	.078	.064	.0605	.0465
M6	5	.248	.238	.079	.064	.0525	.0375
M8	6	.325	.315	.105	.087	.0715	.0535
M10	8	.395	.385	.139	.118	.1045	.0835
M12	10	.427	.417	.159	.135	.1265	.1025

"T" and penetration values are slightly different than corresponding sizes of 100° flush heads due to the influence of the "P" recess fillet radius, the "O" head radius and the "B" gaging diameter.

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TITLE:

ACR[®] RIBBED TRI-WING[®]
100° REDUCED CROWN HEAD

DRAWN:
S. O. BRENNAN

DATE:
11DEC84

DRAWING NUMBER

PSC-748

CHECKED:
J. GRADY

DATE:
11DEC84

SHEET 6 OF 6

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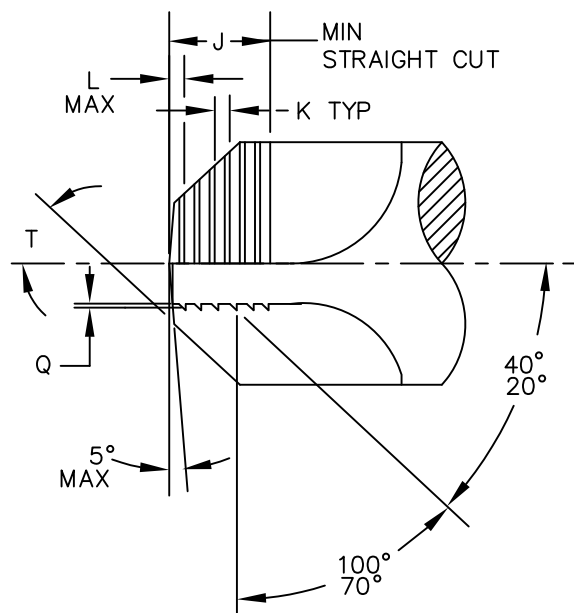
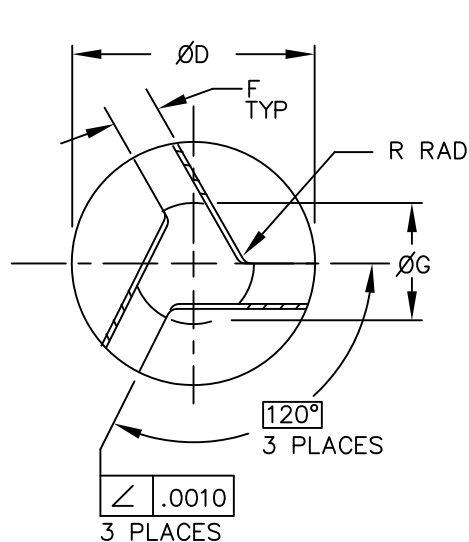
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HEXSTIX[®] POZILOCK[®] ARE REGISTERED TRADEMARKS OF THE PHILLIPS SCREW COMPANY

REVISION
ADDED
04-02-92
UPDATE
SEPT. 2, 2014

9-2-14

ACR[®] ribbed TRI-WING[®] ENGINEERING MANUAL
DRIVER BIT STANDARDS

<u>SHEET NUMBER</u>	<u>DESCRIPTION</u>	<u>DATE</u>
PSC-3001-1	ACR ribbed TRI-WING Driver Point	9-2-14
PSC-3001-2	ACR ribbed TRI-WING Test Block	9-2-14



DRIVER SIZE	Q
0 - 3	.001-.002
4 - 7	.002-.004
8 - 15	.002-.005

ACR[®] ribbed TRI-WING[®] DRIVER POINT

DRIVER SIZE	DIMENSIONS														MIN NO. OF RIBS		
	ØD		F		ØG		J	K		L	R RAD		T				
	MAX	MIN	MAX	MIN	MAX	MIN	MIN	MAX	MIN	MAX	MAX	MIN	MAX	MIN			
0	.185	.180	.0165	.0155	.039	.037	.047	.015	.005	.010	.005	.000	46° 00'	45° 30'	3		
1			.0205	.0195	.054	.052	.062			.012	.006	.001					
2			.0275	.0265	.069	.067	.078			.015	.010	.005			4		
3			.0340	.0325	.084	.082	.094			.020	.020	.015					
4	.247	.242	.0390	.0375	.098	.096	.109	.022	.015	.028			46° 30'	45° 30'	5		
5			.0450	.0435	.145	.143	.030			.025						.020	
6	.434	.429	.0570	.0540	.185	.183	.125			.030	.025	.020					
7			.0695	.0665	.189	.187	.141										
8			.0815	.0785	.176	.174	.172	.030	.025								
9	.622	.617	.0935	.0905	.201	.199		.030	.022	.040	.048	.043	46° 00'	45° 00'			
10			.1045	.1015	.226	.224	.203			.045							
11			.1165	.1130	.252	.250	.219										
12			.1285	.1250	.274	.272	.250									.060	.055
13	.1010	.990	.1545	.1510	.340	.338	.312	.045			.078	.073					
14	1.255	1.245	.1795	.1760	.545	.543	.375				.080	.075					
15	1.380	1.370	.2045	.2010	.605	.603	.438										

SIZES 0-3 AND 8-15 ARE SUBJECT TO VERIFICATION OF PRODUCTION CAPABILITY

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TITLE:

ACR[®] RIBBED TRI-WING[®] DRIVER POINT

DRAWN:
S. O. BRENNAN

DATE:
11DEC84

DRAWING NUMBER

PSC-3001-1

CHECKED:
J. GRADY

DATE:
11DEC84

SHEET 1 OF 1

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PHONE: 774-396-6190 FAX: 508-966-2326

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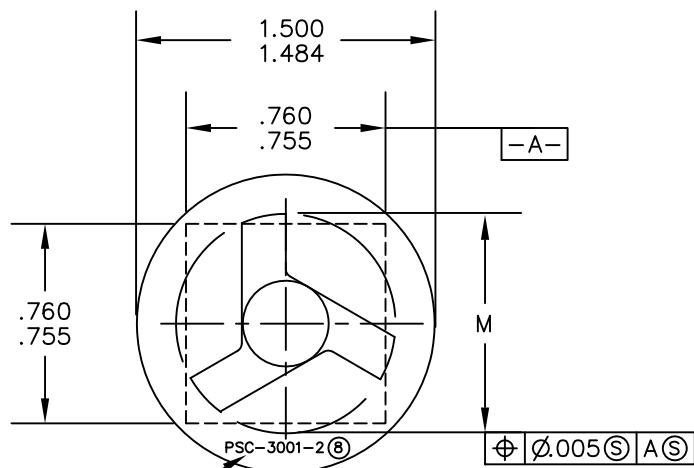
UPDATE
SEPT. 2, 2014

12-10-07

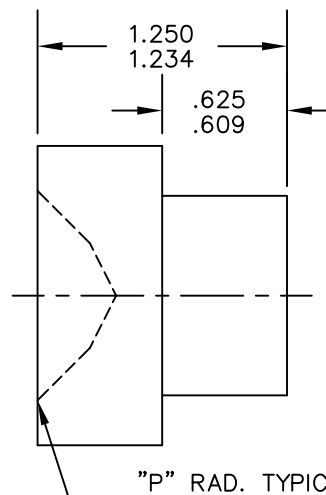
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REDRAWN
12-11-84

REVISION

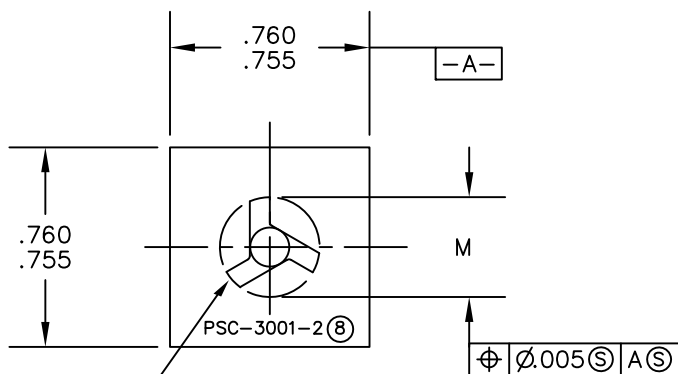


EXAMPLE OF PART NO.
METHOD OF MARKING OPTIONAL

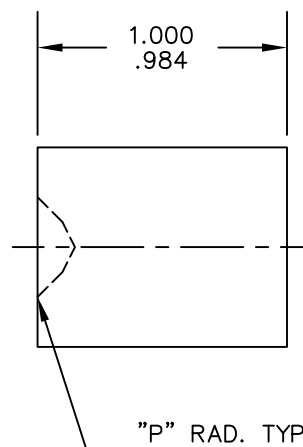


"P" RAD. TYPICAL
REF. DWG. PSC-3100.

STYLE B



PUNCHES SAME AS
PSC-3101 CAN BE USED
TO FORM RECESS, BUT
WITHOUT RIBS



"P" RAD. TYPICAL
REF. DWG. PSC-3100.

STYLE A

	RECESS NUMBER															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
STYLE	A								B							
$\pm .005$ M	.077	.110	.143	.177	.210	.243	.320	.390	.422	.493	.563	.633	.703	.875	1.115	1.255
MINIMUM TORQUE STRENGTH (1)	---	---	---	40	75	110	300	450	700	1050	1300	1780	2580	---	---	---

NOTE 1 - SUFFICIENT END LOAD (10-20 POUNDS) MUST BE APPLIED TO THE BIT TO INSURE POSITIVE SEATING IN THE RECESS, AND TO PREVENT AXIAL MOVEMENT DURING THE APPLICATION OF TORQUE.

NOTE 2 - MATERIAL: A2 OR EQUIVALENT
HEAT TREAT: Rc 61-63

REVISION

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TITLE:

ACR[®] RIBBED TRI-WING[®] TORSIONAL & FATIGUE TEST BLOCK

DRAWN:

L. DOUGAN

DATE:

9-2-14

DRAWING NUMBER

PSC-3001-2

CHECKED:

G. DILLING

DATE:

9-8-14

SHEET 1 OF 1

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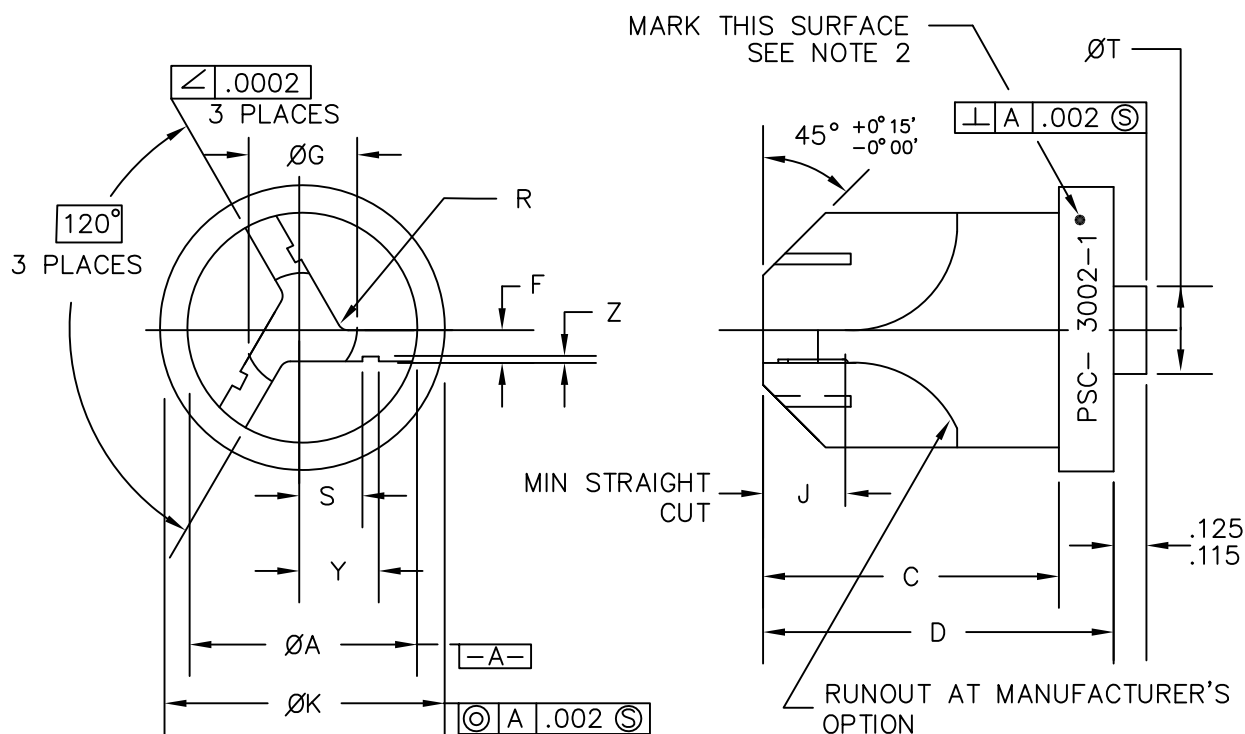
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9-2-14

ACR[®] ribbed TRI-WING[®] ENGINEERING MANUAL
GAGE STANDARDS

<u>SHEET NUMBER</u>	<u>DESCRIPTION</u>	<u>DATE</u>
PSC-3002	ACR ribbed TRI-WING Penetration Gage Point	9-2-14
PSC-3003	ACR ribbed TRI-WING Penetration Gage Assembly	9-2-14
PSC-3011	ACR ribbed TRI-WING Hand Plug Gage Assembly	9-2-14

FIGURE 1



ACR® RIBBED TRI-WING® PENETRATION GAGE POINT

TABLE 1

DASH NUMBER	GAGE & RECESS	DIMENSION												
		∅A ±.0002	C ±.005	∅D ±.005	F +.0000 −.0003	∅G +.000 −.001	J MIN	K ±.005	∅T +.000 −.005	S +.000 −.002	Y +.002 −.000	R	Z +.001 −.000	
0	0	.0720	.750	1.125	.0178	.039	.032	.120	.195	.002	.022	.005 .000	.004	
1	1	.1030			.0218	.054	.047	.183		.012	.032	.006 .003		
2	2	.1320			.0288	.069	.047	.183		.019	.039	.010 .007		
3	3	.1590			.0368	.084	.125	.245		.020	.050	.020 .017		
4	4	.1890			.0418	.098	.125	.245		.035	.065	.025 .022	.005	
5	5	.2320			.0478	.145	.125	.369		.055	.085			
6	6	.3030			.0598	.185	.187	.369		.075	.105			
7	7	.3580			.0728	.189	.187	.495		.070	.100	.030 .025	.006	
8	8	.4060			.0848	.176	.250	.495		.070	.100			
9	9	.4690			.0968	.201	.250	.744		.085	.115			
10	10	.5350	1.625	2.125	.1088	.226	.312	.744	.375	.100	.135	.048 .043	.008	
11	11	.6370			.1218	.252	.312	.744		.115	.150	.060 .055		
12	12	.7070			.1338	.274	.312	.995		.130	.165			
13	13	.8790			.1598	.340	.500	.995		.170	.205			
14	14	1.1190			.1848	.545	.500	1.369		.240	.275	.078 .073	.010	
15	15	1.2590			.2098	.605	.500	1.369		.270	.305	.080 .075		

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TITLE:

ACR® RIBBED TRI-WING® RECESS PENETRATION GAGE POINT

DRAWN:

S. GUARINO

DATE:

12 NOV 80

DRAWING NUMBER

PSC-3002

CHECKED:

J. O'BRIAN

DATE:

12 JAN 81

SHEET 1 OF 3

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HEXSTIX® POZILOCK® ARE REGISTERED TRADEMARKS OF THE PHILLIPS SCREW COMPANY

UPDATE
SEPT 2, 2014

7/24/89

ECO 58
12/2/86ECO 47
1/9/85

REVISION

1. REQUIREMENTS:

A. DESCRIPTION: Gage points for use in penetration gage assemblies PSC-3003, used to inspect ACR[®] Ribbed TRI-WING[®] Recesses.

B. MATERIALS: Tool Steel, D2

C. HARDNESS: 58-62 Rc.

D. SURFACE FINISH: Ground Surfaces shall have a maximum roughness of 32 microinches per ASME B 46.1

E. FINISHES: Plain

F. DESIGN AND CONSTRUCTION:

(1) Dimensions and configuration shall conform to figure 1.

G. PHYSICAL PROPERTIES:

(1) Metallurgical Requirements:

(A) Discontinuities: Points shall not contain discontinuities such as laps, seams, or inclusions greater than 0.001 inches in depth.

H. WORKMANSHIP: Hanging burrs and slivers which might become dislodged under usage shall be removed. Parts shall be clean and free from surface contamination.

2. MARKING: Identify with this drawing number, appropriate dash number and serial number, as shown in figure 1. Serial numbers shall be assigned and etched onto the parts only after all inspections are complete and the parts are accepted. Parts numbers shall be engraved or etched.

3. QUALITY ASSURANCE PROVISIONS: Quality Assurance Provisions shall be as specified herein.

A. Lot verification records: Inspection and control records shall be maintained by Phillips Screw Company and shall be available for review by the user for a minimum period of five years.

B. Responsibility for Inspection: Unless otherwise specified in the contract or order, Phillips Screw Company is responsible for the performance of all inspection requirements as specified herein.

C. Change of Product: Any change of product as regards materials, finishes, design, construction, or methods of manufacture shall require review and approval of Phillips Screw Company prior to incorporation.

D. Screening Inspection: 100 percent screening inspection shall consist of the examinations and tests listed in Table II.

E. Quality Conformance Inspection: Quality conformance inspection shall consist of the examinations and tests listed in Table III.

4. Only the item(s) described on this drawing, when procured from the vendor(s) approved by Phillips Screw Company, may be used in the application specified hereon. A substitute item shall not be used without prior approval by Phillips Screw Company.

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SEPT 2, 2014

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TITLE:

**ACR[®] RIBBED TRI-WING[®] RECESS
PENETRATION GAGE POINT**

DRAWN:

S. GUARINO

DATE:

12 NOV 80

DRAWING NUMBER

PSC-3002

CHECKED:

J. O'BRIAN

DATE:

12 JAN 81

SHEET 2 OF 3

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


TABLE II	
100 PERCENT SCENING INSPECTION	
TESTING SEQUENCE	CONDITIONS AND REQUIREMENTS
DIMENSIONS RELIEF DEPTH G F WING ANGLE J S Y 120  .0002  .002	INSPECT USING GAGE TEST BENCH

TABLE III		
QUALITY CONFORMANCE INSPECTION		
MIL-STD-1916	EXAMINATION OR TEST	CONDITIONS AND REQUIREMENTS
VERIFICATION LEVEL		
I	DIMENSIONS A K  A .002 .125-.115 T C D	INSPECT USING GAGE TEST BENCH.
I	MATERIAL FINISH	STANDARD INSPECTION EQUIPMENT

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**ACR[®] RIBBED TRI-WING[®] RECESS
PENETRATION GAGE POINT**

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S. GUARINO

DATE:
12 NOV 80

DRAWING NUMBER

PSC-3002

CHECKED:
J. O'BRIAN

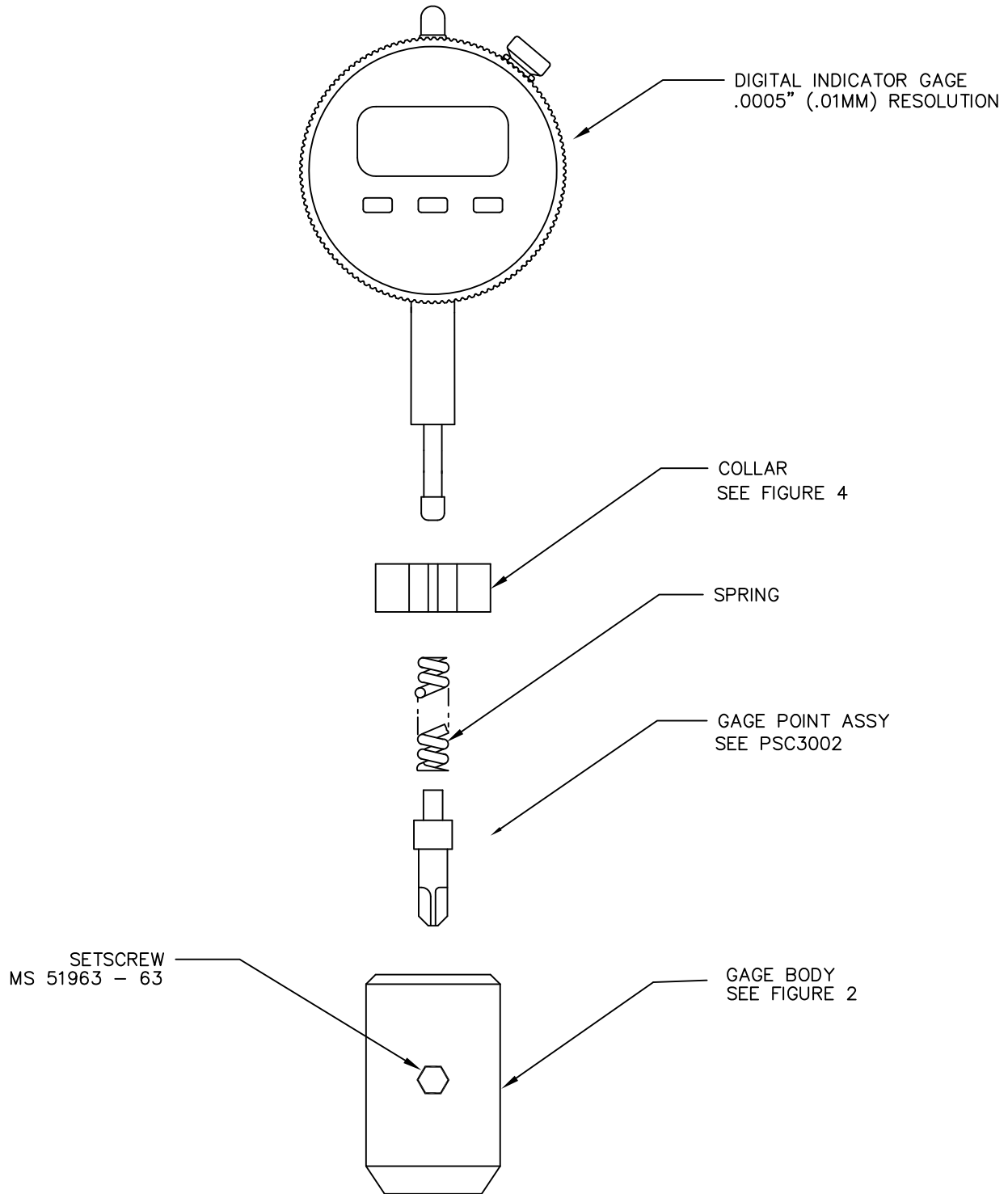
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12 JAN 81

SHEET 3 OF 3

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FIGURE 1
GAGE ASSY



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TITLE:

ACR[®] RIBBED TRI-WING[®] RECESS PENETRATION GAGE POINT

DRAWN:

S. GUARINO

DATE:

12 NOV 80

DRAWING NUMBER

PSC-3003

CHECKED:

J. O'BRIAN

DATE:

12 JAN 81

SHEET 1 OF 7

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TITLE:

**ACR[®] RIBBED TRI-WING[®] RECESS
PENETRATION GAGE POINT**

DRAWN:
S. GUARINO

DATE:
12 NOV 80

DRAWING NUMBER

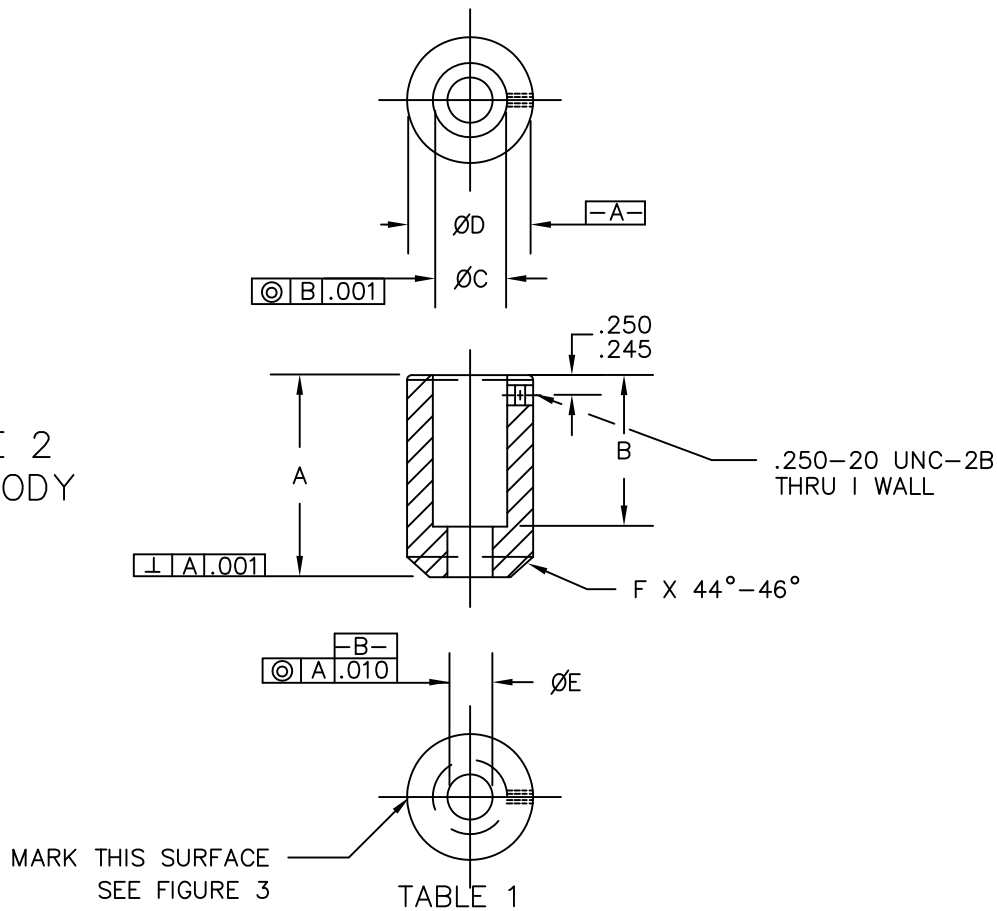
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FIGURE 2
GAGE BODY



DASH NUMBER	A $\pm .016$	B $+ .016$ $- .000$	$\varnothing C$ $+ .001$ $- .000$	$\varnothing D$ $\pm .010$	$\varnothing E$ $+ .002$ $- .000$	F $\pm .016$
B0	2.000	1.375	.375	.875	.073	.125
B1	↑	↑	↑	↑	.104	↑
B2					.133	
B3					.160	
B4					.190	
B5					.233	
B6		1.375	.375	.875	.304	
B7		1.500	.750	1.250	.359	
B8		↑	↑	↑	.407	
B9					.470	
B10	↓	↓	↓	↓	.536	↓
B11	2.000	1.500	.750	1.250	.638	.125
B12	3.000	1.875	1.375	2.000	.708	.250
B13	↑	↑	↑	↑	.880	↑
B14	↓	↓	↓	↓	1.120	↓
B15	3.000	1.875	1.375	2.000	1.260	.250

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TITLE:

ACR[®] RIBBED TRI-WING[®] RECESS PENETRATION GAGE POINT

DRAWN:

S. GUARINO

DATE:

12 NOV 80

DRAWING NUMBER

PSC-3003

CHECKED:

J. O'BRIAN

DATE:

12 JAN 81

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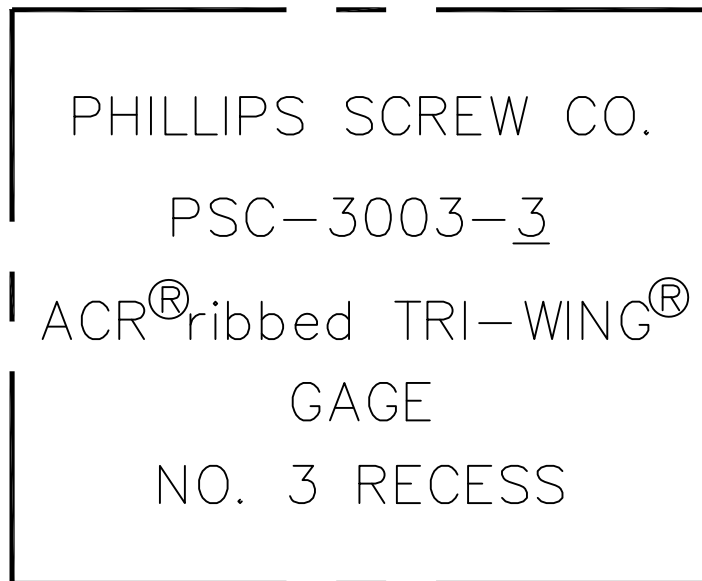
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UPDATE
SEPT 2, 2014

7/24/89

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FIGURE 3



NOTE : USE APPROPRIATE DASH NUMBER AND RECESS NUMBER

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TITLE:

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PENETRATION GAGE POINT**

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12 JAN 81

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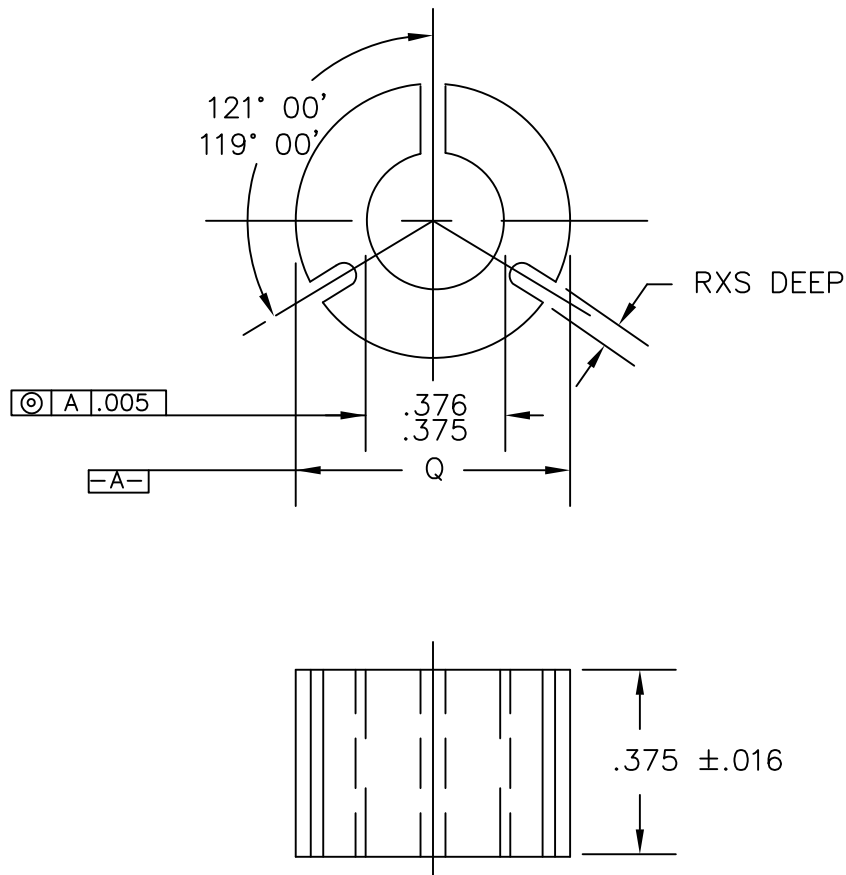
PSC-3003

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HEXSTIX[®] POZILOCK[®] ARE REGISTERED TRADEMARKS OF THE PHILLIPS SCREW COMPANY

FIGURE 4
COLLAR
— C AS SHOWN



RECESS SIZE	DASH NO	Q	R ±.015	S +.000 -.015
7 THRU 11	-C7	.7495 .7490	.062	.125
12 THRU 15	-C12	1.3745 1.3740	.125	.265

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TITLE:

**ACR[®] RIBBED TRI-WING[®] RECESS
PENETRATION GAGE POINT**

DRAWN:

S. GUARINO

DATE:

12 NOV 80

DRAWING NUMBER

PSC-3003

CHECKED:

J. O'BRIAN

DATE:

12 JAN 81

SHEET 5 OF 7

PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A.
PHONE: 774-396-6190 FAX: 508-966-2326

PHILLIPS II[®] PHILLIPS[®] POZIDRIV[®] ACR[®] POZISQUARE[®] PHILLIPS SQUARE-DRIV[®] TORQ-SET[®] TRI-WING[®] MORTORQ[®]
HEXSTIX[®] POZILOCK[®] ARE REGISTERED TRADEMARKS OF THE PHILLIPS SCREW COMPANY

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1. REQUIREMENTS:
 - A. DESCRIPTION: Penetration gage assembly for inspection of ACR[®] Ribbed TRI-WING[®] Recesses.
 - B. MATERIALS:
 - (1) BODY: M2
 - (2) COLLARS: M2
 - C. HARDNESS
 - (1) BODY: 60-63 Rc
 - (2) COLLAR: 60-63 Rc
 - D. DESIGN AND CONSTRUCTION:
 - (1) Dimensions and configuration shall conform to figures 1 through 4
 - (2) Unless otherwise specified, tolerances are ± 0.016
 - E. PHYSICAL PROPERTIES:
 - (1) Metallurgical Requirements:
 - (A) Discontinuities: Bodies and collars shall not contain discontinuities such as laps, seams, or inclusions greater than 0.010 inches in depth.
 - (B) Cracks: Bodies and collars shall be free from cracks in any location or direction. A crack is defined as a clean crystalline break passing through the grain or grain boundary without the inclusion of foreign elements.
 - F. INTENDED USE: SEE PSC-3008; PSC-3009.
 - G. WORKMANSHIP: Hanging burrs and slivers which might become dislodged under usage shall be removed. Parts shall be clean and free from surface contamination.
2. MARKING: Identify as shown in figures 2 and 3. All markings shall be etched or engraved.
3. QUALITY ASSURANCE PROVISIONS: Quality assurance shall be as specified herein.
 - A. Lot verification records: Inspection and control records shall be maintained by Phillips Screw Company and shall be available for review by the user for a minimum period of five years.
 - B. Responsibility for Inspection: Unless otherwise specified in the contract or order, Phillips Screw Company is responsible for the performance of all inspection requirements as specified herein.
 - C. Change of Product: Any change of product as regards materials, finishes, design, construction, or methods of manufacture shall require review and approval of Phillips Screw Company prior to incorporation.
 - D. Screening Inspection: 100 percent screening inspection shall consist of the examinations and tests listed in Table III.
 - E. Quality Conformance Inspection: Quality conformance inspection shall consist of the examinations and tests listed in Table IV.
4. Only the item(s) described on this drawing, when procured from the vendor(s) approved by Phillips Screw Company, may be used in the application specified hereon. A substitute item shall not be used without prior approval by Phillips Screw Company.

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TABLE III	
100 PERCENT SCREENER INSPECTION	
TESTING SEQUENCE	CONDITIONS AND REQUIREMENTS
<u>GAGE BODY</u> Ø C Ø E	GAGE TEST BENCH.
MARKING	VISUAL
<u>COLLAR</u> .375—.376 DIA. .7495—.7490 DIA. 1.3745—1.3740 DIA.	STANDARD INSPECTION EQUIPMENT
<u>GAGE ASSEMBLIES</u> PRESENCE OF ALL PARTS	VISUAL
ADJUST ZERO SETTING	ADJUST USING FLAT SURFACE

TABLE VI			
QUALITY CONFORMANCE INSPECTION			
ITEM	MIL-STD-1916 VERIFICATION LEVEL	EXAMINATION OR TEST	CONDITIONS AND REQUIREMENTS
GAGE BODY	I	Dimensions A Ø D F BODY LENGTH TAPPED HOLE HOLE LOCATION	STANDARD INSPECTION EQUIPMENT
	I	MATERIAL FINISH	
<u>COLLAR</u>	I	DIMENSIONS LENGTH NOTCH SIZE NOTCH LOCATION	STANDARD INSPECTION EQUIPMENT
	I	MATERIAL FINISH	

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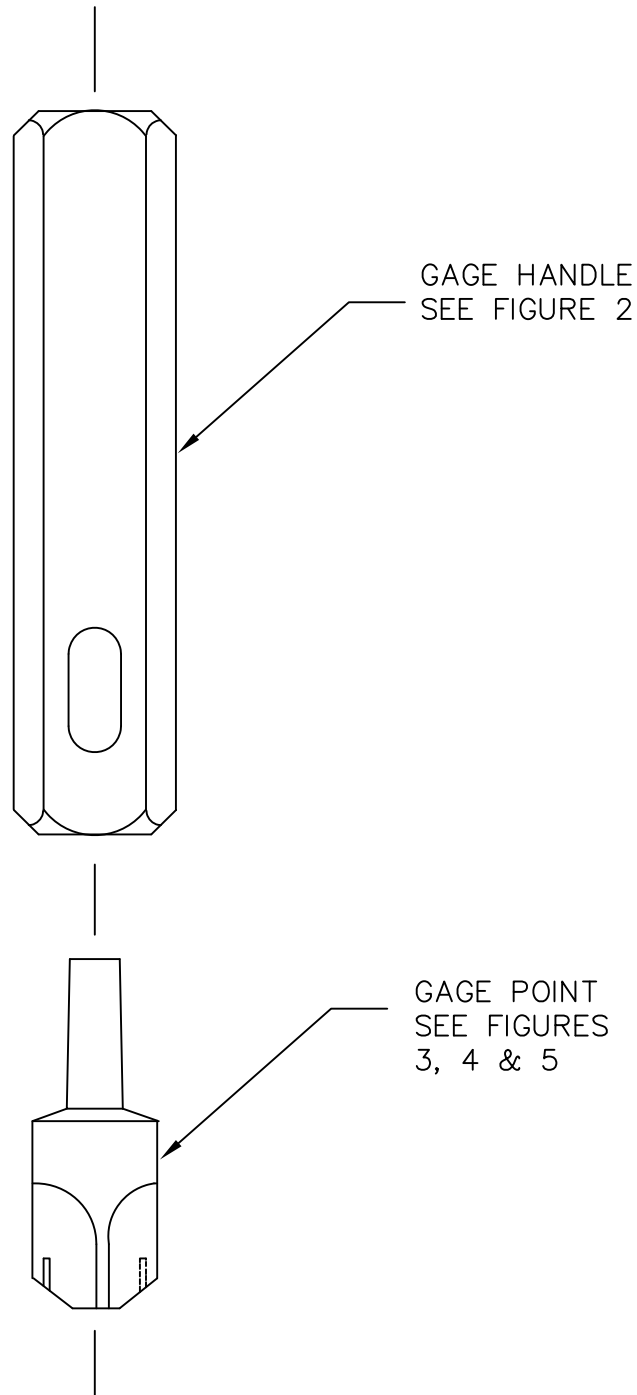
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FIGURE 1
GAGE ASSEMBLY



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[illegible]

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ACR[®] RIBBED TRI-WING[®] RECESS HAND PLUG GAGE ASSEMBLY

PSC-3011

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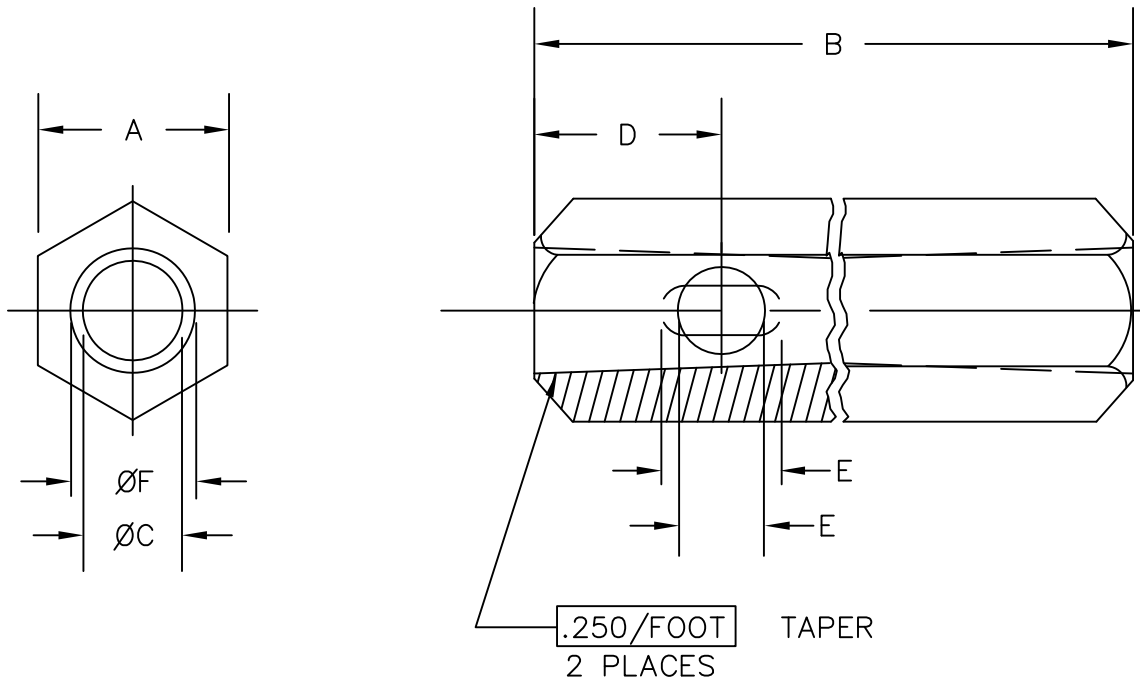
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RECESS NO		ASSEMBLY DASH NO																FIGURE	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	ITEM		
2		1															GAGE HANDLE	PSC-3011-H4	
			1														↑		H3
				1													↑		H2
					1												↑		H1
3	1																GAGE HANDLE	PSC-3011-H0	1
																	GAGE POINT	PSC-3011-G15C	
		1															↑		G14C
			1														↑		G13C
				1													↑		G12C
					1														G11C
						1													G10C
							1												G9C
								1											G8C
									1										G7C
										1									G6C
											1								G5C
												1							G4C
														1					G3C
															1				G2C
																1	↑		G1C
																GAGE POINT	PSC-3011-G0C	1	
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	DESCRIPTION	PART NO	
	C15	C14	C13	C12	C11	C10	C9	C8	C7	C6	C5	C4	C3	C2	C1	C0			

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FIGURE 2



GAGE HANDLE

TABLE 1

RECESS SIZE	DASH NUMBER	A $\pm .020$	B $\pm .120$	$\varnothing C$ $\pm .005$	D	E	F $\pm .001$
0,1,2,3,4	H0	.312	2.000	.161	.687	.125 X .375	.181
5,6,7,8	H1	.375	2.750	.218	.781	.125 X .500	.240
9,10,11	H2	.500	3.000	.290	.781	.234	.310
12,13	H3	.687	3.250	.390	.843	.343	.410
14,15	H4	.875	3.625	.578	.984	.375	.610

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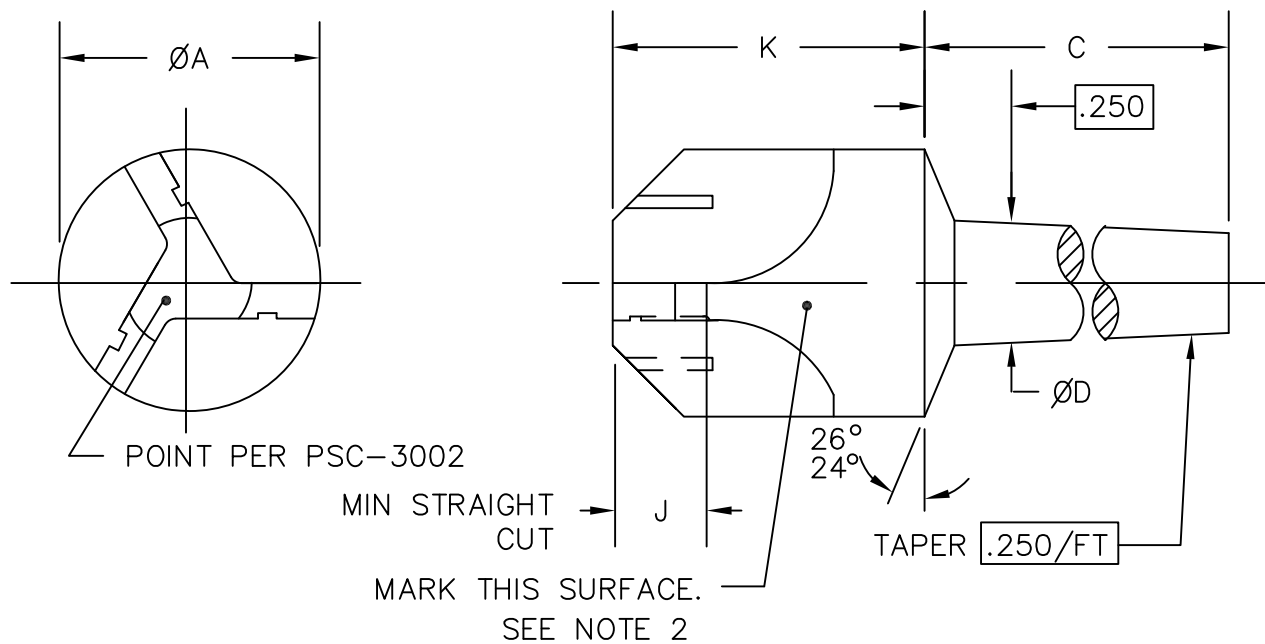
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FIGURE 3



STYLE "A" GO GAGE POINT

TABLE 2

GAGE SIZE	DASH NUMBER	$\varnothing A$ $\pm .010$	C $\pm .062$	D $\pm .001$	J MIN	K $\pm .062$
0	G0A	.094	.875	.181	.032	.375
1	G1A	.125	.875	.181	.047	.375
2	G2A	.156	.875	.181	.047	.375
3	G3A	.187	.875	.181	.125	.875
4	G4A	.250	.875	.181	.125	.875
5	G5A	.312	1.000	.240	.125	1.000
6	G6A	.375	1.000	.240	.187	1.000
7	G7A	.437	1.000	.240	.187	1.000
8	G8A	.500	1.000	.240	.250	1.000
9	G9A	.562	1.000	.310	.250	1.000
10	G10A	.625	1.000	.310	.312	1.000
11	G11A	.750	1.000	.310	.312	1.000
12	G12A	.875	1.000	.410	.312	1.000
13	G13A	1.000	1.000	.410	.500	1.500
14	G14A	1.125	1.188	.610	.500	1.500
15	G15A	1.250	1.188	.610	.500	2.000

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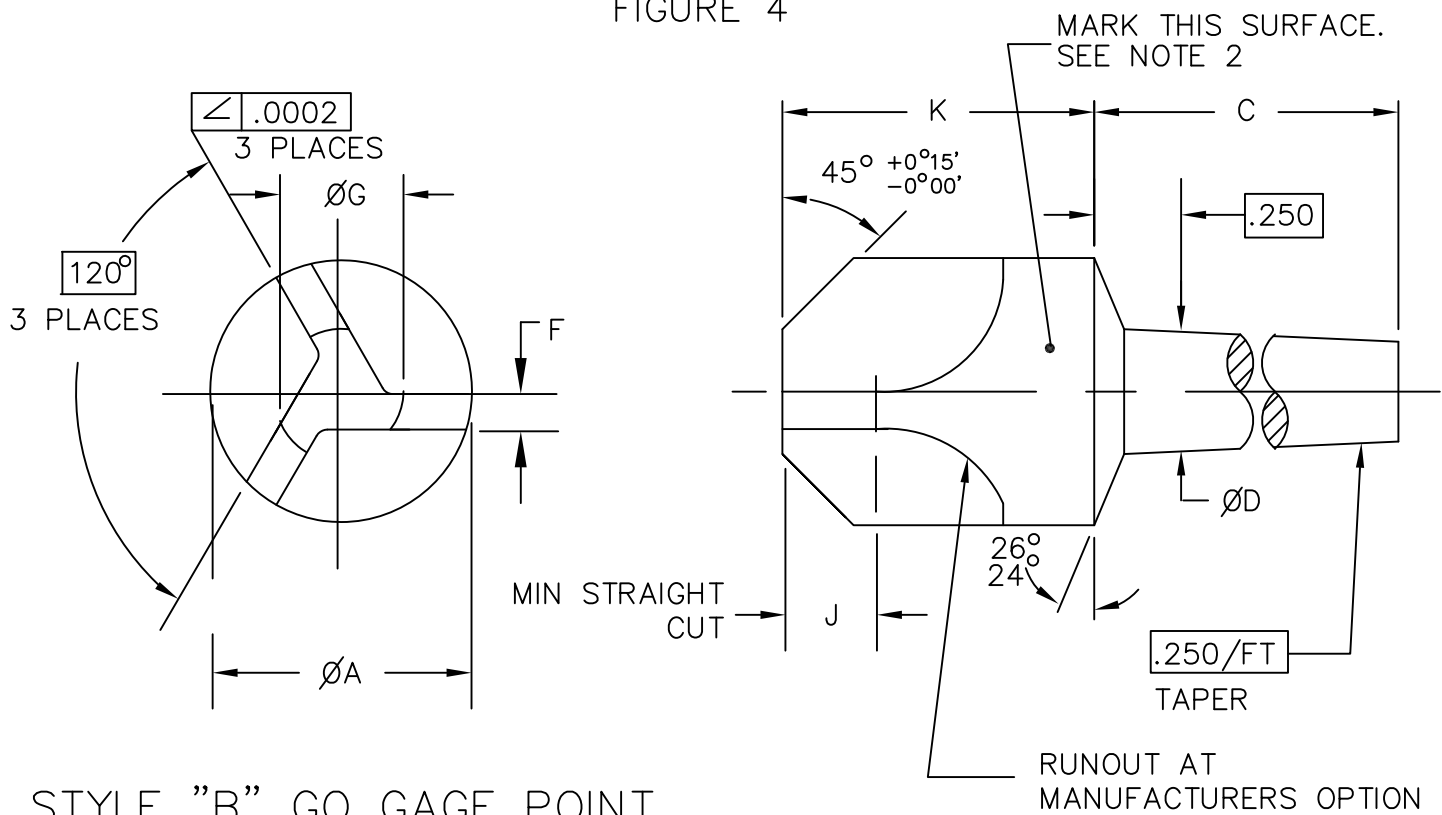
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FIGURE 4



STYLE "B" GO GAGE POINT

TABLE 3

GAGE SIZE	DASH NUMBER	ØA ± .010	C ± .062	D ± .001	F + .0003 - .0000	G + .000 - .001	J MIN	K ± .062
0	G0B	.094	.875	.181	.0165	.039	.032	.375
1	G1B	.125	.875	.181	.0205	.054	.047	.375
2	G2B	.156	.875	.181	.0275	.069	.047	.375
3	G3B	.187	.875	.181	.0340	.084	.125	.875
4	G4B	.250	.875	.181	.0390	.098	.125	.875
5	G5B	.312	1.000	.240	.0450	.145	.125	1.000
6	G6B	.375	1.000	.240	.0570	.185	.187	1.000
7	G7B	.437	1.000	.240	.0695	.189	.187	1.000
8	G8B	.500	1.000	.240	.0815	.176	.250	1.000
9	G9B	.562	1.000	.310	.0935	.201	.250	1.000
10	G10B	.625	1.000	.310	.1045	.226	.312	1.000
11	G11B	.750	1.000	.310	.1165	.252	.312	1.000
12	G12B	.875	1.000	.410	.1285	.274	.312	1.000
13	G13B	1.000	1.000	.410	.1545	.340	.500	1.500
14	G14B	1.125	1.188	.610	.1795	.545	.500	1.500
15	G15B	1.250	1.188	.610	.2045	.605	.500	2.000

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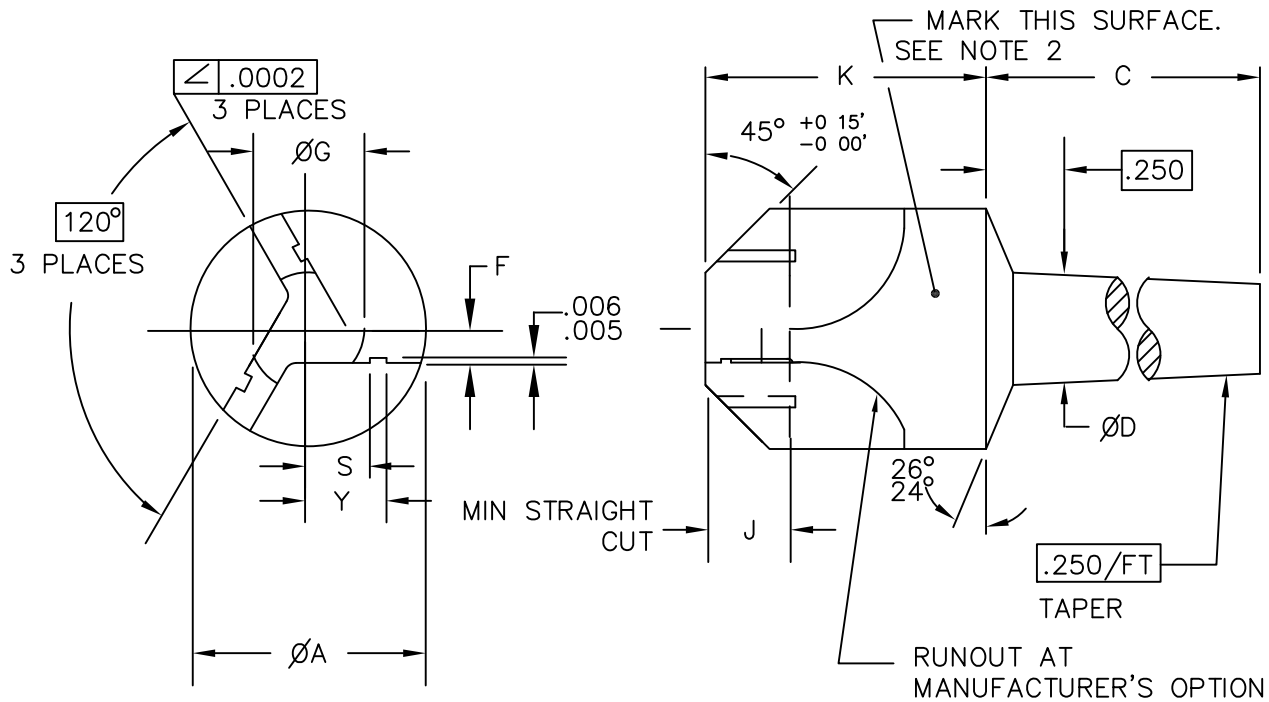
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FIGURE 5



STYLE "C" NO-GO GAGE POINT

TABLE 4

GAGE SIZE	DASH NUMBER	ØA ± .010	C ± .062	ØD ± .001	F + .0000 - .0003	ØG + .000 - .001	J - MIN	K ± .062	S + .000 - .002	Y + .002 - .000
0	G0C	.094	.875	.181	.0213	.039	.032	.375	.002	.022
1	G1C	.125	.875	.181	.0253	.054	.047	.375	.012	.032
2	G2C	.156	.875	.181	.0323	.069	.047	.375	.019	.039
3	G3C	.187	.875	.181	.0403	.084	.125	.875	.020	.050
4	G4C	.250	.875	.181	.0453	.098	.125	.875	.035	.065
5	G5C	.312	1.000	.240	.0513	.145	.125	1.000	.055	.085
6	G6C	.375	1.000	.240	.0633	.185	.187	1.000	.075	.105
7	G7C	.437	1.000	.240	.0763	.189	.187	1.000	.070	.100
8	G8C	.500	1.000	.240	.0883	.176	.250	1.000	.070	.100
9	G9C	.562	1.000	.310	.1013	.201	.250	1.000	.085	.115
10	G10C	.625	1.000	.310	.1133	.226	.312	1.000	.100	.135
11	G11C	.750	1.000	.310	.1273	.252	.312	1.000	.115	.150
12	G12C	.875	1.000	.410	.1393	.274	.312	1.000	.130	.165
13	G13C	1.000	1.000	.410	.1653	.340	.500	1.500	.170	.205
14	G14C	1.125	1.188	.610	.1903	.545	.500	1.500	.240	.275
15	G15C	1.250	1.188	.610	.2153	.605	.500	2.000	.270	.305

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1. REQUIREMENTS:
 - A. DESCRIPTION: Hand Plug Gages for inspection of ACR® Ribbed TRI-WING® Recesses.
 - B. MATERIALS:
 - (1) Gage Points: Tool Steel, D2
 - (2) Handles: 2024-T3 Aluminum or equal
 - C. HARDNESS
 - (1) Gage Points: 58-62 Rc
 - D. SURFACE FINISHES:
 - (1) Gage Points: Ground surfaces shall have a maximum roughness of 32 microinches per ASME B46.1
 - E. FINISHES:
 - (1) Gage Points: Plain
 - (2) Handles: Anodize per MIL-A-8625
 - F. DESIGN AND CONSTRUCTION:
 - (1) Dimensions and configuration shall conform to Figures 1, 2, 3, 4 and 5 as applicable.
 - G. PHYSICAL PROPERTIES:
 - (1) Metallurgical Requirements:
 - (A) Discontinuities: Gage points shall not contain discontinuities such as laps, seams, or inclusions greater than 0.001 inches in depth.
 - (B) Cracks: Gage points and handles shall be free from cracks in any location or direction. A crack is defined as a clean crystalline break passing through the grain or grain boundary without the inclusions of foreign elements.
 - H. APPLICATION AND DESIGN CRITERIA:
 - (1) Intended Use: See PSC-3008; PSC-3009.
 - J. WORKMANSHIP: Hanging burrs and slivers which might become dislodged under usage shall be removed. Parts shall be clean and free from surface contamination.
2. MARKING: Identify with this drawing number and appropriate assembly dash number as shown in figure 3, 4 and 5. Serial numbers shall be assigned and etched onto the parts only after all inspections are complete and the parts accepted.
3. QUALITY ASSURANCE PROVISIONS: Quality assurance provisions shall be as specified herein.
 - A. Lot verification records: Inspection and control records shall be maintained by Phillips Screw Company and shall be available for review by the user for a minimum period of five years.
 - B. Responsibility for Inspection: Unless otherwise specified in the contract or order, Phillips Screw Company is responsible for the performance of all inspection requirements as specified herein.
 - C. Change of Product: Any change of product as regards materials, finishes, design, construction, or methods of manufacture shall require review and approval of Phillips Screw Company prior to incorporation.
 - D. Screening Inspection: 100 percent screening inspection shall consist of the examinations and tests listed in Table V.
 - E. Quality Conformance Inspection: Quality conformance inspection shall consist of the examinations and tests listed in Table VI.
4. Only the item(s) described on this drawing, when procured from the vendor(s) approved by Phillips Screw Company, may be used in the application specified hereon. A substitute item shall not be used without prior approval by Phillips Screw Company.

UPDATE
SEPT 2, 2014

7/24/89

REVISION

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TITLE:

ACR® RIBBED TRI-WING® RECESS HAND PLUG GAGE ASSEMBLY

DRAWN:
S. GUARINO

DATE:
12 NOV 80

DRAWING NUMBER

PSC-3011

CHECKED:
J. O'BRIAN

DATE:
12 JAN 81

SHEET 9 OF 10

PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A.
PHONE: 774-396-6190 FAX: 508-966-2326

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HEXSTIX® POZILOCK® ARE REGISTERED TRADEMARKS OF THE PHILLIPS SCREW COMPANY

TABLE V		
ITEM	100 PERCENT SCREENING INSPECTION	
	TESTING SEQUENCE	CONDITIONS AND REQUIREMENTS
Gage Points	Point Dimensions	Inspection per PSC-3002, Table I, using gage test bench.
	Ø F Taper	Inspect using gage test bench.
Assemblies	Presence of Both Parts	Visual

TABLE VI			
QUALITY CONFORMANCE INSPECTION			
ITEM	MIL-STD-1916	EXAMINATION OR TEST	CONDITIONS AND REQUIREMENTS
	VERIFICATION LEVEL		
Gage Points	I	Point Dimensions	Inspect per PSC-3002 Table II using gage test bench.
	I	Dimensions Ø A K C	Standard Inspection Equipment
	I	Material Finish	
Handles	I	Ø F Both Ends Taper Ø C	Standard Inspection Equipment
	I	All remaining Dimensions	
	I	Material Finish	

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TITLE:

ACR[®] RIBBED TRI-WING[®] RECESS HAND PLUG GAGE ASSEMBLY

DRAWN:

S. GUARINO

DATE:

12 NOV 80

DRAWING NUMBER

PSC-3011

CHECKED:

J. O'BRIAN

DATE:

12 JAN 81

SHEET 10 OF 10

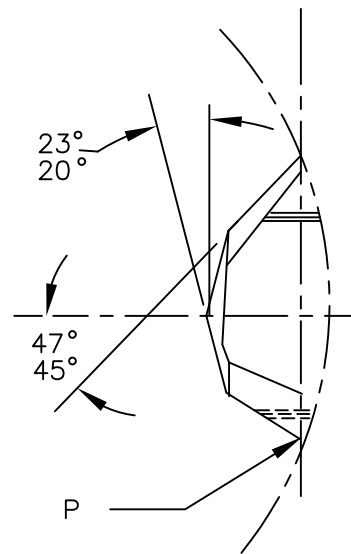
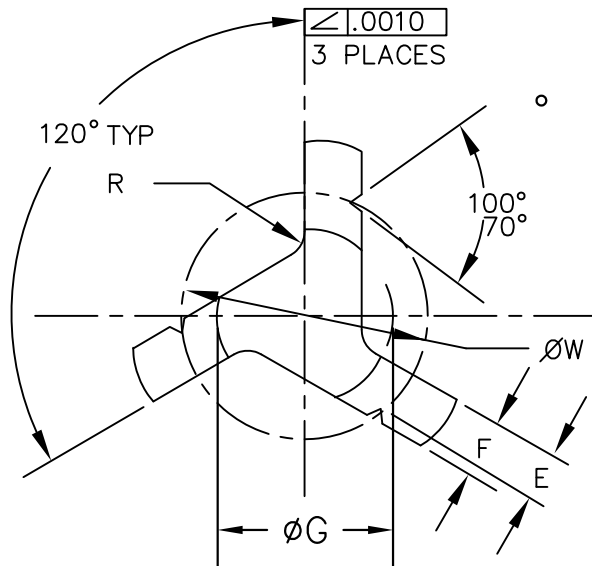
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9-2-14

ACR[®] ribbed TRI-WING[®] ENGINEERING MANUAL
PUNCH STANDARDS

<u>SHEET NUMBER</u>	<u>DESCRIPTION</u>	<u>DATE</u>
PSC-3100	ACR ribbed TRI-WING Punch Dimensions	9-2-14
PSC-3101	100° Flush, 100° Reduced and Fillister Head	9-2-14
PSC-3102	Pan Head	9-2-14
PSC-3104	100° Oval Head	9-2-14
PSC-3105	Trimmed Hex Head	9-2-14
PSC-3106	Flat Pan Head	9-2-14
PSC-3108	Mush Head	9-2-14
PSC-3123	100° Reduced Crown Head	9-2-14



RECESS SIZE	E 		F 		ϕG + .000 - .002	P RAD 		R RAD		ϕW	
	MAX	MIN	MAX	MIN		MAX	MIN	MAX	MIN	MAX	MIN
0	.0185	.0175	.0205	.0195	.036					.044	.042
1	.0225	.0215	.0245	.0235	.051			.008	.003	.063	.061
2	.0295	.0285	.0315	.0305	.066	.005	.003	.012	.009	.082	.080
3	.0370	.0360	.0395	.0385	.081			.022	.019	.101	.099
4	.0420	.0410	.0445	.0435	.095					.130	.128
5	.0480	.0470	.0505	.0495	.142	.008	.005			.170	.168
6	.0600	.0590	.0625	.0615	.182			.027	.024	.215	.212
7	.0730	.0715	.0755	.0745	.185					.224	.221
8	.0850	.0835	.0875	.0865	.172	.010	.005			.243	.240
9	.0970	.0955	.1005	.0985	.197			.034	.029	.283	.280
10	.1090	.1065	.1125	.1105	.222	.012	.005	.052	.047	.324	.319
11	.1245	.1215	.1295	.1265	.248	.014	.005			.364	.359
12	.1365	.1335	.1415	.1385	.270			.064	.059	.404	.397
13	.1625	.1595	.1675	.1645	.336					.503	.496
14	.1875	.1845	.1925	.1895	.541	.018	.008			.641	.634
15	.2125	.2095	.2175	.2145	.601	.020	.010	.084	.079	.722	.715

NOTES:

- Dimensions "E" and "F", as shown for recess sizes: 11, 12, 13, 14, and 15, include on increase of 0.003 inch over required recess aperture to allow for contraction after hot heading.
- "P" radius shown is for punches only and occurs along the entire periphery where the point blends into the body.

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TITLE:

ACR[®] RIBBED TRI-WING[®] PUNCH POINT CONSTANT DIMENSIONS

DRAWN:
S. O. BRENNAN

DATE:
19DEC84

DRAWING NUMBER

PSC-3100

CHECKED:
J. GRADY

DATE:
19DEC84

SHEET 1 OF 1

PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A.
PHONE: 774-396-6190 FAX: 508-966-2326

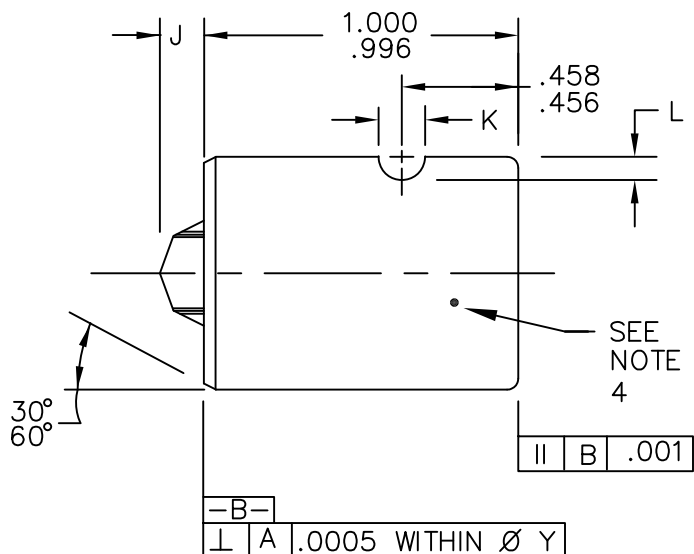
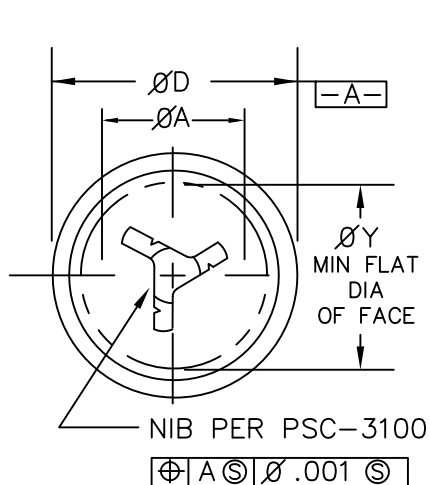
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UPDATE
SEPT. 2, 2014

7/24/89

REDRAWN
12/19/84

REVISION



DASH NO.	RECESS SIZE	SCREW SIZE		DIMENSIONS						PUNCH PENETRATION	
		100° TENSION AND FILLISTER HEADS	100° REDUCED HEAD	Ø A ±.002	Ø D ±.0005	J REF	K +.001 - .000	L +.001 - .000	Y MIN	MAX	MIN
0	0	.060		.077	.4375	.027	.125	.061	.125	.0220	.0180
1	1	.086	—	.110	.4375	.039	↑	↑	.188	.0310	.0270
2	2	.112	—	.143	.4375	.051	↓	↓	.234	.0400	.0360
3	3	.138	—	.177	.4375	.063	.125	.061	.312	.0495	.0445
4	4	.164	.190	.210	.5625	.075	.212	.105	.375	.0590	.0540
4J	4J	.190	.250	.243	.5625	.091	↑	↑	.437	.0755	.0705
5	5	.190	.250	.243	.5625	.076			.437	.0520	.0470
6	6	.250	.312	.320	.8750	.102			.594	.0705	.0655
7	7	.312	.375	.390	1.0000	.136			.688	.1035	.0985
8	8	.375	.438	.422	1.0000	.156			.844	.1260	.1210
9	9	.438	.500	.493	1.2500	.184			.938	.1490	.1440
10	10	.500	.562	.563	1.2500	.211			1.062	.1715	.1665
11	11	.562	.625	.633	1.5000	.238	↓	↓	1.218	.1935	.1885
12	12	.625	.750	.703	1.5000	.266	.212	.105	1.344	.2175	.2125
13	13	.750	.875	.875	2.0000	.331	—	—	1.531	.2705	.2655
14	14	.875	1.000	1.115	2.0000	.385	—	—	1.812	.2880	.2830
15	15	1.000	—	1.255	2.5000	.436	—	—	2.062	.3280	.3230

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PUNCH, 100° TENSION AND FILLISTER HEADS AND 100° REDUCED HEAD ACR® RIBBED TRI-WING® RECESS

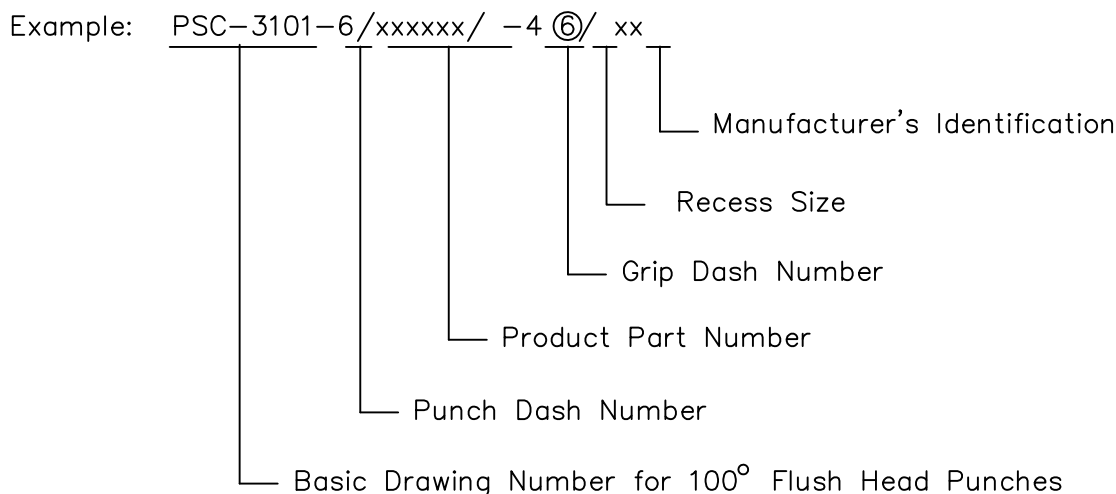
DRAWN S.O.BRENNAN	DATE 19DEC84	DRAWING NUMBER PSC-3101
CHECKED: J.GRADY	DATE 19DEC84	SHEET 1 OF 2
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

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REVISION REDRAWN 12/19/84
7/24/89
UPDATE
SEPT. 2, 2014

NOTES:

1. Punch numbering system consists of basic punch drawing number (ie., PSC-3101), proper dash number (ie., -6), a slash (/), product part number for head marking, a slash (/), grip dash number for head marking (ie., -4), recess size for head marking (ie., ⑥), a slash (/), and the manufacturer's identification for head marking (ie., xx).



3. Refer to drawing PSC-3100 for point dimensions not shown.
3. Deburr all ACR® Grooves.
4. Mark punches with this drawing number, applicable dash number, the legend "ACR® ribbed TRI-WING®", and the serial number of the hob used in manufacture. All marking shall be etched, stamped, or engraved.
5. All punches shall be certified by the punch manufacturer. In case of conflict, referee inspection shall be performed in accordance with test requirement specification PSC-3009.

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**PUNCH, 100° TENSION AND FILLISTER
HEADS AND 100° REDUCED HEAD
ACR® RIBBED TRI-WING® RECESS**

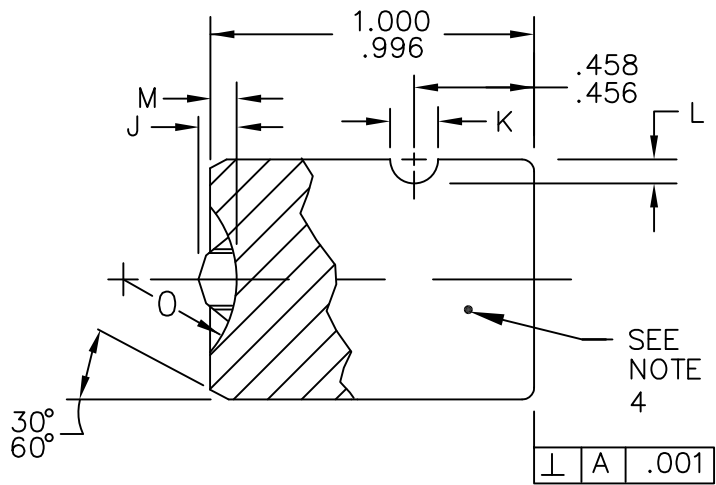
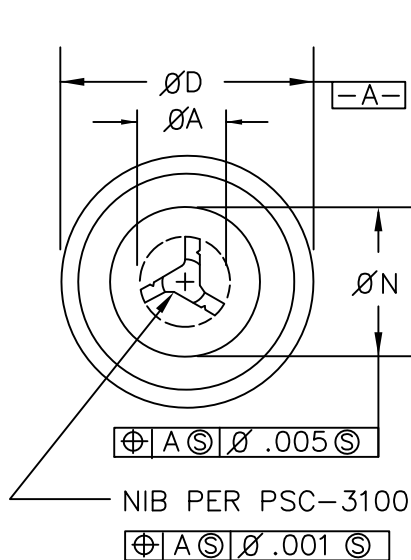
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CHECKED: J.GRADY	DATE 19DEC84	SHEET 2 OF 2
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UPDATE
SEPT. 2, 2014

7/24/89

REVISION REDRAWN 12/19/84



DASH NO.	SCREW SIZE	RECESS SIZE	DIMENSIONS								PUNCH PENETRATION	
			Ø A	Ø D	J	K	L	M	Ø N	O	MAX	MIN
			±.002	±.0005	REF	+ .001 - .000	+ .001 - .000	+ .002 - .000	+ .005 - .000	REF		
1	.138	3	.155	.4375	.067	.125	.061	.048	.265	.207	.0385	.0335
2	.164	4	.185	.5625	.080	.212	.105	.059	.317	.244	.0465	.0415
3	.190	4J	.228	.5625	.107	↑	↑	.066	.363	.284	.0735	.0685
3A	.190	4J	.228	.8750	.107			.066	.363	.284	.0735	.0685
4	.190	5	.228	.5625	.093			.066	.363	.284	.0445	.0395
4A	.190	5	.228	.8750	.093			.066	.363	.284	.0445	.0395
5	.250	6	.229	.8750	.123			.089	.482	.373	.0600	.0550
6	.312	7	.354	1.0000	.150			.095	.605	.527	.0855	.0805
7	.375	8	.402	1.2500	.178			.112	.730	.652	.1160	.1110
8	.438	9	.465	1.5000	.206	↓	↓	.126	.853	.782	.1350	.1300
9	.500	10	.531	1.5000	.229	.212	.105	.124	.982	1.034	.1555	.1505

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PUNCH, PAN HEAD ACR[®] RIBBED TRI-WING[®] RECESS

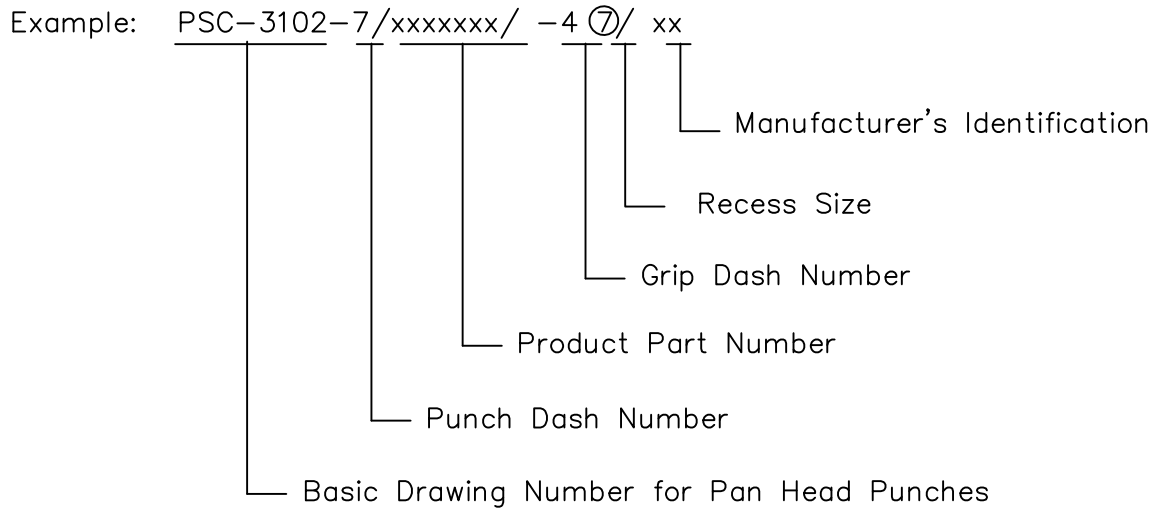
DRAWN J. O'BRIEN	DATE 6-13-80	DRAWING NUMBER PSC-3102
CHECKED: R. WHITESIDE	DATE 6-16-80	SHEET 1 OF 2
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

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REVISION
11-7-02
REDRAWN AUTOCAD
UPDATE
SEPT. 2, 2014

NOTES:

1. Punch numbering system consists of basic punch drawing number (ie., PSC-3102, proper dash number (ie., -7), a slash (/), product part number for head marking, a slash (/), grip dash number for head marking (ie., -4), recess size for head marking (ie., ⑦), a slash (/), and the manufacturer's identification for head marking (ie., xx).



2. Refer to drawing PSC-3100 for point dimensions not shown.
3. Deburr all ACR® Grooves.
4. Mark punches with this drawing number, applicable dash number, the legend "ACR® ribbed TRI-WING®", and the serial number of the hob used in manufacture. All marking shall be etched, stamped, or engraved.
5. All punches shall be certified by the punch manufacturer. In case of conflict, referee inspection shall be performed in accordance with test requirement specification PSC-3009.

REVISION
11-7-02
REDRAWN AUTOCAD
UPDATE
SEPT. 2, 2014

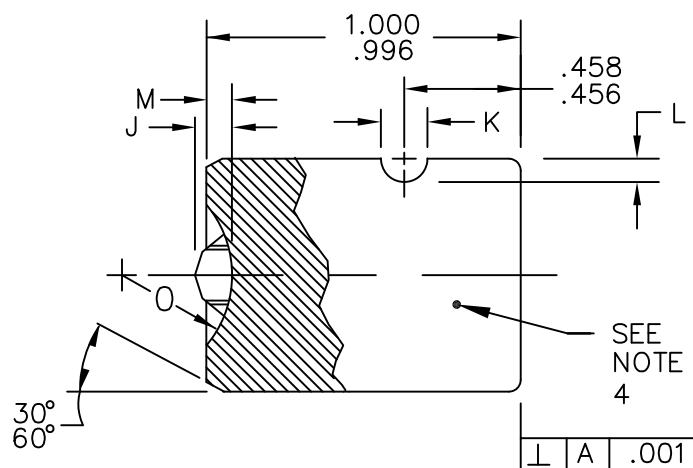
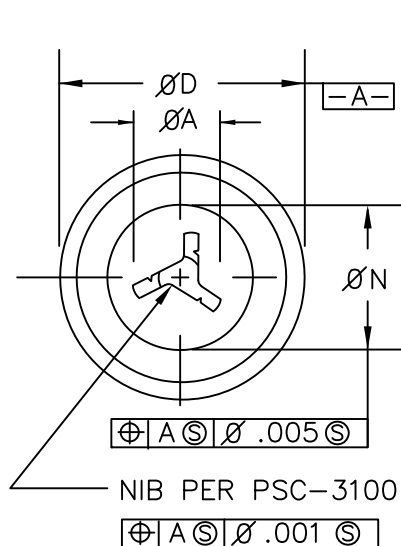
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PUNCH, PAN HEAD ACR® RIBBED TRI-WING® RECESS

DRAWN J. O'BRIEN	DATE 6-13-80	DRAWING NUMBER PSC-3102
CHECKED: R. WHITESIDE	DATE 6-16-80	SHEET 2 OF 2
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

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HEXSTIX® POZILOCK® ARE REGISTERED TRADEMARKS OF THE PHILLIPS SCREW COMPANY



DASH NO.	RECESS SIZE	SCREW SIZE	DIMENSIONS								PUNCH PENETRATION	
			$\varnothing A$	$\varnothing D$	J	K	L	M	$\varnothing N$	O	MAX	MIN
			$\pm .002$	$\pm .0005$	REF	$+.001$ $-.000$	$+.001$ $-.000$	$+.002$ $-.000$	$+.005$ $-.000$	REF		
0	0	.060	.077	.4375	.033	.125	.061	.014	.115	.127	.0225	.0185
1	1	.086	.110	.4375	.047	↑	↑	.020	.168	.186	.0320	.0280
2	2	.112	.143	.4375	.061	↓	↓	.026	.221	.248	.0415	.0375
3	3	.138	.177	.4375	.076	.125	.061	.033	.274	.301	.0520	.0470
4	4	.164	.210	.5625	.091	.212	.105	.040	.326	.352	.0620	.0570
4J	4J	.190	.243	.5625	.110	↑	↑	.046	.375	.405	.0830	.0780
5	5	.190	.243	.5625	.095	↑	↑	.046	.375	.405	.0535	.0485
6	6	.250	.320	.8750	.127	↑	↑	.062	.500	.535	.0730	.0680
7	7	.312	.390	1.0000	.165	↓	↓	.078	.627	.669	.1080	.1030
8	8	.375	.422	1.0000	.185	.212	.105	.096	.752	.784	.1280	.1230

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PUNCH, 100° OVAL HEAD ACR® RIBBED TRI-WING® RECESS

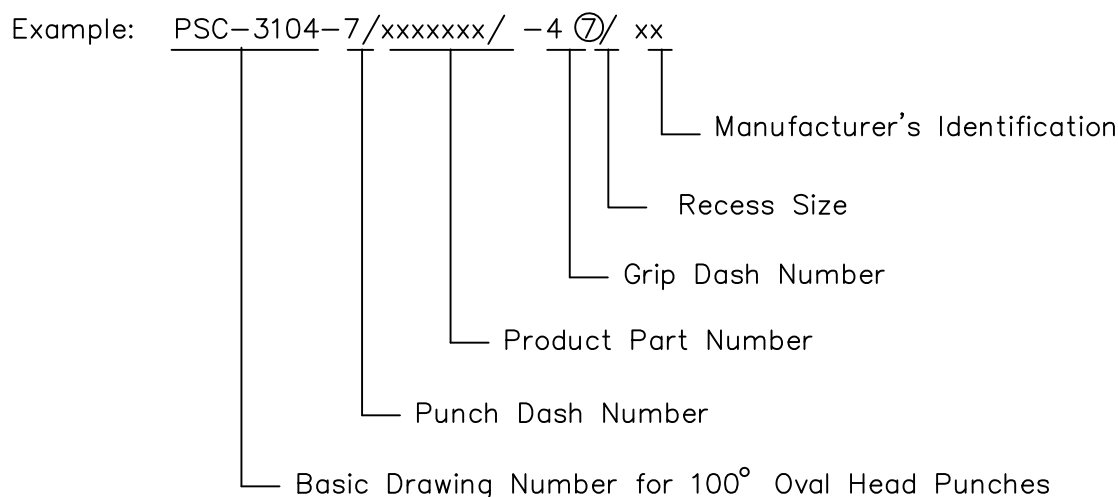
DRAWN S.O.BRENNAN	DATE 20DEC84	DRAWING NUMBER PSC-3104
CHECKED: J.GRADY	DATE 20DEC84	SHEET 1 OF 2
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

PHILLIPS II® PHILLIPS® POZIDRIV® ACR® POZISQUARE® PHILLIPS SQUARE-DRIV® TORQ-SET® TRI-WING® MORTORQ®
HEXSTIX® POZILOCK® ARE REGISTERED TRADEMARKS OF THE PHILLIPS SCREW COMPANY

REVISION REDRAWN 12/20/84 7/24/89 UPDATE SEPT. 2, 2014

NOTES:

1. Punch numbering system consists of basic punch drawing number (ie., PSC-3104), proper dash number (ie., -7), a slash (/), product part number for head marking, a slash (/), grip dash number for head marking (ie., -4), recess size for head marking (ie., ⑦), a slash (/), and the manufacturer's identification for head marking (ie., xx).



3. Refer to drawing PSC-3100 for point dimensions not shown.
3. Deburr all ACR® Grooves.
4. Mark punches with this drawing number, applicable dash number, the legend "ACR® ribbed TRI-WING®", and the serial number of the hob used in manufacture. All marking shall be etched, stamped, or engraved.
5. All punches shall be certified by the punch manufacturer. In case of conflict, referee inspection shall be performed in accordance with test requirement specification PSC-3009.

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PUNCH, 100° OVAL HEAD ACR® RIBBED TRI-WING® RECESS

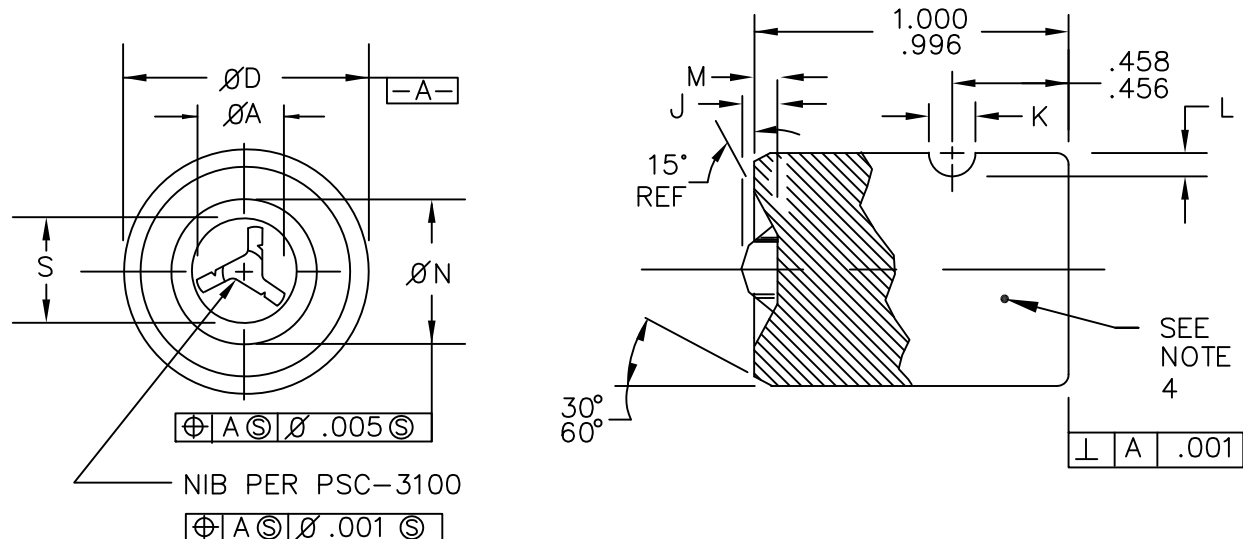
DRAWN S.O.BRENNAN	DATE 20DEC84	DRAWING NUMBER PSC-3104
CHECKED: J.GRADY	DATE 20DEC84	SHEET 2 OF 2
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

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UPDATE
SEPT. 2, 2014

7/24/89

REVISION REDRAWN 12/20/84



DASH NO.	RECESS SIZE	SCREW SIZE	DIMENSIONS								PUNCH PENETRATION	
			$\varnothing A$	$\varnothing D$	J	K	L	M	$\varnothing N$	$\varnothing S$	MAX	MIN
			$\pm .002$	$\pm .0005$	REF	$+ .001$ $- .000$	$+ .001$ $- .000$	$+ .002$ $- .000$	$+ .005$ $- .000$	$+ .005$ $- .000$		
2	2	.112	.143	.4375	.051	.125	.061	.006	.236	.188	.0400	.0360
3	3	.138	.177	.4375	.063	.125	.061	.013	.330	.230	.0495	.0445
4	4	.164	.210	.5625	.075	.212	.105	.013	.330	.230	.0590	.0540
4J	4J	.190	.243	.5625	.091	.212	.105	.016	.410	.290	.0755	.0705
5	5	.190	.243	.5625	.076	.212	.105	.016	.410	.290	.0520	.0470

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PUNCH, TRIMMED HEX HEAD ACR® RIBBED TRI-WING® RECESS

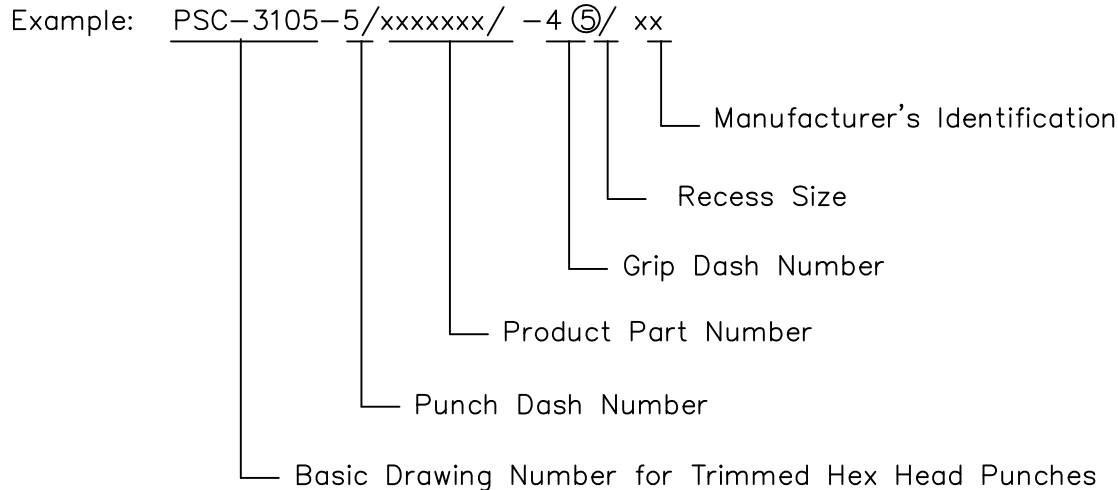
DRAWN S.O.BRENNAN	DATE 20DEC84	DRAWING NUMBER PSC-3105
CHECKED: J.GRADY	DATE 20DEC84	SHEET 1 OF 2
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

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REVISION REDRAWN 12/20/84
7/24/89
UPDATE
SEPT. 2, 2014

NOTES:

1. Punch numbering system consists of basic punch drawing number (ie., PSC-3105), proper dash number (ie., -5), a slash (/), product part number for head marking, a slash (/), grip dash number for head marking (ie., -4), recess size for head marking (ie., ⑤), a slash (/), and the manufacturer's identification for head marking (ie., xx).



3. Refer to drawing PSC-3100 for point dimensions not shown.
3. Deburr all ACR® Grooves.
4. Mark punches with this drawing number, applicable dash number, the legend "ACR® ribbed TRI-WING®", and the serial number of the hob used in manufacture. All marking shall be etched, stamped, or engraved.
5. All punches shall be certified by the punch manufacturer. In case of conflict, referee inspection shall be performed in accordance with test requirement specification PSC-3009.

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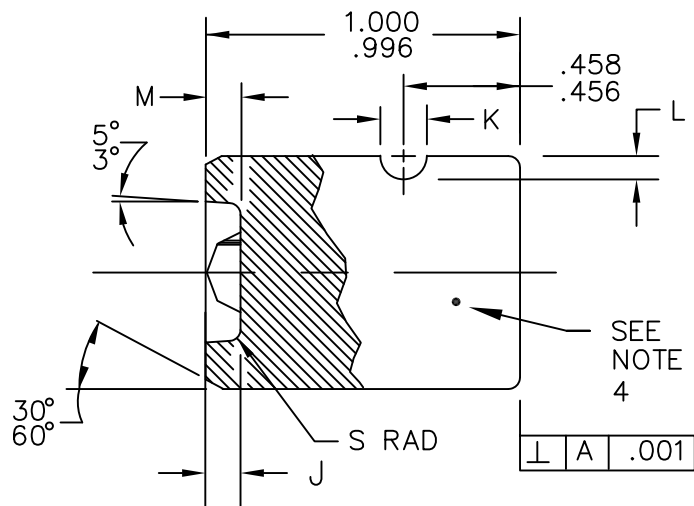
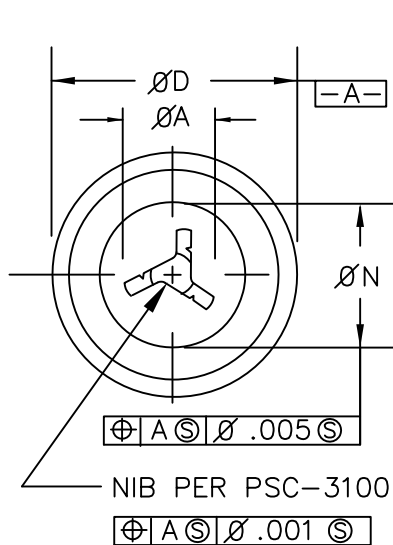
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PUNCH, TRIMMED HEX HEAD ACR® RIBBED TRI-WING® RECESS

DRAWN S.O.BRENNAN	DATE 20DEC84	DRAWING NUMBER PSC-3105
CHECKED: J.GRADY	DATE 20DEC84	SHEET 2 OF 2
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

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REVISION REDRAWN 12/20/84 7/24/89 UPDATE
SEPT. 2, 2014



DASH NO.	RECESS SIZE	SCREW SIZE	DIMENSIONS								PUNCH PENETRATION	
			Ø A ±.002	Ø D ±.0005	J REF	K +.001 -.000	L +.001 -.000	M +.002 -.000	Ø N +.005 -.000	S +.005 -.010	MAX	MIN
0	0	.060	.077	.4375	.027	.125	.061	.023	.111	.017	.0220	.0180
1	1	.086	.110	.4375	.039	↑	↑	.037	.162	.024	.0310	.0270
2	2	.112	.143	.4375	.051	↓	↓	.052	.214	.031	.0400	.0360
3	3	.138	.177	.4375	.063	.125	.061	.065	.264	.043	.0495	.0445
4	4	.164	.210	.5625	.075	.212	.105	.081	.316	.050	.0590	.0540
4J	4J	.190	.243	.8750	.091	↑	↑	.090	.367	.054	.0755	.0705
5	5	.190	.243	.8750	.076	↑	↑	.090	.367	.054	.0520	.0470
6	6	.250	.299	.8750	.092	↑	↑	.112	.485	.076	.0600	.0550
7	7	.312	.354	1.0000	.118	↑	↑	.142	.605	.108	.0855	.0805
8	8	.375	.402	1.2500	.146	↓	↓	.168	.732	.144	.1160	.1110
9	9	.438	.465	1.5000	.170	↓	↓	.188	.805	.168	.1350	.1300
10	10	.500	.531	1.5000	.195	.212	.105	.215	.917	.192	.1555	.1505

NOTE: THESE PUNCHES ARE DESIGNED TO PRODUCE HEADS OUTSIDE OF THE DIE.

IF PART OF THE SIDE HEIGHT OF THE HEAD IS TO BE CONTAINED IN THE DIE, THE "M" DIMENSION MUST BE REDUCED BY THE DEPTH OF THE COUNTERBORE.

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PUNCH, FLAT PAN HEAD ACR[®] RIBBED TRI-WING[®] RECESS

DRAWN S.O.BRENNAN	DATE 21DEC84	DRAWING NUMBER PSC-3106
CHECKED: J.GRADY	DATE 21DEC84	SHEET 1 OF 2
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

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HEXSTIX[®] POZILOCK[®] ARE REGISTERED TRADEMARKS OF THE PHILLIPS SCREW COMPANY

UPDATE
SEPT. 2, 2014

7/24/89

REDRAWN 12/2/84

ECO 21 7/24/80

REVISION

NOTES:

1. Punch numbering system consists of basic punch drawing number (ie., PSC-3106), proper dash number (ie., -6), a slash (/), product part number for head marking, a slash (/), grip dash number for head marking (ie., -4), recess size for head marking (ie., ⑥), a slash (/), and the manufacturer's identification for head marking (ie., xx).

Example: PSC-3106-6/xxxxxx/-4⑥/xx

Manufacturer's Identification

Recess Size

Grip Dash Number

Product Part Number

Punch Dash Number

Basic Drawing Number for Flat Pan Head Punches

3. Refer to drawing PSC-3100 for point dimensions not shown.
3. Deburr all ACR® Grooves.
4. Mark punches with this drawing number, applicable dash number, the legend "ACR® ribbed TRI-WING®", and the serial number of the hob used in manufacture. All marking shall be etched, stamped, or engraved.
5. All punches shall be certified by the punch manufacturer. In case of conflict, referee inspection shall be performed in accordance with test requirement specification PSC-3009.
6. Inch head contours conform to NASM1515, requirement 106.

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PUNCH, FLAT PAN HEAD ACR® RIBBED TRI-WING® RECESS

DRAWN S.O.BRENNAN	DATE 21DEC84	DRAWING NUMBER PSC-3106
CHECKED: J.GRADY	DATE 21DEC84	SHEET 2 OF 2
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

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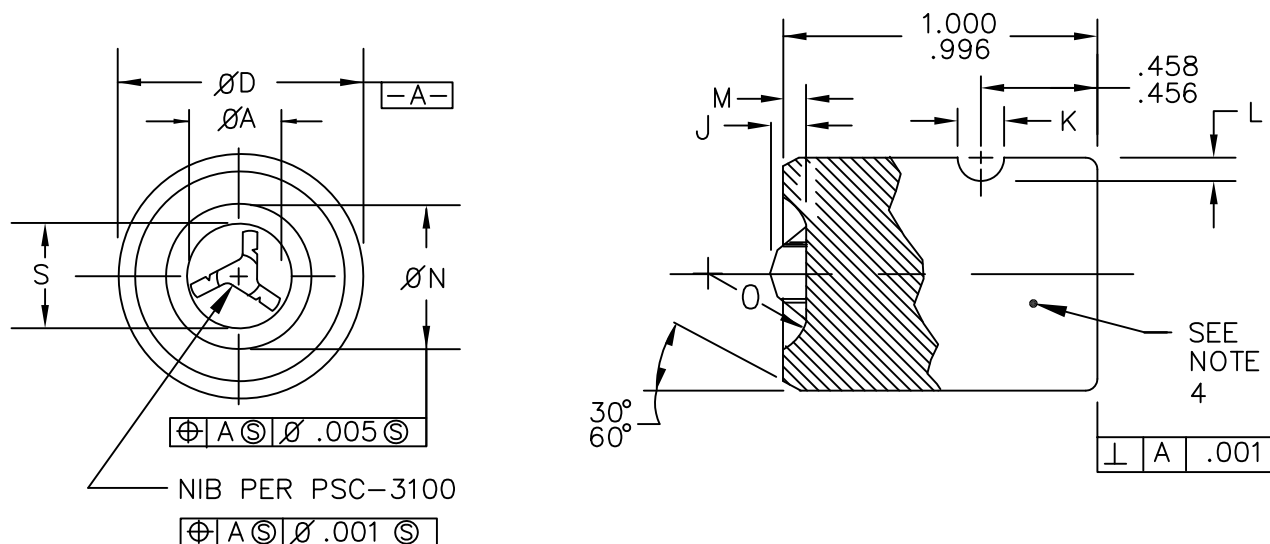
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SEPT. 2, 2014

7/24/89

REDRAWN 12/2/84

ECO 21 7/24/80

REVISION



DASH NO.	SCREW SIZE	RECESS SIZE	DIMENSIONS										PUNCH PENETRATION	
			Ø A	Ø D	J	K	L	M	Ø N	O	S	REF	MAX	MIN
			±.002	±.0005	REF	+ .001 - .000	+ .001 - .000	+ .002 - .000	+ .005 - .000	REF	+ .000 - .004			
4	M4	4	.210	.5625	.075	.212	.105	.080	.380	.211	.245		.0590	.0540
4J	—	4J	.243	.8750	.091	↑	↑	.093	.441	.244	.288		.0755	.0705
5	M5	5	.243	.8750	.076	↑	↑	.093	.441	.244	.288		.0520	.0470
6	M6	6	.299	1.0000	.092	↑	↑	.125	.567	.313	.354		.0600	.0550
7	M8	7	.354	1.2500	.118	↑	↑	.147	.728	.429	.419		.0855	.0805
8	M10	8	.402	1.5000	.146	↓	↓	.179	.886	.535	.477		.1160	.1110
9	M12	9	.465	1.5000	.170	.212	.105	.210	1.043	.635	.550		.1350	.1300

NOTE: THESE PUNCHES WERE DEVELOPED EXPRESSLY FOR METRIC MUSH HEADS. THE 4, 4J AND 5 DASH NO'S CAN ALSO BE USED FOR INCH TRUSS HEADS, IF NEEDED. PUNCHES FOR OTHER INCH SIZES WILL BE DEVELOPED AS REQUIRED.

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PUNCH, MUSH HEAD ACR® RIBBED TRI-WING® RECESS

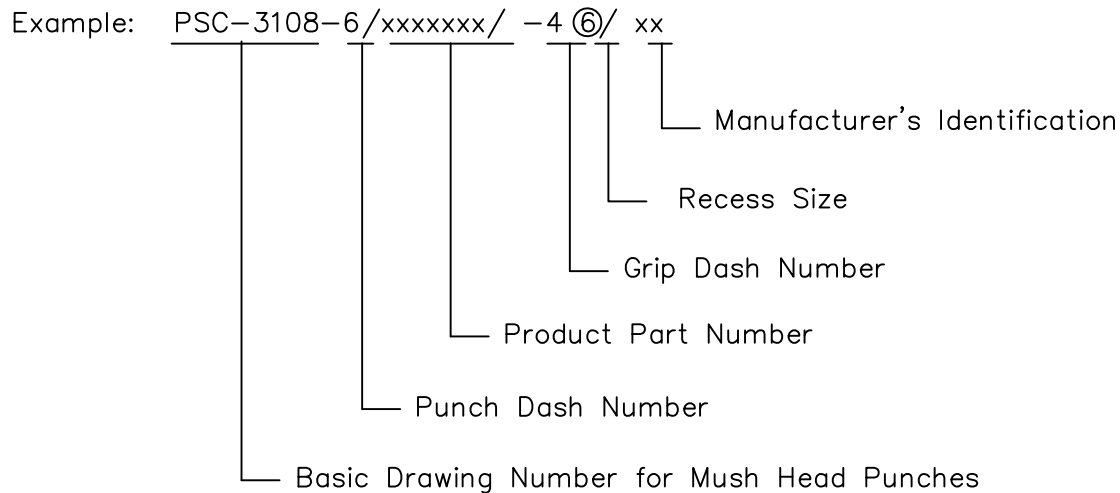
DRAWN S.O.BRENNAN	DATE 6/14/85	DRAWING NUMBER PSC-3108
CHECKED: J.GRADY	DATE 6/14/85	SHEET 1 OF 2
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

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ECO 50 6/14/85 7/24/89
REVISION
UPDATE
SEPT. 2, 2014

NOTES:

1. Punch numbering system consists of basic punch drawing number (ie., PSC-3108), proper dash number (ie., -6), a slash (/), product part number for head marking, a slash (/), grip dash number for head marking (ie., -4), recess size for head marking (ie., ⑥), a slash (/), and the manufacturer's identification for head marking (ie., xx).



3. Refer to drawing PSC-3100 for point dimensions not shown.
3. Deburr all ACR® Grooves.
4. Mark punches with this drawing number, applicable dash number, the legend "ACR® ribbed TRI-WING®", and the serial number of the hob used in manufacture. All marking shall be etched, stamped, or engraved.
6. All punches shall be certified by the punch manufacturer. In case of conflict, referee inspection shall be performed in accordance with test requirement specification PSC-3009.

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PUNCH, MUSH HEAD ACR® RIBBED TRI-WING® RECESS

DRAWN S.O.BRENNAN	DATE 6/14/85	DRAWING NUMBER PSC-3108
CHECKED: J.GRADY	DATE 6/14/85	SHEET 2 OF 2
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

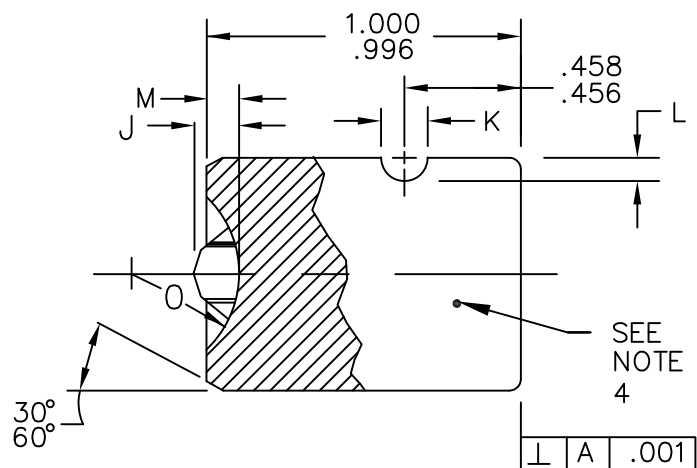
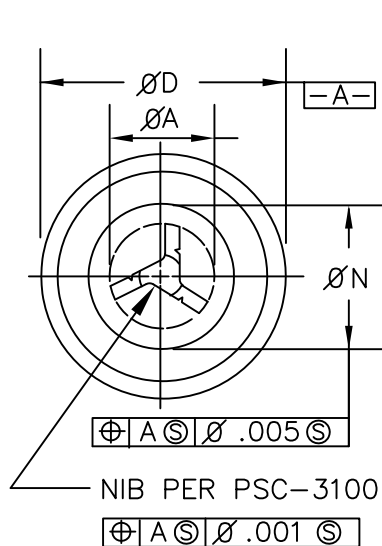
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SEPT. 2, 2014

7/24/89

ECO 50 6/14/85

REVISION



DASH NO.	SCREW SIZE	RECESS SIZE	DIMENSIONS								PUNCH PENETRATION	
			Ø A	Ø D	J	K	L	M	Ø N	O		
			±.002	±.0005	REF	+ .001 - .000	+ .001 - .000	+ .002 - .000	+ .005 - .000	REF		
											MAX	MIN
4	M5	4	.210	.5625	.081	.212	.105	.012	.302	.956	.0605	.0555
5	M6	5	.243	.5625	.082	↑	↑	.012	.365	1.394	.0525	.0475
6	M8	6	.320	.8750	.109	↓	↓	.015	.486	1.976	.0715	.0665
7	M10	7	.390	.8750	.142	↓	↓	.015	.609	3.098	.1045	.0995
8	M12	8	.422	1.0000	.161	.212	.105	.015	.731	4.461	.1265	.1215

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PUNCH, 100° REDUCED CROWN HEAD ACR® RIBBED TRI-WING® RECESS

DRAWN J.GRADY	DATE 03/26/92	DRAWING NUMBER PSC-3123
CHECKED: J.GRADY	DATE 03/26/92	SHEET 1 OF 2
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

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UPDATE
SEPT. 2, 2014

REVISION

ACR[®] RIBBED TRI-WING[®] DRIVE SYSTEM QUALITY SPECIFICATIONS INDEX

PSC-3006	SCOPE AND INSPECTION PLANS	9-2-14
PSC-3007	DRIVER BIT INSPECTION PROCEDURES	9-2-14
PSC-3008	RECESS INSPECTION PROCEDURES	9-2-14
PSC-3009	PUNCH INSPECTION PROCEDURES	9-2-14

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TITLE:

ACR[®] RIBBED TRI-WING[®]
QUALITY SPECIFICATIONS

DRAWN

L.DOUGAN

DATE

9-2-14

DRAWING NUMBER

INDEX

CHECKED:

G.DILLING

DATE

9-8-14

SHEET 1 OF 1

PHILLIPS SCREW CO. 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A.
PHONE: 774-396-6190 FAX: 508-966-2326

PHILLIPS II[®] PHILLIPS[®] POZIDRIV[®] ACR[®] POZISQUARE[®] PHILLIPS SQUARE-DRIV[®] TORQ-SET[®] TRI-WING[®] MORTORQ[®]
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ACR[®] RIBBED TRI-WING[®] DRIVE SYSTEM QUALITY SPECIFICATIONS

1.0 SCOPE:

This quality specification defines inspection plans and procedures for initial inspection requirements, first article inspection, and final conformance inspection of ACR TRI-WING Tri-Form drive system driver bits, punches and recesses.

Inspection practice in accordance with procedures, sampling plans and specified gages set forth herein will guarantee product uniformity for dimension, appearance and function.

2.0 INSPECTION PLANS:

2.1 Initial Qualification:

Phillips Screw Company shall perform the initial qualification inspection for all new products as required under the license agreement.

A minimum of 50 pieces of each ACR ribbed TRI-WING Tri-Form drive system drive size and head style are to be qualified. Phillips Screw Company shall retain 25 pieces for reference material.

2.2 Periodic Inspection:

Every (4) months a letter is sent requesting a minimum of 5 pieces of each ACR ribbed TRI-WING Tri-Form drive system size and head style, as required by the license agreement.

2.3 First Article Inspection:

A first article inspection is required. Any defects found by visual inspection or gage readings beyond the stated limits, is reason for rejection and corrective action is required.

2.4 Final Quality Conformance Inspection:

Typical industry standards for sampling shall be used for each lot size. These samples will be inspected for visual and dimensional characteristics.

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TITLE:

ACR[®] RIBBED TRI-WING[®] QUALITY SPECIFICATIONS

DRAWN

L.DOUGAN

DATE

9-2-14

DRAWING NUMBER

PSC-3006

SHEET 1 OF 1

CHECKED:

G.DILLING

DATE

9-8-14

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ACR[®] RIBBED TRI-WING[®] DRIVE SYSTEM QUALITY SPECIFICATIONS

BIT AND DRIVER INSPECTION PROCEDURES AND SPECIFICATIONS:

1.0 SCOPE:

The following document covers the equipment, procedures, test values and inspection criteria for ACR ribbed TRI-WING drive system screwdrivers, insert bits and power bits.

2.0 APPLICABLE DRAWINGS:

2.1 Insert driver point:

PSC-3001-1

2.2 Torque test blocks:

PSC-3001-2

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TITLE: **ACR[®] RIBBED TRI-WING[®]
BIT AND DRIVER INSPECTION**

DRAWN
L.DOUGAN

DATE
9-2-14

DRAWING NUMBER

PSC-3007

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3.0 : REQUIREMENTS

3.1 Dimensions:

All bit and driver points shall conform to Phillips Screw Company's drawings PSC-3001-1 for all standard ACR ribbed TRI-WING drive designs.

3.2 Quality:

The workmanship shall be of the highest quality throughout. Bits and screwdrivers shall be free from rust, fins, burrs, sharp or rough edges, corners or surfaces and defects that may impair their serviceability or durability.

3.3 Materials:

Screwdrivers and bits shall be made from the following recommended, equivalent or superior material:

3.3.1 Hand Screwdrivers - These drivers shall be made from AISI S2 steel or equivalent, and heat-treated to a hardness of HRC 58-63.

3.3.2 Insert and Power bits - These bits shall be made from AISI S2 steel or equivalent and heat-treated to a hardness of HRC 58-63.

3.3.3 Steel AISI S2 Type Analysis

Carbon .50 - .55

Manganese .45 - .55

Silicon .90 - 1.10

Molybdenum .45 - .55

Vanadium .15 - .25

3.4 Markings:

3.4.1 ACR ribbed TRI-WING bit marking shall consist of ACR[®] and the recess number encircled approximately 1/16" high. Manufacturers may also include company names, trademark, trade names, part numbers etc. if so desired.

3.4.2 In the case of hand screwdrivers, the handle and ferrule may be utilized for the above marking.

3.4.3 In the case of insert bits, if insufficient space is available for marking, the package or shipping container shall include the required identification.

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TITLE: **ACR[®] RIBBED TRI-WING[®]**

BIT AND DRIVER INSPECTION

DRAWN
L.DOUGAN

DATE
9-2-14

DRAWING NUMBER

PSC-3007

CHECKED:
G.DILLING

DATE
9-8-14

SHEET 2 OF 4

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3.5 Bit Torsional Strength:

3.5.1 **Minimal Torsional Strength:** **Fatigue Torque Limit:**
Drive size Torque (Lb ins) (Lb ins.) ±10 %

ACR TW-0	---	---
ACR TW-1	---	---
ACR TW-2	---	---
ACR TW-3	40	24
ACR TW-4	75	45
ACR TW-5	110	66
ACR TW-6	300	180
ACR TW-7	450	270
ACR TW-8	700	420
ACR TW-9	1050	630
ACR TW-10	1300	780
ACR TW-11	1780	1068
ACR TW-12	2580	1548
ACR TW-13	---	---
ACR TW-14	---	---
ACR TW-15	---	---

3.5.2 Test blocks:

Screwdrivers and bits shall be tested in the test blocks having the same form and size of the recess as the bit being tested. Screwdriver and bit test blocks shall be in accordance with drawing PSC-3001-2

3.5.3 Test procedures: The torsional loads shall be applied either with suitable torque wrenches or by means of a suitable lever system with dead weights. The driver or bit must be inserted fully into the test block and restrained in a hold down device to provide firm engagement with no axial movement.

The torsional load at failure shall be taken as the strength of the driver bit.

The failure load must exceed the minimum torsional strength as shown in paragraph 3.5.1

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TITLE: **ACR® RIBBED TRI-WING®**

BIT AND DRIVER INSPECTION

DRAWN
L.DOUGAN

DATE
9-2-14

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PSC-3007

CHECKED:
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9-8-14

SHEET 3 OF 4

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4.0 PHYSICAL PROPERTIES

4.1 Discontinuities:

Driver bits shall be free from discontinuities such as laps, seams or inclusions greater in depth than 2 percent of the thickness at the discontinuity location.

4.2 Cracks:

Driver bits shall be free from cracks in any location or direction. A crack is defined as a clean crystalline break through the grain or grain boundary without inclusion of foreign elements.

5.0 QUALITY ASSURANCE PROVISIONS:

5.1 Responsibility for Inspection:

Unless otherwise specified in the contract or order, the manufacturer is responsible for the performance of all quality conformance inspection requirements as specified herein.

5.2 Change of Product:

After initial approval, any change of product as regards to materials, design, construction, or methods of manufacture shall require review and approval of Phillips Screw Company and may require qualification testing prior to incorporation into production lots.

5.3 Qualification Testing:

Qualification testing shall be performed per section 3.0 of this drawing.

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TITLE: **ACR[®] RIBBED TRI-WING[®]
BIT AND DRIVER INSPECTION**

DRAWN
L.DOUGAN

DATE
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DRAWING NUMBER

PSC-3007

CHECKED:
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ACR[®] RIBBED TRI-WING[®] DRIVE SYSTEM QUALITY SPECIFICATIONS

RECESS INSPECTION PROCEDURES AND SPECIFICATIONS:

1.0 SCOPE:

The following document covers the equipment, procedures, test values and inspection criteria for ACR ribbed TRI-WING Tri-Form drive system recesses.

2.0 APPLICABLE DRAWINGS:

2.1 Screw Recess GO, NO-GO gages

PSC-3011

2.2 Recess Penetration Gage Assy:

PSC-3003

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TITLE: **ACR[®] RIBBED TRI-WING[®]
RECESS INSPECTION**

DRAWN
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DATE
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3.0 REQUIREMENTS:

3.1 Dimensions:

All ACR ribbed TRI-WING Tri-Form drive system recesses shall conform to the appropriate Phillips Screw Company head standards.

3.2 Quality:

The workmanship shall be of the highest quality throughout. Recesses shall be free from rust, fins, burrs, sharp or rough edges, corners or surfaces and defects that may impair their serviceability or durability.

3.3 Markings:

3.3.1 No special marking is required.

3.4 Gaging:

3.4.1 GO Plug Gage:

Using light finger pressure only, place the appropriate GO gage (PSC-3011-6 or PSC-3011-7) into the recess until resistance is felt.

Failure to bottom the gage in the recess shall be cause for rejection.

3.4.2 NO-GO Plug Gage:

Using light finger pressure only, attempt to place the appropriate NO-GO gage (PSC-3011-8) into the recess.

Gage entry beyond the recess radius at the face of the screw is cause for rejection.

3.4.3 Penetration Gage:

Using the appropriate size penetration gage (PSC-3003), check the zero adjustment against a known flat piece of steel stock.

Insert the penetration element into the ACR ribbed TRI-WING drive system recess and firmly push the top of the recess against the bottom of the gage body.

Measure and record the gage penetration. The reading must be within acceptable limits per the application part standard.

Gage readings outside the stated limits are cause for rejection.

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TITLE: **ACR® RIBBED TRI-WING®
RECESS INSPECTION**

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DATE
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PSC-3008

CHECKED:
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3.4.5 Recess Depth Gaging:

Using a standard depth micrometer, measure and record the depth of the recess point from the recess diameter plane. The depth shall conform to the limits of the applicable parts standard. Measurements out of tolerance shall be cause for rejection.

4.0 PHYSICAL PROPERTIES:

4.1 Head Discontinuities:

See FIGURE #1 for examples of head discontinuities that shall be considered "ACCEPTABLE". Screws will be rejected if they exhibit imperfections as shown as "NOT ACCEPTABLE".

5.0 RECESS TO SHANK ECCENTRICITY:

5.1 The recesses in screw heads shall not be eccentric with the screw bodies by more than 6% of the nominal (basic) body diameter or .015", whichever is smaller.

5.2 Generally, this inspection will be most readily accomplished by a simple visual examination.

6.0 QUALITY ASSURANCE PROVISIONS:

6.1 Responsibility for Inspection:

Unless otherwise specified in the contract or order, the manufacturer is responsible for the performance of all quality conformance inspection requirements as specified herein.

6.2 Qualification Testing:

Qualification testing shall be performed per sections 3.0, 4.0 and 5.0 of this drawing.

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TITLE: **ACR[®] RIBBED TRI-WING[®]
RECESS INSPECTION**

DRAWN
L.DOUGAN

DATE
9-2-14

DRAWING NUMBER

PSC-3008

CHECKED:
G.DILLING

DATE
9-8-14

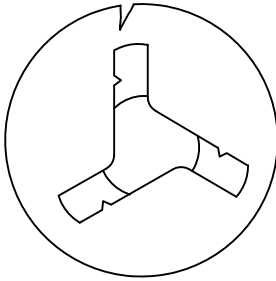
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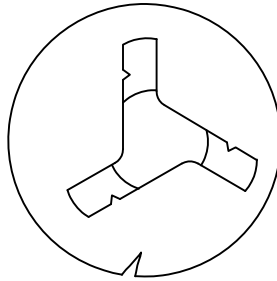
Figure 1

NOT ACCEPTABLE



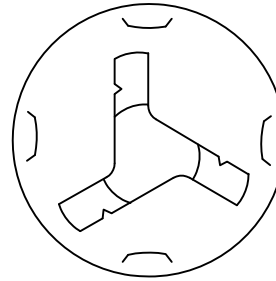
(1)

LARGE OPEN IMPERFECTIONS
EXTENDING OVER 1/2 WAY
TO RECESS



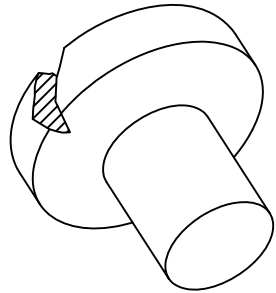
(2)

OPEN ANGULAR IMPERFECTIONS
ON EDGE OF HEAD



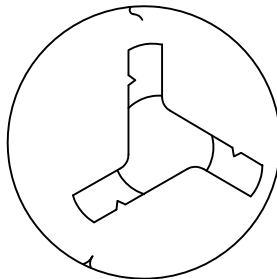
(3)

SLIVERS OR LOOSE
FLAKES ON TOP OF HEAD



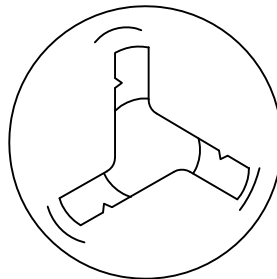
(4)

MULTIPLE IMPERFECTIONS
NOT EXTENDING 1/2 WAY
TO RECESS AND NOT
AFFECTING USEABILITY



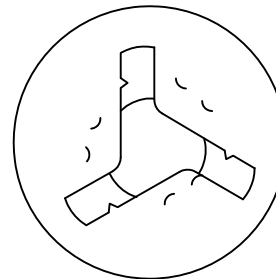
(5)

SLIGHT HAIR LINES



(6)

SLIGHT RECESS FLOW
LINES



(7)

SLIGHT TOOL MARKS
SLIGHT PIN MARKS

ACCEPTABLE

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TITLE:

**ACR® RIBBED TRI-WING®
RECESS INSPECTION**

DRAWN

L.DOUGAN

DATE

9-2-14

DRAWING NUMBER

PSC-3008

CHECKED:

G.DILLING

DATE

9-8-14

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ACR[®] ribbed TRI-WING[®] TRI-FORM DRIVE SYSTEM QUALITY SPECIFICATIONS

PUNCH INSPECTION PROCEDURES AND SPECIFICATIONS:

1.0 SCOPE:

The following document covers the equipment, procedures, test values and inspection criteria for ACR ribbed TRI-WING Tri-Form drive system punches.

2.0 APPLICABLE DRAWINGS:

2.1 Punch Recess GO, NO-GO gages:

PSC-3011

2.2 Punch Point Dimensions:

PSC-3100; PSC-3101; PSC-3102; PSC-3104; PSC-3105;
PSC-3106; PSC-3108; PSC-3123

2.3 Recess Penetration Gage Assy:

PSC-3003

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TITLE: **ACR[®] RIBBED TRI-WING[®]**
PUNCH INSPECTION

DRAWN
L.DOUGAN

DATE
9-2-14

DRAWING NUMBER

PSC-3009

CHECKED:
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DATE
9-8-14

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3.0 REQUIREMENTS:

3.1 Dimensions:

All ACR ribbed TRI-WING Tri-Form drive system punches shall conform to the appropriate Phillips Screw Company's punch standards and punch point dimensions as shown in section 2.2.

3.2 Quality:

The workmanship shall be of the highest quality throughout. Punches shall be free from rust, fins, burrs, sharp or rough edges, corners or surfaces and defects that may impair their serviceability or durability.

3.3 Markings:

3.3.1 ACR ribbed TRI-WING punches shall be marked according to drawings numbers per section 2.2. Manufactures may also include company names, trademark, trade names, part numbers etc., if they so desired.

3.4 Gaging:

3.4.1 Punches may be inspected using casts, plug and penetration gages. Casts must be made of a good grade casting material. (Buehler® Ultra-mount™ or equivalent)

3.4.2 GO Plug Gage:

Using light finger pressure only, place the appropriate GO gage (PSC-3011-6; PSC-3011-7) into the recess until resistance is felt.

Failure to bottom the gage in the recess shall be cause for rejection.

3.4.3 NO-GO Plug Gage:

Using light finger pressure only, attempt to place the appropriate NO-GO gage (PSC-3011-8) into the recess. Gage entry beyond the recess radius at the face of the punch is cause for rejection.

3.4.4 Special Gages:

Special GO/NO-GO Plug Gages will be required for any non-standard punch recesses.

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TITLE: **ACR® RIBBED TRI-WING®
PUNCH INSPECTION**

DRAWN
L.DOUGAN

DATE
9-2-14

DRAWING NUMBER

PSC-3009

CHECKED:
G.DILLING

DATE
9-8-14

SHEET 2 OF 3

PHILLIPS SCREW CO. 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A.
PHONE: 774-396-6190 FAX: 508-966-2326

PHILLIPS II® PHILLIPS® POZIDRIV® ACR® POZISQUARE® PHILLIPS SQUARE-DRIV® TORQ-SET® TRI-WING® MORTORQ®
HEXSTIX® POZILOCK® ARE REGISTERED TRADEMARKS OF THE PHILLIPS SCREW COMPANY

3.4.5 Penetration Gage:

Using the appropriate size penetration gage (PSC-3003), check the zero adjustment against a known flat piece of steel stock.

Insert the penetration element into the ACR ribbed TRI-WING drive system recess formed in the cast and firmly push the top of the recess against the bottom of the gage body.

Measure and record the gage penetration. The reading must be within acceptable limits per the application part standard.

Gage readings outside the stated limits are cause for rejection.

4.0 QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

Unless otherwise specified in the contract or order, the manufacturer is responsible for the performance of all quality conformance inspection requirements as specified herein.

4.2 Change of Product:

After initial approval, any change of product as regards to materials, design, construction, or methods of manufacture shall require review and approval of Phillips Screw Company and may require qualification testing prior to incorporation into production lots.

4.3 Qualification Testing:

Qualification testing shall be performed per section 3.0 of this drawing.

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TITLE: **ACR[®] RIBBED TRI-WING[®]
PUNCH INSPECTION**

DRAWN
L.DOUGAN

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G.DILLING

DATE
9-8-14

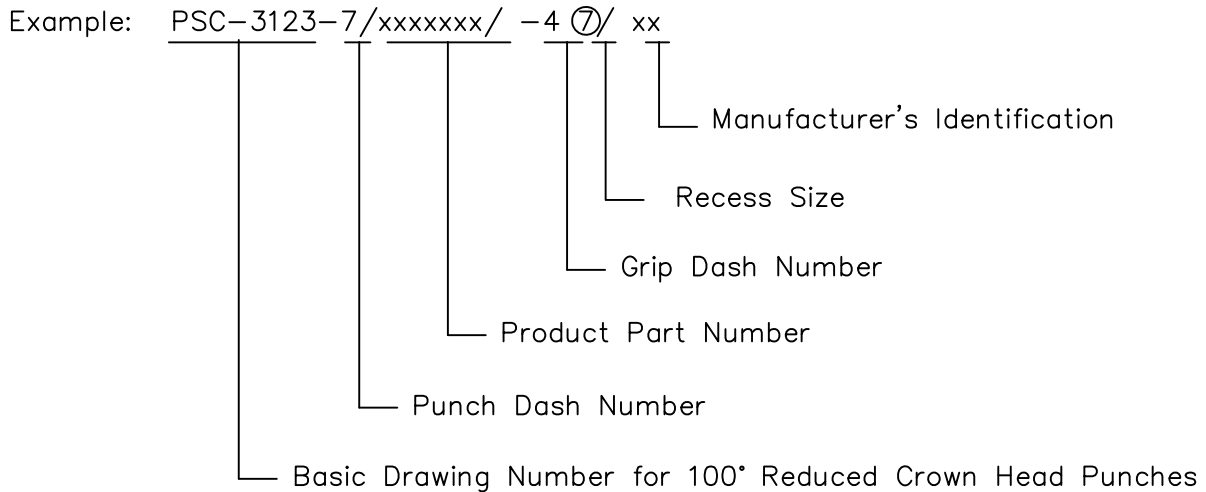
SHEET 3 OF 3

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PHILLIPS II[®] PHILLIPS[®] POZIDRIV[®] ACR[®] POZISQUARE[®] PHILLIPS SQUARE-DRIV[®] TORQ-SET[®] TRI-WING[®] MORTORQ[®]
HEXSTIX[®] POZILOCK[®] ARE REGISTERED TRADEMARKS OF THE PHILLIPS SCREW COMPANY

NOTES:

1. Punch numbering system consists of basic punch drawing number (ie., PSC-3123), proper dash number (ie., -7), a slash (/), product part number for head marking, a slash (/), grip dash number for head marking (ie., -4), recess size for head marking (ie., ⑦), a slash (/), and the manufacturer's identification for head marking (ie., xx).



3. Refer to drawing PSC-3100 for point dimensions not shown.
3. Deburr all ACR® Grooves.
4. Mark punches with this drawing number, applicable dash number, the legend "ACR® ribbed TRI-WING®", and the serial number of the hob used in manufacture. All marking shall be etched, stamped, or engraved.
5. All punches shall be certified by the punch manufacturer. In case of conflict, referee inspection shall be performed in accordance with test requirement specification PSC-3009.

UPDATE
SEPT. 2, 2014

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PUNCH, 100° REDUCED CROWN HEAD ACR® RIBBED TRI-WING® RECESS

DRAWN J.GRADY	DATE 03/26/92	DRAWING NUMBER PSC-3123
CHECKED: J.GRADY	DATE 03/26/92	SHEET 2 OF 2
PHILLIPS SCREW CO., 155 FARM STREET, BELLINGHAM, MA 02019 U.S.A. PHONE: 774-396-6190 FAX: 508-966-2326		

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