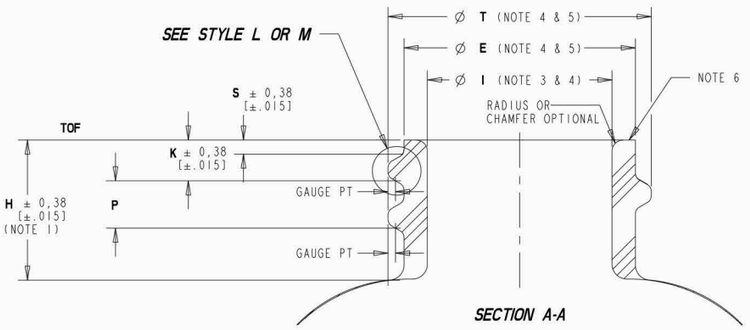
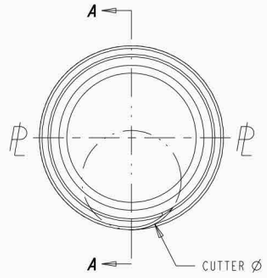
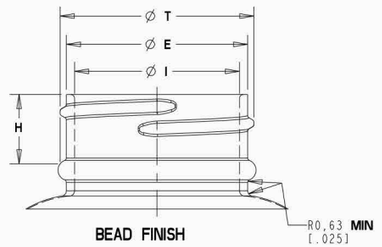
FINISH REV	DATE	DESCRIPTION	BY
000	76/07/04	ORIGINAL SP400 SPECIFICATION	JM
001	99/03/10	SPECIFICATION CONVERTED TO STANDARDIZED FORMAT	JM



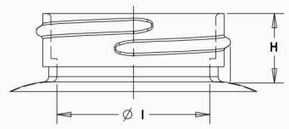
SECTION A-A



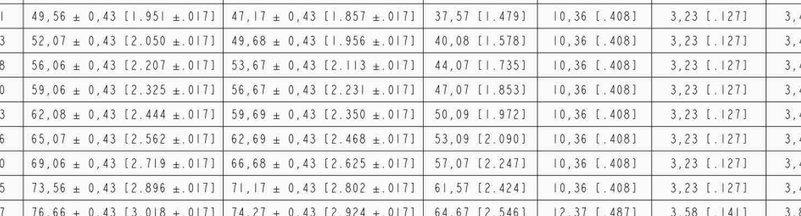
TYPICAL ORIENTATION



BEAD FINISH

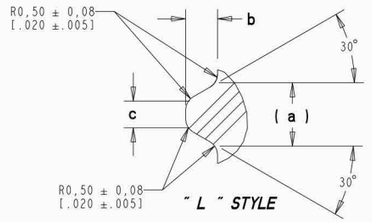


BEADLESS FINISH
(UNDERCUT OPTIONAL)



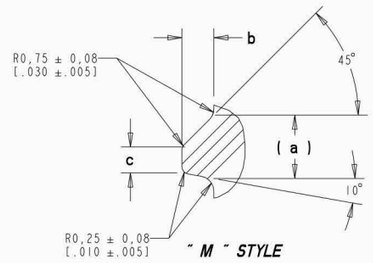
THREAD DEVELOPMENT
SHOWN FROM OUTSIDE OF FINISH

- A MINIMUM OF ONE FULL TURN (360°) OF FULL DEPTH THREAD SHALL BE MAINTAINED
- RIGHT HAND THREAD



" L " STYLE

L STYLE GENERAL PURPOSE THREAD (Plastic or Metal Closures)			
THDS/IN	(a)	b	c
5	3,05 [.120]	1,52 [.060]	1,30 [.051]
6	2,39 [.094]	1,19 [.047]	1,02 [.040]
8	2,13 [.084]	1,07 [.042]	0,91 [.036]



" M " STYLE

M STYLE MODIFIED BUTTRESS THREAD (Plastic Closures)			
THDS/IN	(a)	b	c
5	3,05 [.120]	1,52 [.060]	1,24 [.049]
6	2,39 [.094]	1,19 [.047]	0,99 [.039]
8	2,13 [.084]	1,07 [.042]	0,89 [.035]

SP-400 FINISH FOR PLASTIC BOTTLES

mm	T (NOTE 4 & 5)	E (NOTE 4 & 5)	I (NOTE 3 & 4)	H ± 0,38 [±.015] (NOTE 1)	K ± 0,38 [±.015]		P	S ± 0,38 [±.015]	GAUGE PT	HELIX ANGLE β	CUTTER DIA	THD'S PER INCH
	MEAN	MEAN	MIN	MEAN	L STYLE	M STYLE	MEAN	MEAN				
18	17,68 ± 0,20 [.696 ±.008]	15,54 ± 0,20 [.612 ±.008]	8,26 [.325]	9,42 [.371]	2,74 [.108]	2,97 [.117]	3,18 [.125]	0,94 [.037]	0,50 [.020]	3°30′	9,53 [.375]	8
20	19,69 ± 0,20 [.775 ±.008]	17,55 ± 0,20 [.691 ±.008]	10,26 [.404]	9,42 [.371]	2,74 [.108]	2,97 [.117]	3,18 [.125]	0,94 [.037]	0,50 [.020]	3°07′	9,53 [.375]	8
22	21,69 ± 0,20 [.854 ±.008]	19,56 ± 0,20 [.770 ±.008]	12,27 [.483]	9,42 [.371]	2,74 [.108]	2,97 [.117]	3,18 [.125]	0,94 [.037]	0,50 [.020]	2°49′	9,53 [.375]	8
24	23,67 ± 0,20 [.932 ±.008]	21,54 ± 0,20 [.848 ±.008]	13,11 [.516]	10,16 [.400]	2,97 [.117]	3,20 [.126]	3,18 [.125]	1,17 [.046]	0,50 [.020]	2°34′	9,53 [.375]	8
28	27,38 ± 0,25 [1.078 ±.010]	24,99 ± 0,25 [.984 ±.010]	15,60 [.614]	10,16 [.400]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	2°57′	12,70 [.500]	6
30	28,37 ± 0,25 [1.117 ±.010]	25,98 ± 0,25 [1.023 ±.010]	16,59 [.653]	10,24 [.403]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	2°51′	12,70 [.500]	6
33	31,83 ± 0,30 [1.253 ±.012]	29,44 ± 0,30 [1.159 ±.012]	20,09 [.791]	10,24 [.403]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	2°31′	12,70 [.500]	6
35	34,34 ± 0,30 [1.352 ±.012]	31,95 ± 0,30 [1.258 ±.012]	22,23 [.875]	10,24 [.403]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	2°21′	12,70 [.500]	6
38	37,19 ± 0,30 [1.464 ±.012]	34,80 ± 0,30 [1.370 ±.012]	25,07 [.987]	10,24 [.403]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	2°09′	12,70 [.500]	6
40	39,75 ± 0,38 [1.565 ±.015]	37,36 ± 0,38 [1.471 ±.015]	27,71 [1.091]	10,24 [.403]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	2°00′	12,70 [.500]	6
43	41,63 ± 0,38 [1.639 ±.015]	39,24 ± 0,38 [1.545 ±.015]	29,59 [1.165]	10,24 [.403]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	1°55′	12,70 [.500]	6
45	43,82 ± 0,38 [1.725 ±.015]	41,43 ± 0,38 [1.631 ±.015]	31,78 [1.251]	10,24 [.403]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	1°49′	12,70 [.500]	6
48	47,12 ± 0,38 [1.855 ±.015]	44,73 ± 0,38 [1.761 ±.015]	35,08 [1.381]	10,24 [.403]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	1°41′	12,70 [.500]	6
51	49,56 ± 0,43 [1.951 ±.017]	47,17 ± 0,43 [1.857 ±.017]	37,57 [1.479]	10,36 [.408]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	1°36′	12,70 [.500]	6
53	52,07 ± 0,43 [2.050 ±.017]	49,68 ± 0,43 [1.956 ±.017]	40,08 [1.578]	10,36 [.408]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	1°31′	12,70 [.500]	6
58	56,06 ± 0,43 [2.207 ±.017]	53,67 ± 0,43 [2.113 ±.017]	44,07 [1.735]	10,36 [.408]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	1°25′	12,70 [.500]	6
60	59,06 ± 0,43 [2.325 ±.017]	56,67 ± 0,43 [2.231 ±.017]	47,07 [1.853]	10,36 [.408]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	1°20′	12,70 [.500]	6
63	62,08 ± 0,43 [2.444 ±.017]	59,69 ± 0,43 [2.350 ±.017]	50,09 [1.972]	10,36 [.408]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	1°16′	12,70 [.500]	6
66	65,07 ± 0,43 [2.562 ±.017]	62,69 ± 0,43 [2.468 ±.017]	53,09 [2.090]	10,36 [.408]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	1°13′	12,70 [.500]	6
70	69,06 ± 0,43 [2.719 ±.017]	66,68 ± 0,43 [2.625 ±.017]	57,07 [2.247]	10,36 [.408]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	1°08′	12,70 [.500]	6
75	73,56 ± 0,43 [2.896 ±.017]	71,17 ± 0,43 [2.802 ±.017]	61,57 [2.424]	10,36 [.408]	3,23 [.127]	3,45 [.136]	4,24 [.167]	1,17 [.046]	0,60 [.024]	1°04′	12,70 [.500]	6
77	76,66 ± 0,43 [3.018 ±.017]	74,27 ± 0,43 [2.924 ±.017]	64,67 [2.546]	12,37 [.487]	3,58 [.141]	3,81 [.150]	4,24 [.167]	1,52 [.060]	0,60 [.024]	1°01′	12,70 [.500]	6
83	82,58 ± 0,43 [3.251 ±.017]	79,53 ± 0,43 [3.131 ±.017]	69,93 [2.753]	12,37 [.487]	4,14 [.163]	4,45 [.175]	5.08 [.200]	1,52 [.060]	0,80 [.031]	1°09′	12,70 [.500]	5
89	88,75 ± 0,43 [3.494 ±.017]	85,70 ± 0,43 [3.374 ±.017]	74,12 [2.918]	13,59 [.535]	4,14 [.163]	4,45 [.175]	5.08 [.200]	1,52 [.060]	0,80 [.031]	1°04′	12,70 [.500]	5
100	99,57 ± 0,43 [3.920 ±.017]	96,52 ± 0,43 [3.800 ±.017]	84,94 [3.344]	15,16 [.597]	4,14 [.163]	4,45 [.175]	5.08 [.200]	1,52 [.060]	0,80 [.031]	0°57′	12,70 [.500]	5
110	109,58 ± 0,43 [4.314 ±.017]	106,53 ± 0,43 [4.194 ±.017]	94,92 [3.737]	15,16 [.597]	4,14 [.163]	4,45 [.175]	5.08 [.200]	1,52 [.060]	0,80 [.031]	0°51′	12,70 [.500]	5
120	119,56 ± 0,43 [4.707 ±.017]	116,51 ± 0,43 [4.587 ±.017]	104,93 [4.131]	17,40 [.685]	4,14 [.163]	4,45 [.175]	5.08 [.200]	1,52 [.060]	0,80 [.031]	0°47′	12,70 [.500]	5

NOTES:
1. DIMENSION **H** IS MEASURED FROM THE TOP OF FINISH (TOF) TO THE POINT WHERE DIAMETER **T**, EXTENDED PARALLEL TO THE CENTERLINE, INTERSECTS THE BEAD OR SHOULDER.
2. CONTOUR OF BEAD, UNDERCUT OR SHOULDER IS OPTIONAL. (SEE NOTE #7)
3. UNLESS OTHERWISE SPECIFIED, **I MIN** APPLIES TO THE FULL LENGTH OF THE OPENING.
4. CONCENTRICITY OF **I MIN** WITH RESPECT TO DIAMETERS **T** AND **E** IS NOT INCLUDED. **I MIN** IS SPECIFIED FOR FILLER TUBE ONLY.
5. **T** AND **E** DIMENSIONS ARE THE AVERAGE OF TWO MEASUREMENTS TAKEN 90° APART. THE LIMITS OF OVALITY WILL BE DETERMINED BY THE CONTAINER SUPPLIER AND CONTAINER CUSTOMER, AS NECESSARY.
6. CONSIDERATION MUST BE GIVEN TO THE TOP OF FINISH WIDTH FOR THE SEALING SYSTEM BEING USED.
7. MANY CHILD RESISTANCE CLOSURES RELY ON DISSIMILAR SIMULTANEOUS MOTIONS FOR THEIR PROPER FUNCTION. THE SP400 FINISHES DO NOT NECESSARILY PROVIDE PHYSICAL SPACE FOR THESE MOTIONS. A SPECIAL **MIN** AND **MAX H** DIMENSION OR, AS AN ALTERNATE, A **MAX** BEAD DIAMETER MUST THEN BE SPECIFIED. IN ADDITION, TO AVOID CLOSURE CONTACT BETWEEN ADJOINING PACKAGES DURING SHIPMENT, THE BOTTLE DIAMETER SHOULD BE GREATER THAN THE LARGEST DIAMETER OF THE CLOSURE. SINCE THESE LIMITING SPECIFICATIONS VARY BETWEEN TYPES OF CHILD RESISTANT CLOSURES, ANY USER SHOULD OBTAIN THEM FROM THE SPECIFIC CLOSURE MANUFACTURER.
8. FINISH TO BE SPECIFIED AS FOLLOWS: THREAD STYLE, FINISH IDENTIFICATION AND DRAWING NUMBER. EXAMPLE: M28SP400
9. REFER TO DRAWING #1168216 FOR VOLUNTARY STANDARD PET FINISH DIMENSION NOMENCLATURE.

DIMENSIONS SHOWN ARE FINISHED PLASTIC SIZES			
GENERAL TOLERANCES	METRIC MILLIMETRES		[IMPERIAL] [INCHES]
	X,X	±0,3	[.XX ±0.01]
	X,XX	±0,13	[.XXX ±0.005]
	X°	±2°	
	X°X′	±0°15′	

DESCRIPTION			
SP-400 VOLUNTARY STANDARD			
DWN	J.MAY	DATE	99/03/10

THIS DRAWING IS MAINTAINED BY 3PLASTICS INJECTION MOLDING SYSTEMS LTD.
WEBSITE: WWW.3PLASTICS.COM
CONTACT FOR SUPPORT:
E-MAIL: sales@3plastics.com

FINISH No SP400

DRAWING No 1165379-1