

Self-Clinching Standoff

SELF-CLINCHING STANDOFFS

- These standoffs, which use the proven self-clinching design, install with a squeeze in properly sized round holes and become permanently mounted in the thin sheet.
- Thru-hole threaded standoffs are installed with their heads flush with one surface of the mounting sheet. When blind-threaded types are used, outer sheet surfaces are not only flush, but closed as well. Unthreaded standoffs are also available for spacing multi-panel assemblies.
- Types PT-SO4 and PT-BSO4 standoffs are for installation into stainless steel sheets as thin as 1.02mm.
- Types PT-TSO, PT-TSOS and PT-TSOA self-clinching threaded standoffs provide permanent threads in sheets as thin as 0.63mm.
- Types PT-DSO and PT-DSOS standoffs are available for close-to-edge applications.
- Types PT-SOAG and PT-SOSG grounding standoffs are designed for clinching into steel or aluminium chassis while the "gripping teeth" on the opposite end of the standoff firmly contact mating PC board.

THRU-HOLE THREAD STANDOFFS

PT-SO / SOA / SOS

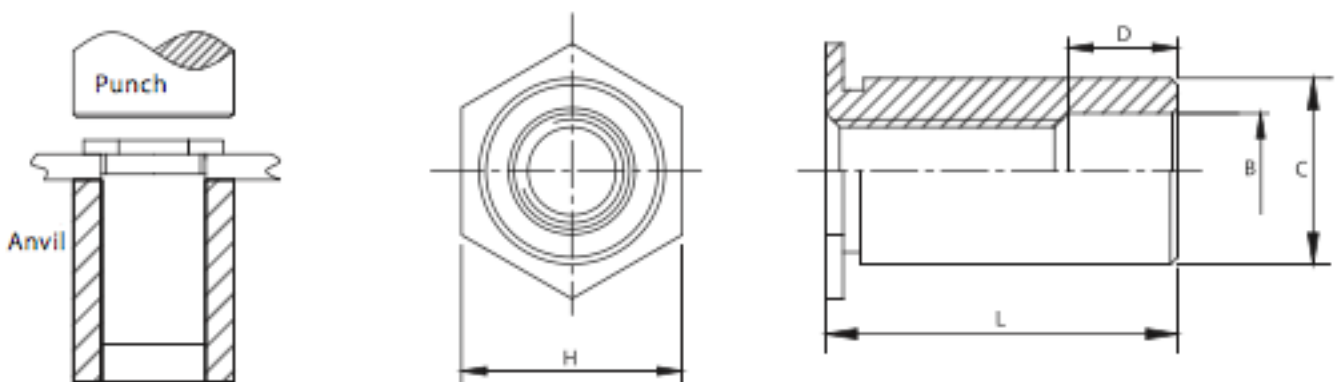


All dimensions are in millimeters

THREAD SIZE	MIN SHEET THICKNESS	HOLE SIZE IN SHEET +.080 -.000	BCOUNTER-BORE DIA ±0.13	C +0.00 -0.13	H NO M	MIN DIST HOLE C/L TO EDGE
M3	1.02	4.22	3.2	4.2	4.8	6
3.5M3	1.02	5.41	3.2	5.39	6.4	6.8
M3.5	1.02	5.41	3.9	5.39	6.4	6.8
M4	1.27	7.14	4.8	7.12	7.9	8
M5	1.27	7.14	5.35	7.12	7.9	8

THREAD SIZE	CARBON STEEL	STAINLESS STEEL	ALUMINIUM	THREAD CODE	LENGTH CODE IN MILLIMETERS L+0.05 -0.13											
					3	4	6	8	10	12	14	16	18	N/A	N/A	N/A
M3 X 0.5	PT-SO	PT-SOS	PT-SOA	M3	3	4	6	8	10	12	14	16	18	N/A	N/A	N/A
3.5M3																
M3.5 X 0.6	PT-SO	PT-SOS	PT-SOA	M3.5	3	4	6	8	10	12	14	16	18	20	22	25
M4 X 0.7																
M5 X 0.8																
D Dimension ±0.25					None			4			8			11		

INSTALLATION



- PT-SO Carbon Steel: for steel panel with hardness HRB≤80
- PT-SOS Stainless Steel: for aluminium panel, steel panel with hardness HRB≤70
- PT-SOA Aluminium Steel: for aluminium panel, with hardness HRB≤50
- PT-SO4 Hardened Stainless Steel: for stainless panel, steel panel with hardness HRB≤90

THRU-HOLE UNTHREADED STANDOFFS

PT-SO / SOA / SOS

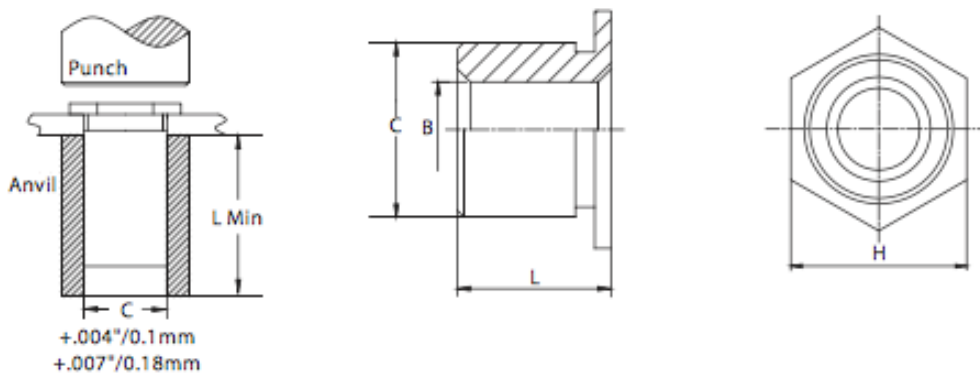


All dimensions are in millimeters

THRU-HOLE CODE	MIN SHEET THICKNESS	HOLE SIZE IN SHEET +0.080 -0.000	C +0.00 -0.13	H NOM	MIN DIST HOLE C/L TO EDGE
43.1	1.02	4.22	4.2	4.8	6
63.1	1.02	5.41	5.39	6.4	6.8
63.6	1.02	5.41	5.39	6.4	6.8
83.6	1.27	7.14	7.12	7.9	8
84.1	1.27	7.14	7.12	7.9	8
85.1	1.27	7.14	7.12	7.9	8

THRU-HOLE DIAMETER +0.1 -0.08	CARBON STEEL	STAINLESS STEEL	ALUMINIUM	HOLE CODE	LENGTH CODE IN MILLIMETERS L +0.05 -0.13									
					3	4	6	8	10	12	14	16	18	20
3.1	PT-SO	PT-SOS	PT-SOA	43.1	3	4	6	8	10	12	14	16	18	20
				63.1										
3.6	PT-SO	PT-SOS	PT-SOA	63.6	3	4	6	8	10	12	14	16	18	20
				83.6										
4.1	PT-SO	PT-SOS	PT-SOA	84.1	3	4	6	8	10	12	14	16	18	20
5.1				85.1										

INSTALLATION



- PT-SO Carbon Steel: for steel panel with hardness HRB \leq 80
- PT-SOS Stainless Steel: for aluminium panel, steel panel with hardness HRB \leq 70
- PT-SOA Aluminium: for aluminium panel, with hardness HRB \leq 50
- PT-SO4 Hardened Stainless Steel: for stainless panel, steel panel with hardness HRB \leq 88

THREADED STANDOFFS FOR THINSHEET

PT-TSO / TSOA / TSOS



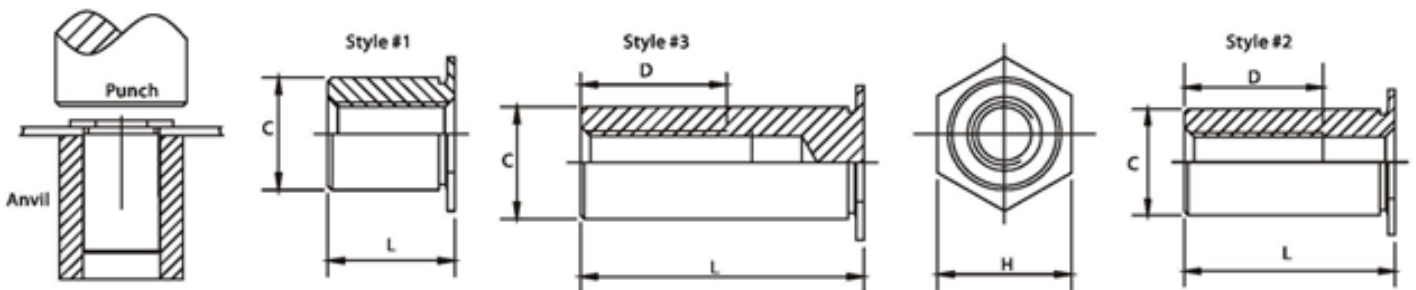
All dimensions are in millimeters

THREAD SIZE	MIN SHEET THICKNESS	HOLE SIZE IN SHEET +.080 -.000	C +0.00 -0.13	MIN. THREAD DEPTH	H NOM	MIN DIST HOLE C/L TO EDDE
M25	0.63	4.22	4.19	5.2	4.8	5.8
6M25	0.63	5.41	5.39	5.2	6.4	7.1
M3	0.63	4.22	4.19	6.2	4.8	5.8
6M3	0.63	5.41	5.39	6.2	6.4	7.1
M35	0.63	5.41	5.39	7	6.4	7.1

THREAD SIZE X PITCH	CARBON STEEL	STAINLESS STEEL	ALUMINIUM	THREAD CODE	L ±0.08 FOR OTHER LENGTHS / THREAD DEPTH DATA SEE CHART BELOW										
					2.00	3.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	19.00
M2.5 X 0.45	PT-TSO	PT-TSOS	PT-TSOA	M25	200(	300(	400(	600(	800(	1000(	1200(	1400(	1600(	1800(	1900(
				6M25	1)	1)	1)	1)	2)	3)	3)	3)	3)	3)	3)
M3 X 0.5	PT-TSO	PT-TSOS	PT-TSOA	M3	200(	300(	400(	600(	800(	1000(	1200(	1400(	1600(	1800(	1900(
				6M3	1)	1)	1)	1)	2)	2)	3)	3)	3)	3)	3)
M3.5 X 0.6	PT-TSO	PT-TSOS	PT-TSOA	M35	N/A	300(	400(	600(	800(	1000(	1200(	1400(	1600(	1800(	1900(
						1)	1)	1)	1)	2)	2)	3)	3)	3)	3)

(1) Style #1 (2) Style #2 (3) Style #3

INSTALLATION



- PT-TSO Carbon Steel: for steel panel with hardness HRB≤60
- PT-TSOS Stainless Steel: for aluminium panel, steel panel with hardness HRB≤70
- PT-TSOA Aluminium: for aluminium panel, with hardness HRB≤50

BLIND THREADED STANDOFFS

PT-BSO / BSOA / BSOS

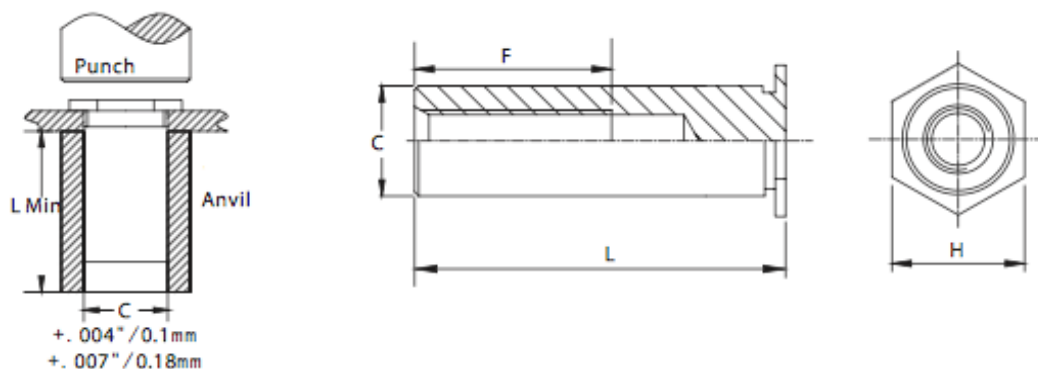


All dimensions are in millimeters

THREAD SIZE	MIN SHEET THICKNESS	HOLE SIZE IN SHEET +.080 -.000	C +0.00 -0.13	H NOM	MIN DIST HOLE C/L TO EDDE
M3	1.02	4.22	4.2	4.8	6
3.5M3	1.02	5.41	5.39	6.4	6.8
M3.5	1.02	5.41	5.39	6.4	6.8
M4	1.27	7.14	7.12	7.9	8
M5	1.27	7.14	7.12	7.9	8

THREAD SIZE X PITCH	CARBON STEEL	STAINLESS STEEL	ALUMINIUM	THREAD CODE	LENGTH CODE IN MILLIMETERS									
					L +0.05 -0.13									
M3 X 0.5	PT-BSO	PT-BSOS	PT-BSOA	M3	6	8	10	12	14	16	18	20	22	25
				3.5M3										
M3.5 X 0.6 M4 X 0.7	PT-BSO	PT-BSOS	PT-BSOA	M3.5	6	8	10	12	14	16	18	20	22	25
				M4										
M5 X 0.8	PT-BSO	PT-BSOS	PT-BSOA	M5										
F DIMENSION MIN					3.2	4	5	6.5	9.5					

INSTALLATION



- PT-BSO Carbon Steel: for steel panel with hardness HRB \leq 80
- PT-BSOS Stainless Steel: for aluminium panel, steel panel with hardness HRB \leq 70
- PT-BSOA Aluminium: for aluminium panel, with hardness HRB \leq 50
- PT-BSO4 Hardened Stainless Steel: for stainless panel, steel panel with hardness HRB \leq 88

THREADED STANDOFFS FOR CLOSE TO EDGE APPLICATIONS

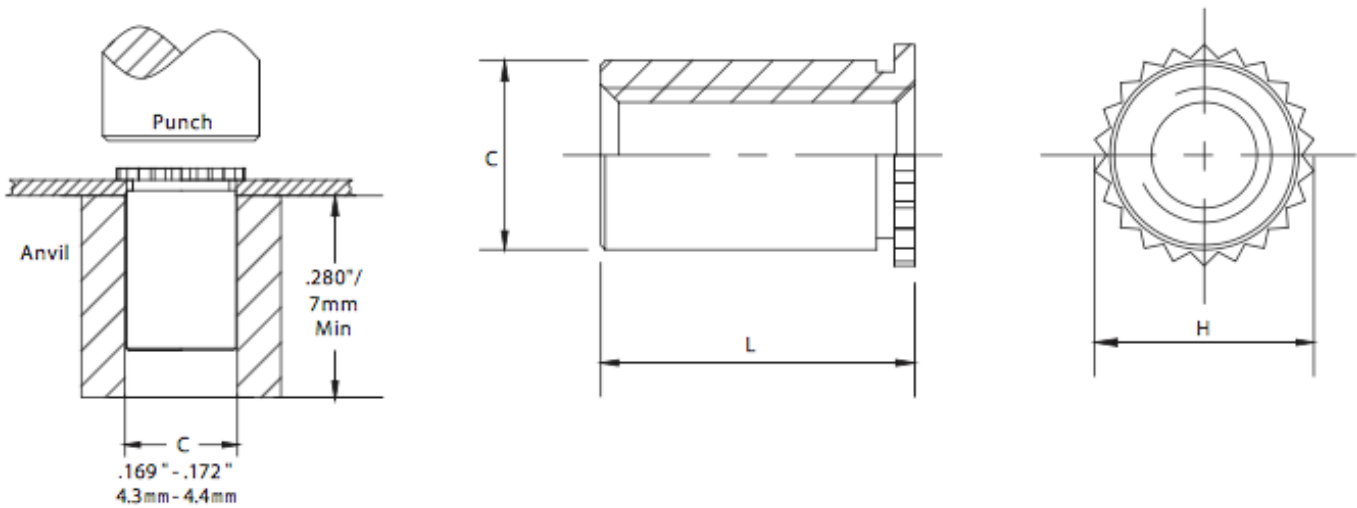
PT-DSO / DSOS



All dimensions are in millimeters

THREAD SIZE X PITCH	TYPE		THREAD CODE	LENGTH CODE	SHEET THICKNESS	HOLE SIZE IN SHEET +.080 -.000	C MAX	H NOM	L +0.05 -0.13	MIN DIST HOLE C/L TO EDGE
	STAINLESS STEEL	CARBON STEEL								
M3 X 0.5	PT-DSOS	PT-DSO	M3	6.35	0.94 - 6.35	4.2	4.2	4.92	6.35	3.2
				7					7	

INSTALLATION



- PT-DSO Carbon Steel: for steel panel with hardness HRB \leq 80
- PT-DSOS Stainless Steel: for aluminium panel, steel panel with hardness HRB \leq 70

GROUNDING STANDOFFS

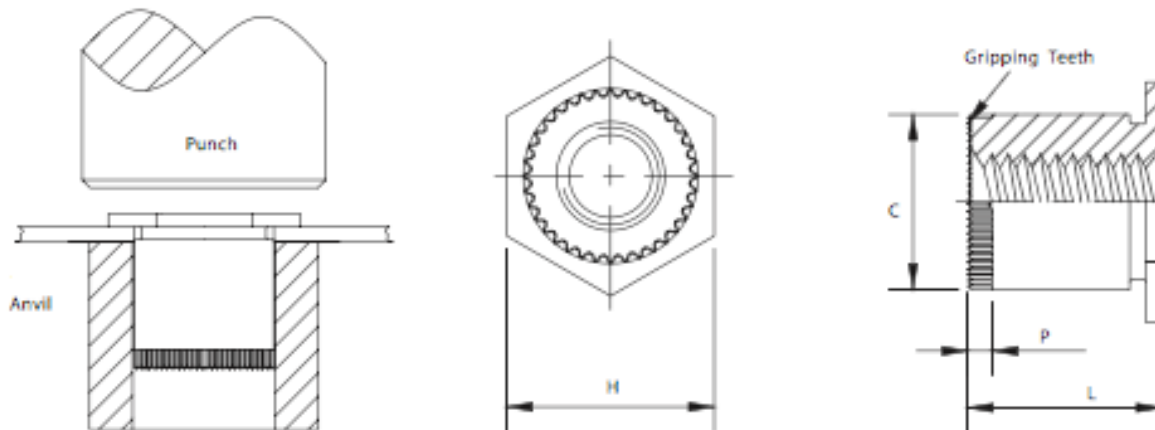
PT-SOSG / SOAG



All dimensions are in millimeters

THREAD SIZE X PITCH	TYPE		THREAD CODE	LENGTH CODE IN MILIMETER							MIN SHEET THICKNESS	HOLE SIZE IN SHEET +.080 -.000	C +.080 -.013	H ±0.25	P NOM	MIN DIST HOLE C/L TO EDGE	D ANVIL HOLE +.080 .000
	STAINLESS STEEL	ALUMINIUM		3	4	6	8	10	12								
M3 X 0.5	PT-SOSG	PT-SOAG	3.5M3	3	4	6	8	10	12	1	5.4	5.39	6.4	0.76	6.8	5.5	

INSTALLATION

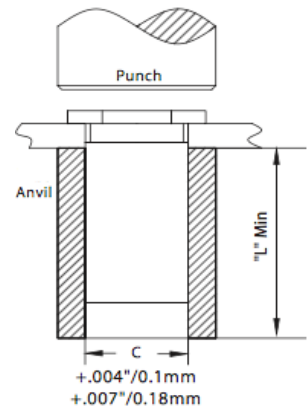


- PT-SOSG Carbon Steel: for steel panel with hardness $HRB \leq 70$
- PT-SOAG Stainless Steel: for aluminium panel, steel panel with hardness $HRB \leq 50$

INSTALLATION

TYPES PT-SO / SOA / SOS / SO4 / BSO / BSOA / BSOS / BSO4

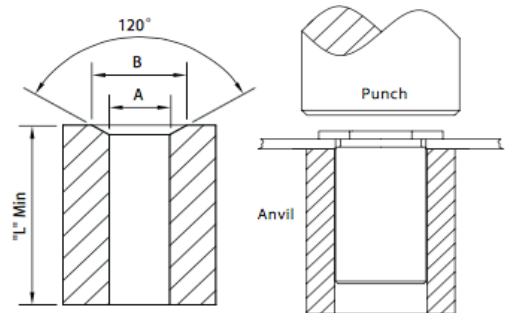
1. Prepare properly sized mounting hole in sheet. Do not perform any secondary operations such as deburring.
2. Insert standoff through mounting hole of sheet and into anvil as shown in drawing
3. With punch and anvil surfaces parallel, apply only enough squeezing force to embed the standoff's head flush in the sheet. Drawing at right shows suggested tooling for applying these forces.



TYPES PT-TSO / TSOA / TSOS

1. Prepare properly sized mounting hole in sheet. Do not perform any secondary operations such as deburring.
2. Insert standoff through mounting hole of sheet and into anvil as shown in drawing
3. With punch and anvil surfaces parallel, apply only enough squeezing force to embed the standoff's head flush in the sheet. Drawing at right shows required installation anvil for sheet thickness of 0.63 to 0.81mm.

REQUIRED INSTALLATION ANVIL FOR SHEETS BELOW 0.81mm.



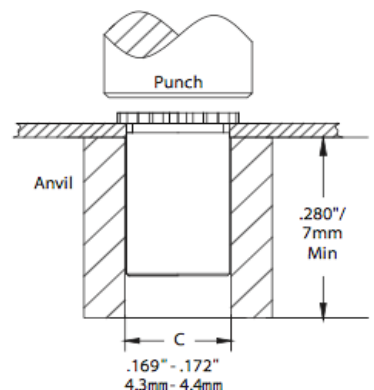
A chamfered anvil is not required for sheets over 0.81mm.

All dimensions are in millimeters

STANDOFF "C" DIMENSIONS	ANVIL DIMENSIONS	
	A	B
4.19	4.24 - 4.32	4.75 - 4.93
5.39	5.41 - 5.49	6.35 - 6.53

TYPES PT-DSO / DSOS / SOSG / SOAG

1. Prepare properly sized mounting hole in sheet. Do not perform any secondary operations such as deburring.
2. Insert fastener through mounting hole (preferably the punch side) and into anvil as shown in drawing.
3. With punch and anvil surfaces parallel, apply only enough squeezing force to embed the standoff's head flush in the sheet.



PERFORMANCE DATA

TYPES PT-SO / SOA / SOS / BSO / BSOA / BSOS

METRIC	THREAD CODE	STANDOFF MATERIAL	MAX. REC TIGHTENING TORQUE FOR MATING SCREW (N-M)	TEST SHEET MATERIAL							
				1.5mm 5052-H34 ALUMINIUM				1.5mm COLD-ROLLED STEEL			
				INSTALLATION (KN)	PUSHOUT (N)	TORQUE-OUT (N-M)	PULL-THRU (N)	INSTALLATION (KN)	PUSHOUT (N)	TORQUE OUT (N-M)	PULL-THRU (N)
METRIC	M3	STEEL	0.55	4.9	710	1.24	1245	9.8	1000	2.15	1465
		STAINLESS STEEL	0.44	4.9	710	1.24	996	9.8	1000	2.15	1172
		ALUMINIUM	0.33	4.9	710	1.24	747	(3)	(3)	(3)	(3)
	M3.5	STEEL	0.55	7.6	1330	2.82	1245	14.7	1860	3.95	1465
		STAINLESS STEEL	0.44	7.6	1330	2.82	996	14.7	1860	3.95	1172
		ALUMINIUM	0.33	7.6	1330	2.82	747	(3)	(3)	(3)	(3)
	M3	STEEL	0.91	7.6	1330	2.82	1375	14.7	1860	3.95	1690
		STAINLESS STEEL	0.73	7.6	1330	2.82	1100	14.7	1860	3.95	1352
		ALUMINIUM	0.55	7.6	1330	2.82	825	(3)	(3)	(3)	(3)
M3.5	STEEL	2, 3.6	10.7	1780	5.08	2575	17.8	2490	8.47	3110	
	STAINLESS STEEL	1.6, 2.88	10.7	1780	5.08	2060	17.8	2490	8.47	2488	
	ALUMINIUM	1.2, 2.16	10.7	1780	5.08	1545	(3)	(3)	(3)	(3)	

TYPES PT-SO4 / BSO4

METRIC	THREAD CODE	MAX. REC TIGHTENING TORQUE FOR MATING SCREW (N-M)	TEST SHEET MATERIAL			
			1.3mm 300 SERIES STAINLESS STEEL			
			INSTALLATION (KN)	PUSHOUT (N)	TORQUE-OUT (N-M)	PULL-THRU (N)
	M3	0.55	24.5	1493	2.36	2650
	3.5M3	0.55	42.3	2877	3.06	3025
	M3.5	0.91	42.3	2877	3.06	3025
	M4	2	46.7	4003	8.89	6458
	M5	3.6	46.7	4003	8.89	6226



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