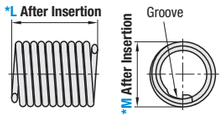
Tangless Inserts / Hand Taps / Insertion and Removal Tools / Slotted Self-Tapping Inserts / Hand Tools for Self-Tapping Inserts

Tangless Inserts

TLTS 304 Stainless Steel

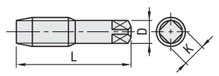
RoHS 10



Hand Taps for Tangless Inserts

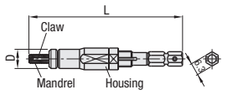
TLTK
Set of a plug tap and a bottom tap

RoHS 10



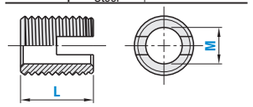
Insertion and Removal Tools

TLTP **TLTN**



Slotted Self-Tapping Inserts

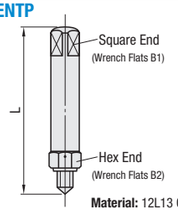
Type	Material	Surface Treatment
ENT	Free-Cutting Steel	Chromate
ENTS	303 Stainless Steel	—



Hand Tools for Self-Tapping Inserts

RoHS 10

ENTP



Material: 12L13 Carbon Steel

Part Number Example

Part Number	-	L
TLTS2.5	-	5
ENT3	-	6
ENTP5		
TLTP10		

Tangless

Part Number Type	Part Number *M	*L			Tap Pilot Hole Diameter (Reference)
TLTS	2.5	2.5	3.8	5	2.60–2.65
	3	3	4.5	6	3.12–3.20
	4	4	6	8	4.17–4.30
	5	5	7.5	10	5.16–5.33
	6	6	9	12	6.25–6.42
	8	8	12	16	8.31–8.52
	10	10	15	20	10.37–10.62

*M (Coarse Thread) and L are the sizes after insertion.
! L dimension after insertion is shorter than that before the insertion.
! These specialized tools allow insertion and removal of tangless inserts, reducing working human hours.

Hand Taps for Tangless Inserts

Part Number Type	Part Number No.	Applicable Threaded Insert M	L	D	K
TLTK	2.5	2.5	46	4	3.2
	3	3	52		
	4	4	60	5.5	4.5
	5	5	62	6	
	6	6	70	6.2	5
	8	8	75	7	5.5
	10	10	82	8.5	6.5

Insertion and Removal Tools

Part Number Type	Part Number No.	D	L
TLTP Insert Tool TLTN Removal Tool	2.5	6.0	69.0
	3	6.8	68.5
	4	9.0	75.8
	5	9.7	78.6
	6	11.0	78.1
	8	13.0	98.4
	10	15.5	104.4

! TLTP and TLTN are not RoHS compliant, but the content of hexchrome for surface treatment is within threshold value.
– No damages on the threads / bodies at removal.
– No need for breaking tangs off and looking for broken tangs, or checking gauge positions.

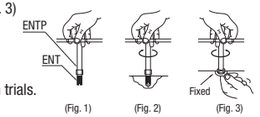
Part Number Type	Part Number M Coarse	L	Tap Pilot Hole Diameter (Reference) Softer ← Mating Material → Harder: Soft Plastic / Hardwood	Hard Plastic Cast Iron –HB200: Light Metal such as Aluminum Alloy Tensile Strength: –350 N/mm²	Cast Iron HB200–: Light Metal such as Aluminum Alloy Tensile Strength: –350 N/mm² Brass / Other Nonferrous metals	D Outer Screw: Outer Dia.	Pitch
ENT ENTS	3	6	4.5	4.6	4.7	4.8	5	0.5
	4	8	5.9	6.0	6.1	6.2	6.5	0.75
	5	10	7.2	7.3	7.5	7.6	8	1.0
	6	14	8.8	9.0	9.2	9.4	10	1.5
	8	15	10.8	11.0	11.2	11.4	12	1.5
	10	18	12.8	13.0	13.2	13.4	14	1.5
	12	22	14.8	15.0	15.2	15.4	16	1.5

! Do not use this for difficult-to-cut high strength Aluminum (Duralumin etc.)
! When the tapped material has high hardness, drill a pilot hole of slightly larger diameter within the range.

Part Number Type	Part Number No.	Applicable Threaded Insert M	L	B_1	B_2
ENTP	3	3	55	5	7
	4	4	60		
	5	5	75	8	13
	6	6			
	8	8			
	10	10	95	12.5	19
	12	12			

Machining Procedure & Precautions for Use

1. Drill a pilot hole in the work within the appropriate limit of tap pilot hole diameters shown in the above table. When the tapped material has high hardness, drill a pilot hole of slightly larger diameter within the range.
2. With the slot facing down, fit the self-tapping insert all the way onto the tip of the hand tool (Fig. 1). Put the insert vertically into the pilot hole by turning the tool handle. (Fig 2)
   * If the pilot hole diameter is too small, it may cause a lag in pitch or looseness, and can damage tools.
   * At the start of tapping (1 to 2 pitches), check to see if the tools are aligned straight with the pilot hole. If the insert is going in slanted, stop turning the tool and re-align. Realignment after inserting almost halfway (⅓ to ½) is too late. Do not turn the handle in reverse during the insertion as that will cause damages.
3. When the insert has arrived at a predetermined depth, tighten the hex part of the tool with a wrench, and then turn the handle counterclockwise to separate the tool from the work. (Fig. 3)
   *Further turning a tool when already in contact with the workpiece can damage the self-tapping part of the insert and result in a loose fit.
4. Before the first use, please select a proper pilot hole dia. through trials.

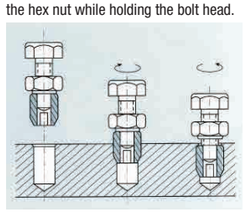


Features of Self-Tapping Inserts

Slotted tap inserts with both external and internal threads. This fastener reinforces relatively-low mechanical thread strength and allows skipping of the pre-tapping.

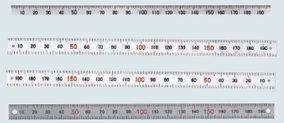
How to Use a Bolt & Nut

Use a hex nut and a Self-Tapping Insert in a double-nut arrangement as shown below. Do not obstruct the first thread or the 3-holes with the bolt. After the insertion is complete, loosen the hex nut while holding the bolt head.



Rulers

Rulers



RoHS 10

Horizontal Scale Type

Width	Type: Zero Point Position: Left End	Right End	Center (Divided)	Material	Mounting Specification	Alterations: Hole Machining HC	Length Cut LC
8 mm	MEPLH	MEPRH	MEPCH	A1050P (Clear Anodize)	With adhesive tape	—	○
8 mm	MEPLSH	MEPRSH	MEPCSH	SUS304	With mounting hole	—	○
12 mm	MEPL	MEPR	MEPC MES (T=0.15)	A1050P (Clear Anodize)	With adhesive tape	○	○
12 mm	MEPLS	MEPRS	MEPCS	SUS304	With mounting hole	○	○
12 mm	MEPLP (T=0.2)	MEPRP (T=0.2)	MEPCP (T=0.2)	PET Plastic	With adhesive tape	—	—

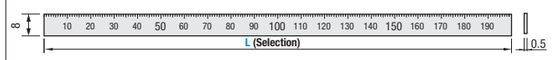
Vertical Scale Type

Width	Type: Zero Point Position: Bottom	Center (Divided)	Material	Mounting Specification	Alterations: Hole Machining HC	Length Cut LC
15 mm	MEPCTT	MEPCT	A1050P (Clear Anodize)	With adhesive tape	○	○
	—	MEPCTP (T=0.2)	PET Plastic		—	—

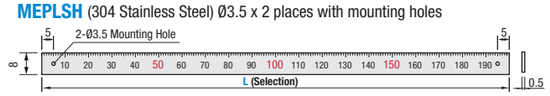
! For types with no T dimension listed, T = 0.5. ! For adhesive tapes, NITTO500 is used. (Plate thickness [T] does not include tape thickness)

8 mm Width ! 1050 Aluminum Alloy are all printed in black. (For 304 Stainless Steel, 0 and numbers in 50 increment are printed in red.)

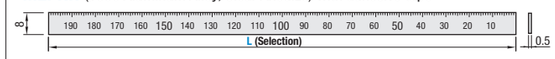
MEPLH (1050 Aluminum Alloy, Clear Anodize) with adhesive tape



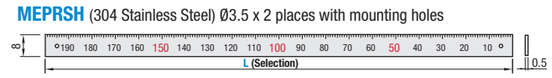
MEPLSH (304 Stainless Steel) Ø3.5 x 2 places with mounting holes



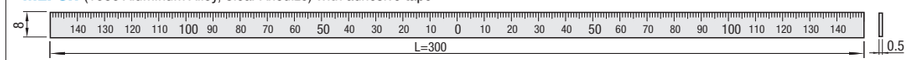
MEPRH (1050 Aluminum Alloy, Clear Anodize) with adhesive tape



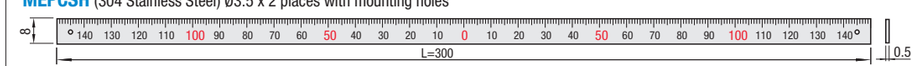
MEPRSH (304 Stainless Steel) Ø3.5 x 2 places with mounting holes



MEPCH (1050 Aluminum Alloy, Clear Anodize) with adhesive tape

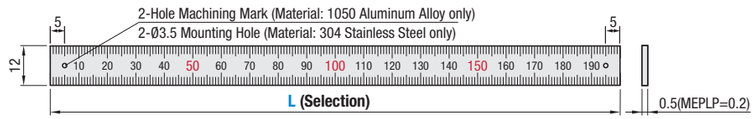


MEPCSH (304 Stainless Steel) Ø3.5 x 2 places with mounting holes

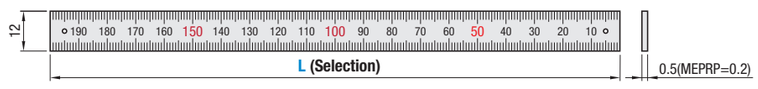


12 mm Width ! 0 and numbers in 50 increment are printed in red.

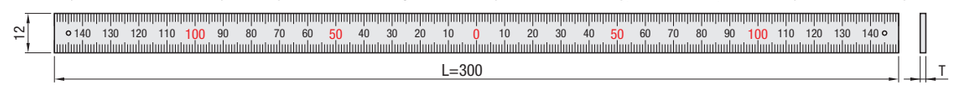
MEPL (1050 Aluminum Alloy, Clear Anodize) with adhesive tape **MEPLP** (PET Plastic) with adhesive tape **MEPLS** (304 Stainless Steel) Ø3.5 x 2 places with mounting holes



MEPR (1050 Aluminum Alloy, Clear Anodize) with adhesive tape **MEPRP** (PET Plastic) with adhesive tape **MEPRS** (304 Stainless Steel) Ø3.5 x 2 places with mounting holes

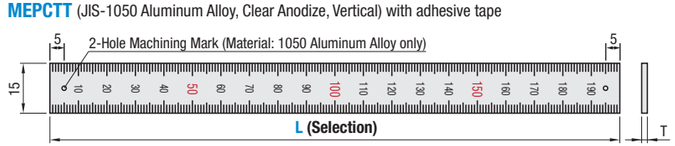


MEPC (1050 Aluminum Alloy, Clear Anodize T0.5) with adhesive tape **MEPCP** (PET Plastic T0.2) with adhesive tape
MEPCS (304 Stainless Steel T0.5) Ø3.5x2 places with mounting holes **MES** (1050 Aluminum Alloy, Clear Anodize, Slim T0.15) with adhesive tape

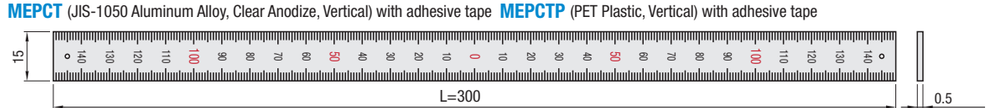


Vertical Scale Type ! 0 and numbers in 50 increment are printed in red.

MEPCTT (JIS-1050 Aluminum Alloy, Clear Anodize, Vertical) with adhesive tape



MEPCT (JIS-1050 Aluminum Alloy, Clear Anodize, Vertical) with adhesive tape **MEPCTP** (PET Plastic, Vertical) with adhesive tape



! MES and PET plastic types can be used on curved surfaces. ! The PET plastic is white.
! Hole drilling marks are not printed on PET plastic type of width 8 mm.
! Double-sided adhesive tape is not attached to Stainless Steel Type. Use the two Ø3.5 x 2 screw mounting holes.
! LC alteration on stainless steel type results in removal of the mounting holes on the ends. Combination with HC machining is recommended.

Pointer Plates

Scale Plates Width 12 mm Zero at Left / Right

Zero Point Position	Part Number	
	Type	L
Left End	MEPL	100
		200
		300
		600
	MEPLS	100
		200
	MEPLP	200
Right End	MEPR	100
		200
		300
		600
	MEPRS	100
		200
	MEPRP	200

Scale Plates Width 15 mm Vertical Type

Zero Point Position	Part Number	
	Type	L
Bottom	MEPCTT	100
		200
		300
Center	MEPCT	300
	MEPCTP	

ⓘ L600 is a set of two pieces, one with a scale of 0 to 300 and one with a scale of 301 to 600.

Alterations	Code	Spec.
Hole Machining	HC	Adds mounting holes at hole machining marks. PPS12 / PPL20 ···Ø2.5 x 2 places MEPL_ Type / MEPR_ Type MEPC_ Type / MES / MEPCT ···Ø3.5 x 2 Positions ⊗ Not applicable to PET plastic type of 8 mm width (1050 Aluminum Alloy) ⓘ LC≥20 ⓘ For over L300, adds mounting holes at two places for 0–300, at two positions for 301–. ⓘ For using combination with LC over L300, hole machining is only applicable to LC≥310.

Scale Plates Width 8 mm Type

Zero Point Position	Part Number	
	Type	L
Left End	MEPLH	100 200
	MEPLSH	
Right End	MEPRH	
	MEPRSH	
Center	MEPCH	300
	MEPCSH	

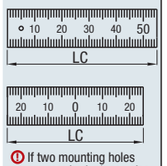
Scale Plates – Width 12 mm – Center Divided Type

Zero Point Position	Part Number	
	Type	L
Center	MEPC	300
	MEPCS	
	MEPCP	
	MES	

Part Number Example — Part Number: MEPL-200

Part Number Alterations — Part Number - (LC / HC)

MEPL - LC55
MEPLS - LC155-HC

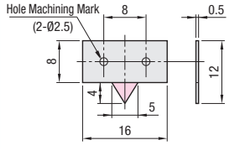
Alterations	Code	Spec.
Length Cut  ⓘ If two mounting holes are required, please also use HC.	LC	Cuts the length in 1 mm increments. Specify LC after checking the desired scale range. Cuts the whole length to the specified length. Zero Point / Applicable Part Number / Point of Origin: Left End: MEPL_Type; Right End: MEPR_Type; Bottom: MEPCTT — From Zero Point Center: MEPC_Type MES — From Zero Point Center Divided ⊗ Not available for PET plastic type. ⓘ LC≥20 ⓘ There will be two pieces for sizes over 301mm. ⓘ Mounting hole marks will remain on Stainless Type when cut 5mm from overall length. ⓘ If the scale plate has a mounting hole originally, the hole may disappear or become semicircular depending on the LC length.

Pointer Plates

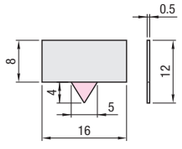
RoHS 10

Type	Material	Tape
PPS PPL	1050 Aluminum Alloy (Clear Anodize)	Attached
PPSP PPLP	PET Plastic	Attached
PPPS PPPL	Polycarbonate	Not Attached

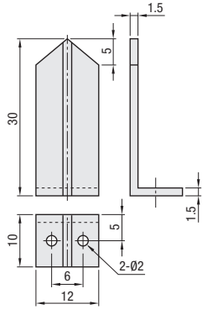
PPS12



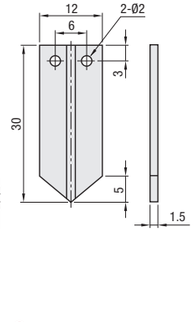
PPSP12



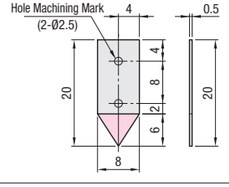
PPPL



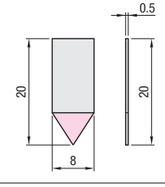
PPPS



PPL20



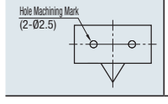
PPLP20



ⓘ The PET plastic is white.
ⓘ The polycarbonate is transparent.

Pointer Plates

Part Number		
Type		No.
PPS	PPSP	12
PPL	PPLP	20
PPPS		30
PPPL		

Alterations	Code	Spec.
Hole Machining 	HC	Adds mounting holes at hole machining marks. PPS12 / PPL20 ···Ø2.5 x 2 places ⊗ Not applicable to PET Plastic Type and Polycarbonate Type.

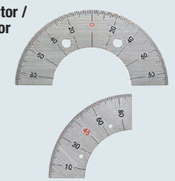
Part Number Example — Part Number: PPS12

Part Number Alterations — Part Number - HC: PPS12 - HC

Protractors / Measuring Tapes

180° / 90° / Double-Sided Protractor / Measuring Tape

180° Protractor / 90° Protractor



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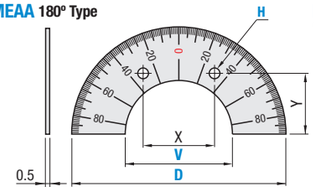
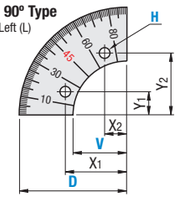
MEAA 180° Type

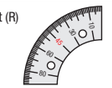


MEAB 90° Type

* Zero at Left (L)



* Zero at Right (R)



* Zero at Center (C)

Material: 304 Stainless Steel No Tape

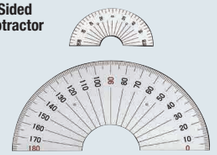
Part Number							
Type	Graduation Direction	D	V	H	X	Y	
MEAA 180° Degree	C Zero at Center	40	20	3	13.5	11.5	
		60	30		20	17	
		100	50		36	26	
		140	80		48	40	

Part Number								
Type	Graduation Direction	D	V	H	X_1	Y_1	X_2	Y_2
MEAB 90° Type	L (Zero at Left)	20	10	3	12	5	5	12
	R (Zero at Right)	30	15		17	7	7	17
	C (Zero at Center)	50	25		29	12	12	29
		70	40		43	18	18	43

ⓘ Use as measuring tools for slide adjustment of machines and equipment.

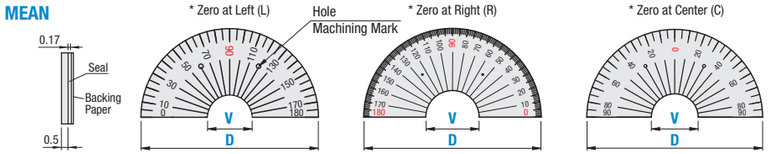
Part Number Example — Part Number - V - H: MEABC50 - 25 - 3

Double-Sided 180° Protractor



RoHS 10

MEAN

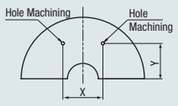


ⓘ For D40 and D60, angle graduations are marked in 5° increments.
ⓘ For D100 and D140, angle graduations are marked in 1° increments.

Material: 1050 Aluminum Alloy With Tape

Part Number			
Type	Graduation Direction	D	V Selection
MEAN	L Zero at Left	40	10 12 16 20
	R Zero at Right	60	16 20 25 30
	C Zero at Center	100	30 35 40 50
		140	40 50 60 80

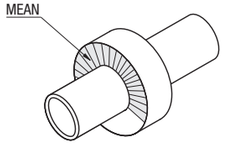
ⓘ Zero position varies depending on graduation direction.
ⓘ Similar products are available. For Adjusting Collars **KACL**.

Alterations	Code	Spec.
Hole Machining 	HC	Adds mounting holes at hole machining marks. MEAN…Ø3.5 x 2 locations ⓘ Adhesive tape is affixed to the back. (Mounting Hole Dimension Diagram) D / X / Y: 40 / 13.5 / 11.5 60 / 20 / 17 100 / 36 / 26 140 / 51 / 36 ⓘ Available for MEAN only.

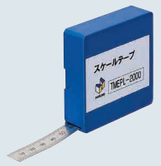
Part Number Example — Part Number - V: MEANC60 - 25

Part Number Alterations — Part Number - V - (HC): MEANC140 - 60 - HC

Application Example



Measuring Tape



RoHS 10

ⓘ TMEPL and TMEPR repeat 100 mm graduations. The values of 0, 100 are not displayed.
ⓘ Please cut with scissors etc. at desired length.

TMEL Zero Left End — L=1000 (1000 x 1 0–1000)

TMELF Zero Left End — L=2000 (1000 x 2 0–2000)

TMER Zero Right End — L=1000 (1000 x 1 0–1000)

TMERF Zero Right End — L=2000 (1000 x 2 0–2000)

TMEPL Zero Left End — L=2000 (500 x 4)

TMEPR Zero Right End — L=2000 (500 x 4)

TMEPN No Number — L=2000 (500 x 4)

Material Structure

Zero Point Position Graduation	Part Number Type	Part Number L	Thickness	Scale Increment
Left End (0–1000)	TMEL	1000	0.18	1 mm Increment
Right End (0–1000)	TMER			
Left End (0–100)	TMEPL	2000		
Right End (0–100)	TMEPR			
—	TMEPN			
Left End (0–1000 / 1000–2000)	TMELF			
Right End (0–1000 / 1000–2000)	TMERF			

Part Number Example — Part Number: TMEPL-2000, TMERF-2000

ⓘ Peel off the surface protection film before use. ⓘ Wipe off the dirt on the surface.