

# TS line

***TOOL SETTING PROBES FOR  
VERTICAL MACHINING CENTRES***



# MARPOSS

## Description of the line

Marposs TS Line includes tool setting solutions, characterized by excellent metrology performances, aiming to realize measurements inside the machine working area, in order to:

- Increase measurement accuracy, as tool verification cycles take place in actual machine conditions and with rotating tool;
- Decrease scrap parts, caused by undetected tool breakage when a tool setter is not present on the machine;
- Keep the work-piece within tolerances, thanks to tool wear control and thermal drift compensation;
- Reduce machine down-time, during its set-up.

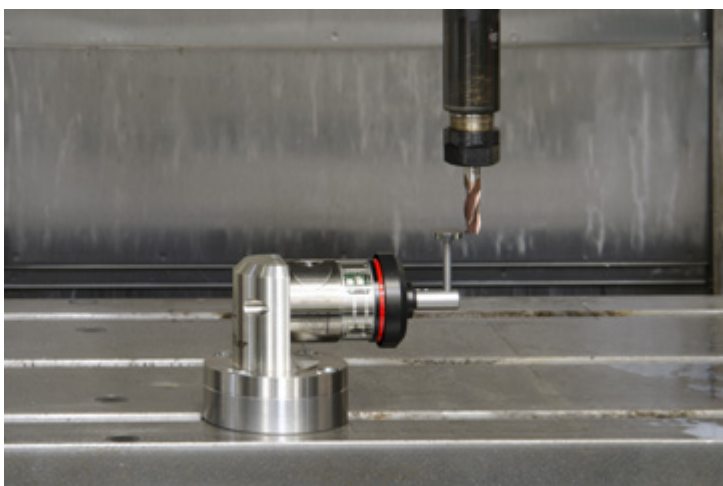
The tool setters of the line use Marposs touch probes TT30 and VOP40. For this reason, they are characterized by an excellent repeatability even at highest touch speeds, with a resulting growth of production quality and a decrease of cycle time. TS Line probes are available with three different transmission modes:

- hard-wired transmission: TS30 and TS30 90°, with integrated interface;
- optical transmission: VOTS and VOTS 90°, working with VOI receiver;
- radio transmission: WRTS, working with WRI receiver.

All versions are equipped with an LED on the probe body that indicates the operating state.

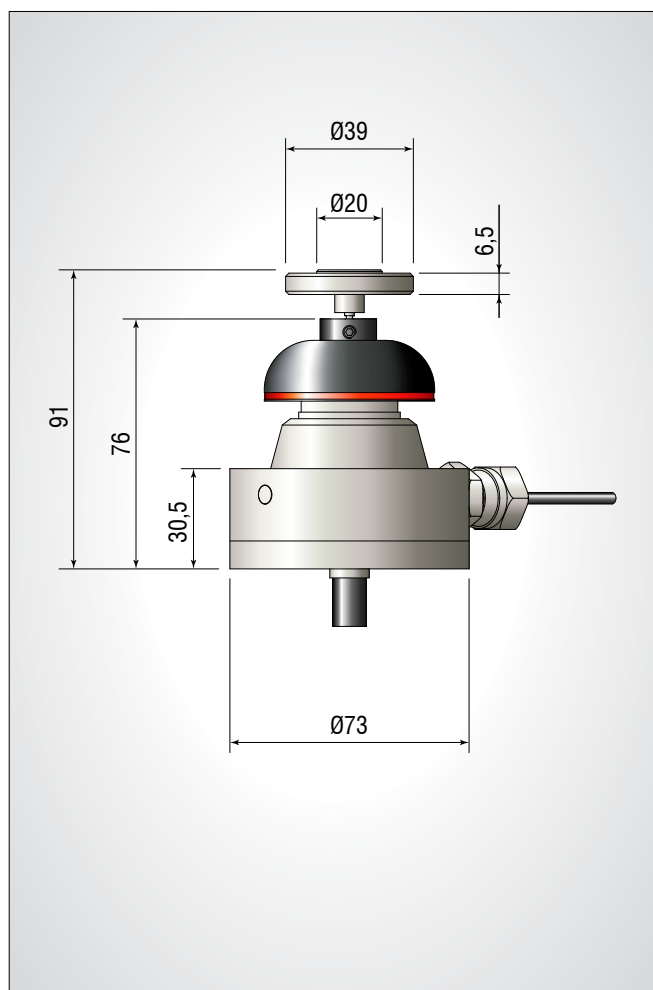
## Advantages

- Increase of productivity
- Precise measurements with compensation of thermal drifts
- High reliability
- Able to withstand harsh operating conditions
- Ideal also for small tools



## TS30 hard-wired tool setter

TS30 is a compact touch probe, with hard-wired transmission, for tool setting and verification. It is endowed with integrated interface, which allows a direct connection to CNC. The special tungsten carbide contact disk withstands wear, due to rotating cutters, and guarantees its integrity. An LED is present on the probe body, providing information on the probe status.



### Mechanical specification

Repeatability ( $2\sigma$ )	1 $\mu\text{m}$
Overstroke	7,8 mm (radial) 3,5 mm (axial)
Trigger force	Radial 1,2 ÷ 2,4 N
Touch speed	600 mm/min
Protection degree (IEC 60529 Standard)	IP67
Operating temperature	10° ÷ 40° C (50° ÷ 104° F)
Storage temperature	-20° ÷ 70° C (-4° ÷ 158° F)
Weight	≈1 Kg (2lb, 3 Oz)

Data refer to the detection disk.

### Electrical specification

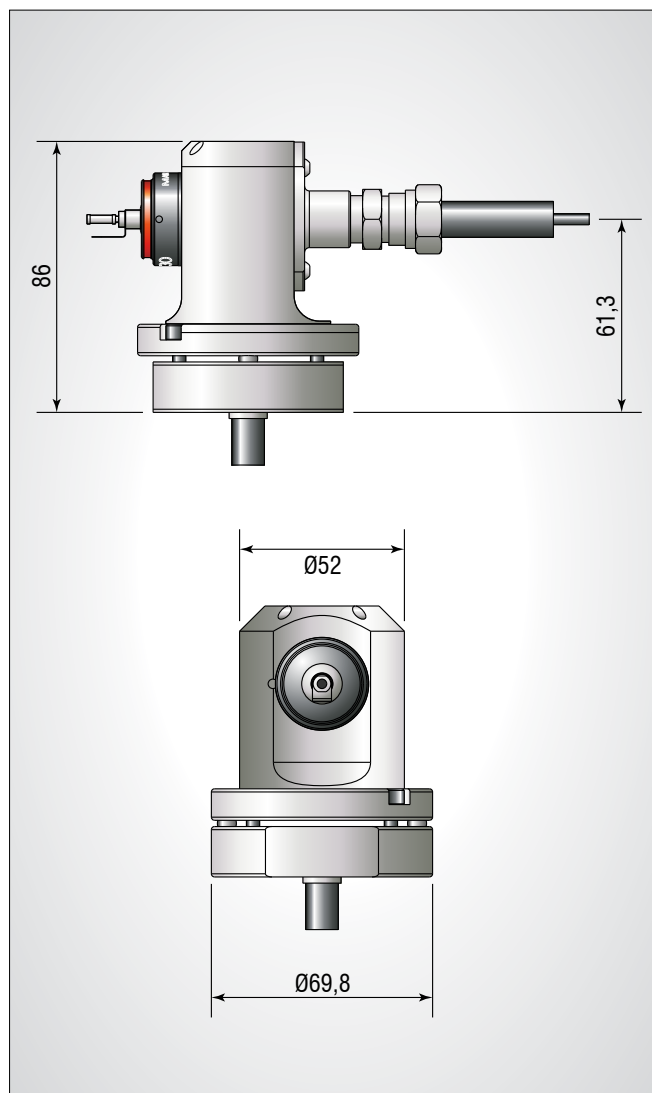
Power supply	24 VDC not stabilised (12 ÷ 30 V)
Max current	35 mA
Probe status output	Solid state relay ±50 V peak; ±40 mA peak
Response time	370 $\mu\text{s}$ max

## TS30 90° hard-wired tool setter

TS30 90° is the tool setter which optimize not only the space on the working area, thanks to the 90° stylus, but also the installation process. In fact, it implements an extremely innovative 3-step alignment system, designed to be fast and simple, allowing the right positioning of the new base, the probe body and the detection plate. On the whole, TS30 90° installation can be realized in less than 5 minutes.

The probe is ideal also for measurements on small tools, as it presents a lower touch force.

TS30 90° can be provided with an air blower system to keep the detection plate clean from chips or coolant drops.



### Mechanical specification

Repeatability ( $2\sigma$ )	1 $\mu$ m
Overstroke	7,8 mm ( <i>radial</i> ) 3,5 mm ( <i>axiale</i> )
Trigger force	Radial 1,2 ÷ 2,4 N
Touch speed	600 mm/min
Protection degree (IEC 60529 Standard)	IP67
Operating temperature	10° ÷ 40° C (50° ÷ 104° F)
Storage temperature	-20° ÷ 70° C (-4° ÷ 158° F)
Weight	≈ 1 Kg (2lb, 3 Oz)

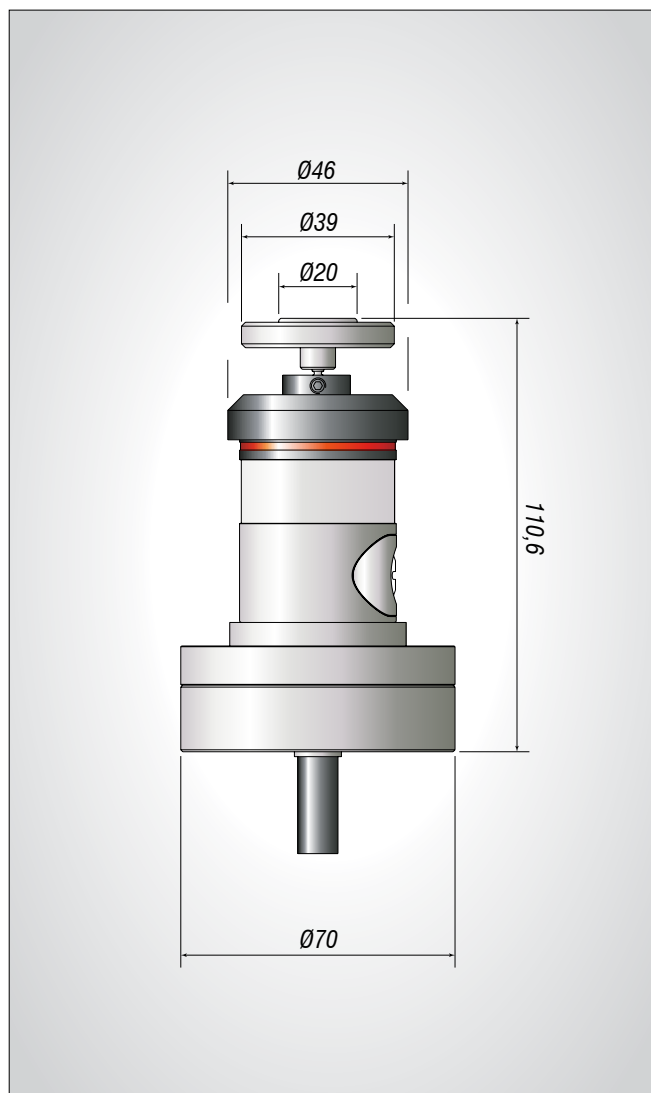
Data refer to 90° styli provided with the probe.

### Electrical specification

Power supply	24 VDC not stabilised (12 ÷ 30 V)
Max current	35 mA
Probe status output	Solid state relay ± 50 V peak; ± 40 mA peak
Response time	370 $\mu$ s max

## VOTS tool setter with optical transmission

VOTS is used to carry out breakage, wear and integrity checks and length and diameter measurements on tools in machining centres. It is completely wireless, meaning a simple installation. It can be used for TWIN applications: part and tool checks are managed by a single optical receiver. VOTS with VOI optical receivers.



UNIDIRECTIONAL REPEATABILITY (2σ) at 600 mm/min	1 μm	
MEASUREMENT FORCE	XY plane 0,5 ÷ 0,9 N	Direction Z 5,8 N
OVERTRAVEL	XY plane 12°	Direction Z 12°
TRANSMISSION TYPE	Multi-channel optical transmission	
TRANSMISSION ACTIVATION/ DEACTIVATION DISTANCE	6 m (HP) 3,5 m (LP)	
TRANSMISSION ANGLE	360° on the probe axis 110° on a perpendicular axis	
NUMBER OF TRANSMISSION CHANNELS	6 max.	
TRANSMISSION DEACTIVATION	Automatic Machine M code	
TRANSMISSION DEACTIVATION	Programmable timer Machine M code	
BATTERY TYPE	2 x 1/2 AA lithium thionyl	
BATTERY LIFE*	Stand-by	230 d (HP) 380 d (LP)
	5% usage	190 d (HP) 320 d (LP)
	Continuous usage	1060 h (HP) 2100 h (LP)
PROTECTION DEGREE (Standard IEC 60529)	IP68	
OPERATING TEMPERATURE	0 ÷ 60 °C	

(HP) = High Power mode

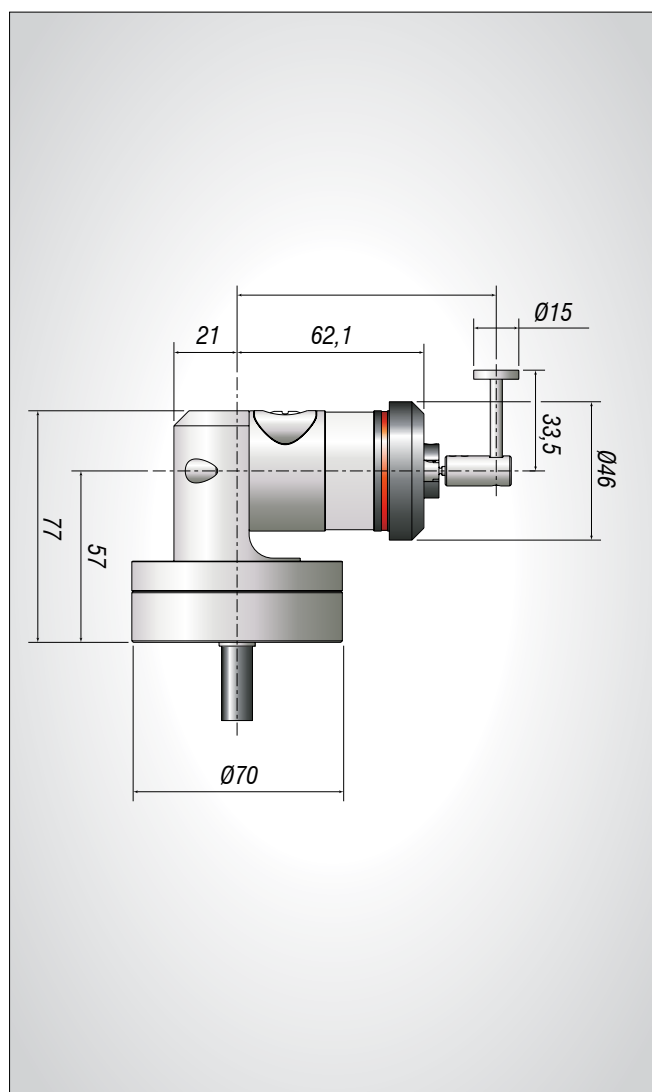
(LP) = Low Power mode

(\*) = Typical specifications - these values may vary depending on the programming mode



## VOTS 90° horizontal tool setter with optical transmission

VOTS 90°, thanks to its horizontal design, can be installed outside the machine working area. In this way, it is possible to save valuable space, without renouncing to tool check. Furthermore, the low measurement force in Z direction makes it ideal also for small tool pre-setting and verification.



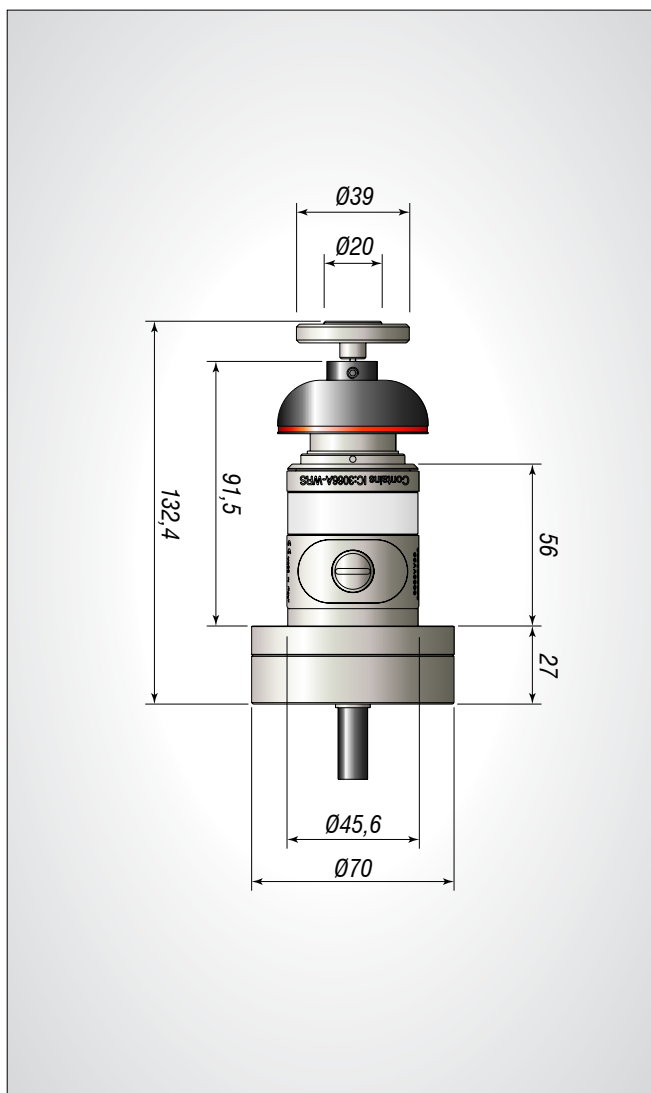
UNIDIRECTIONAL REPEATABILITY (2σ) at 600 mm/min	1 μm	
MEASUREMENT FORCE	XY plane 0,5 ÷ 0,9 N	Direction Z 0,3 N
OVERTRAVEL	XY plane 12°	Direction Z 6 mm
TRANSMISSION TYPE	Multi-channel optical transmission	
TRANSMISSION ACTIVATION/ DEACTIVATION DISTANCE	6 m (HP) 3,5 m (LP)	
TRANSMISSION ANGLE	360° on the probe axis 110° on a perpendicular axis	
NUMBER OF TRANSMISSION CHANNELS	6 max.	
TRANSMISSION DEACTIVATION	Automatic Machine M code	
TRANSMISSION DEACTIVATION	Programmable timer Machine M code	
BATTERY TYPE	2 x ½ AA lithium thionyl	
BATTERY LIFE*	Stand-by	230 d (HP) 380 d (LP)
	5% usage	190 d (HP) 320 d (LP)
	Continuous usage	1060 h (HP) 2100 h (LP)
PROTECTION DEGREE (Standard IEC 60529)	IP68	
OPERATING TEMPERATURE	0 ÷ 60 °C	

(HP) = High Power mode  
(LP) = Low Power mode

(\*) = Typical specifications - these values may vary depending on the programming mode

## WRTS Tool Setter with radio transmission

WRTS probes can be used on work stations for integrity controls, tool length and diameter measurements, and tool wear compensation. The central part of the contact disk is manufactured from tungsten carbide in order to protect it from damage during the measurement cycle. WRTS is completely wireless, which means that it is very simple to install. WRTS probes are available in the centrally mounted version, or with lateral mounting brackets. The probe may be used in TWIN applications: work piece and tool controls managed by the same receiver. It is used together with the WRI integrated interface receiver.



UNIDIRECTIONAL REPEATABILITY (2 $\sigma$ )	1 $\mu\text{m}^*$	
MEASUREMENT FORCE	XY plane 1 - 2 N	Direction Z 8.6 N
OVERTRAVEL	XY plane 12.6°	Direction Z 3.5 mm
TRANSMISSION TYPE	Multichannel radio	
TRANSMISSION ACTIVATION/ DEACTIVATION DISTANCE	15 m	
NUMBER OF AVAILABLE CHANNELS	79	
NUMBER OF SUB-CHANNELS	4	
TRANSMISSION ACTIVATION	Machine M code	
TRANSMISSION DEACTIVATION	Manual: Automatic:	Machine M code Programmable timer
BATTERY TYPE	2 CR2 type lithium batteries	
BATTERY LIFE*	Standby: 5% usage: Continuous usage:	1 y 270 d 900 h
PROTECTION RATING (Standard IEC 60529)	IP68	
WORKING TEMPERATURE	0 - 60 °C	

(\*) = Typical performance values, may vary depending on programming mode

## System part numbers

3927877500	TS30 probe kit
P1SC600001	S30 90° probe kit with cubic detection plate
P1SC600003	TS30 90° probe kit with cylindrical detection plate
P1SRWT0000	WRTS central mounting probe kit
P1SIVT0000	VOTS central mounting probe kit
P1SIVT0006	VOTS 90° probe kit

### Spare parts

1027877508	TS30 crash pin
2015340004	TS30 protection
3192787702	TS30 40 mm contact disk
3427877100	TT30 touch probe
3927877505	TS30 90° probe
3191982515	Stylus with cubic detection plate
3191982517	Stylus with cylindrical detection plate
2927877506	TS30 90° air blower
2927877505	TS30 90° optimized air blower
1027877576	Captive Link
1019825075	TT30 crash pin
1027877527	VOTS / VOTS 90° crash pin
6180841005	VOTS / VOTS 90° protection
3191982508	VOTS 90° stylus
3192787702	VOTS / WRTS detection plate
1027877508	WRTS crash pin
2015340004	WRTS protection
6871845290	VOP40 for VOTS / VOTS 90°



[www.marposs.com](http://www.marposs.com)

*For a full list of address locations, please consult the Marposs official website*

**D6C03500C0** - Edition 09/2015 - Specifications are subject to modifications  
© Copyright 2007-2015 MARPOSS S.p.A. (Italy) - All rights reserved.

MARPOSS and Marposs product names/signs mentioned or shown herein are registered trademarks or trademarks of Marposs in the United States and other countries. The rights, if any, of third parties on trademarks or registered trademarks mentioned in this publication are acknowledged to the respective owners.

**Marposs has an integrated system for Company quality, environmental and safety management, with ISO 9001, ISO 14001 and OHSAS 18001 certification. Marposs has further been qualified EAQF 94 and has obtained the Q1-Award.**