

# Switch Probes



These special probes are mainly used to detect the presence of components. The Switch Contact Probes, after a certain travel, turns on or off the contact. Usually they are threaded, to guarantee a secure fixing to the receptacle. They are available with different head styles, lengths and diameters, depending on the working conditions.

## Recommended minimum centers (grid-pitch)

The installation pitch of our Switch Probes ranges from 2.54 to 3.50mm.

## Current Rating

Using Switch Probes does not entail very high currents, which is why our Switch Probes can work with currents of up to 5 A. The current flow in the small internal contact must not exceed 1 A. For special requirements we are able to increase the rated current.

## Typical contact resistance

The typical contact resistance of our Standard Switch Probes is 50 mΩ.

## Materials and plating

The materials used for our Switch Probes are different for each component:

The barrel can be made of:

- Bronze, material with good hardness and good malleability
- Brass, material with excellent electrical conductivity and malleability, but not as hard as bronze

The barrel is gold plated.

The spring is made of:

- music wire (Harmonic steel) with a spring force ranging from 200 to 350 gr

The spring is gold or silver plated to improve electrical conductivity.

The plunger can be made of:

- Beryllium-Copper (Be-Cu)
- Tempered Steel

The plunger can be plated in gold.

## Receptacle

Usually, they are made of gold-plated brass, to improve their conductivity and guarantee low electrical resistance:

- Threaded Switch Probes: The receptacle for this probe is threaded internally and allows the end of the Switch Probe to come out. Installation is carried out by soldering one wire to the receptacle body and one wire to the end of Switch Probes.
- Non-threaded Switch Probes: This special receptacle presents retaining marks that will guarantee a secure and adequate retaining force. Wiring is carried out by soldering a wire on the body of the receptacle and one on the end of the Switch Probe.

## Head style

The most commonly used head styles for Switch Probes are nr. 01, 03, 08, 39.

A special Head style is the P03 with insulated plastic cap, that can be useful in specific applications where the head must be isolated from the rest of the components.





## Summary of Switch Probes

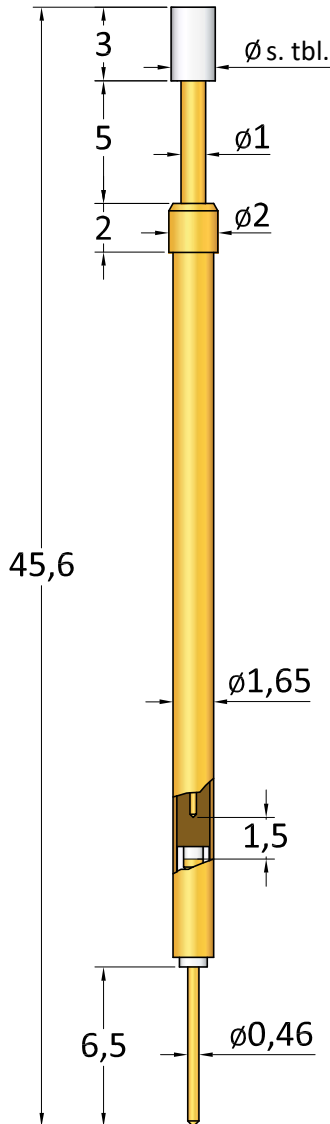
Test probes version	Series	Pitch size (≥mm)	Working stroke (mm)	Max. stroke (mm)	Current rating (A)	Spring force (g)		Installation heights (mm) v = variable			Page
						min	max	min	max	v	
Press-in Switch probes	SP 32	2,54	4,00	5,00	5	100	150	10	10,2	-	122
	SP 33	3,50	4,20	5,20	5	200	300	10,2	10,4	-	124
Screw-in Switch probes	SP 32M	2,54	4,00	5,20	5	80	300	-	10,4	-	123
	SP 33M	3,50	4,00	5,10	5	200	350	-	10,3	-	125

# SP 32

Switch Probes  $\geq 2,54$  mm /  $\geq 100$  mil

## Available Tip Styles

Material	Tip Style	$\phi$ mm
B	01 	1,80
B P	03 	1,00 1,80 2,30
B	04 	1,00 1,80
B	08 	1,80 2,00 2,30



## Technical Data

Recommended minimum centers:	2,54 mm
Recommended working stroke:	4,00 mm
Maximum stroke:	5,00 mm
Current rating:	5,0 A
Typical contact resistance:	<20 m $\Omega$
Operating temperature range:	-50° up to +100°

## Materials

Plunger:	BeCu or Steel, nickel or gold plated
Barrel:	Nickel-silver or Brass, gold plated
Spring:	Music wire, gold plated
Receptacle:	Nickel-silver or Brass, gold plated

## Spring Force ( g $\pm 20\%$ )

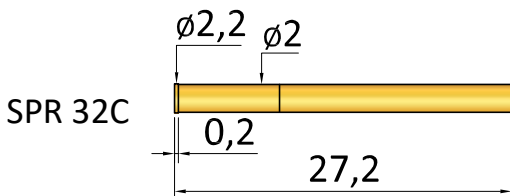
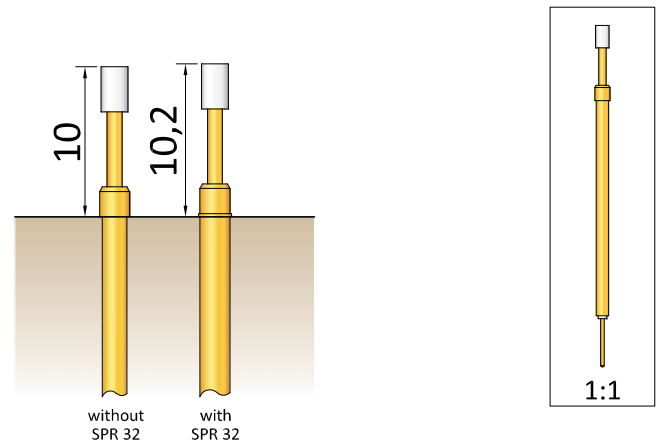
Spring force:	100 g
Alternative:	150 g

## Hole size without receptacle

Drills:  $\phi 1,65 - \phi 1,66$

## Hole size with receptacle





Drills:  $\phi 1,99 - \phi 2,01$

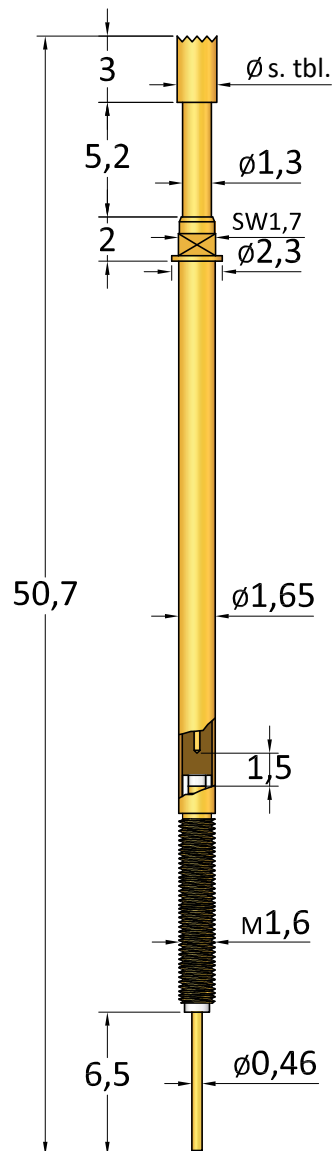


## Ordering example:

Series	Tip Style	Spring Force	Type alternative E
SP 32	P 03	180	G
	Material	Tip $\phi$ mm	Plating
	B=BeCu P=Plastic		G=Gold N=Nickel

## Available Tip Styles

Material	Tip Style	$\phi$ mm
B	01 	1,80
B P	03 	1,30 1,80 2,30
B	04 	1,30 1,80
B	08 	1,80 2,00 2,30



## Technical Data

Recommended minimum centers:	2,54 mm
Recommended working stroke:	4,00 mm
Maximum stroke:	5,20 mm
Current rating:	5,0 A
Typical contact resistance:	<50 m $\Omega$
Operating temperature range:	-50° up to +100°

## Materials

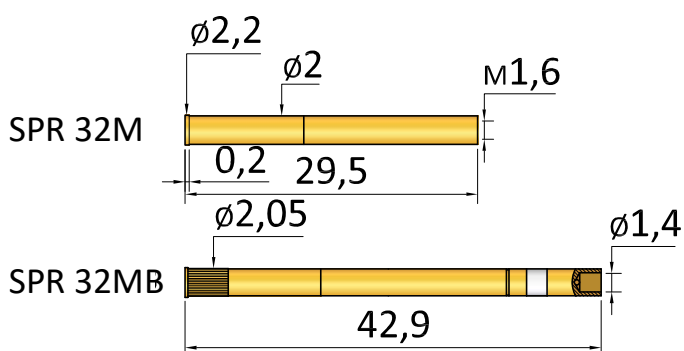
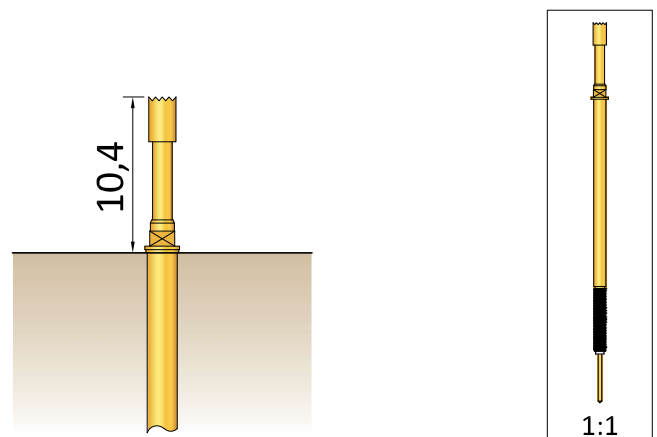
Plunger:	BeCu, nickel or gold plated
Barrel:	Brass, gold plated
Spring:	Music wire, gold plated
Receptacle:	Brass, gold plated
Isolated part:	Peek

## Spring Force ( g $\pm 20\%$ )

Spring force:	200 g
Alternative:	80 g 300 g

## Hole size for receptacle

Drills:	$\phi 1,99 - \phi 2,00$
---------	-------------------------






## Ordering example:

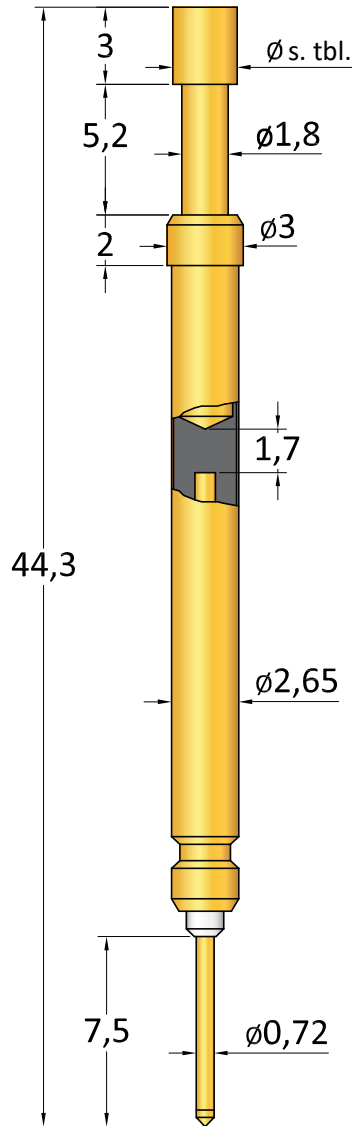
Series	Tip Style	Spring Force
SP 32M	B 08	180 200
Material		Tip $\phi$ mm
B=BeCu		
P=Plastic		
Plating		
G=Gold		
N=Nickel		

# SP 33

Switch Probes  $\geq 3,50$  mm /  $\geq 138$  mil

## Available Tip Styles

Material	Tip Style	$\phi$ mm
B	01 	2,30
B P	03 	2,30 3,00
B	08 	2,30 3,00



## Technical Data

Recommended minimum centers:	3,50 mm
Recommended working stroke:	4,20 mm
Maximum stroke:	5,20 mm
Current rating:	5,0 A
Typical contact resistance:	<50 m $\Omega$
Operating temperature range:	-50° up to +100°

## Materials

Plunger:	BeCu, nickel or gold plated
Barrel:	Brass, gold plated
Spring:	Music wire, gold plated
Receptacle:	Brass, gold plated

## Spring Force ( g $\pm 20\%$ )

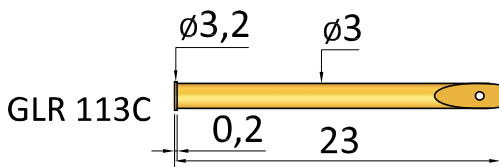
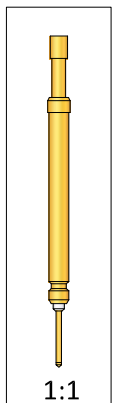
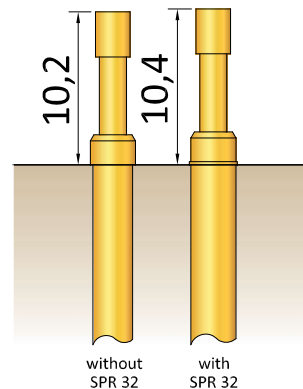
Spring force:	200 g
Alternative:	300 g

## Hole size without receptacle

Drills:  $\phi 2,64 - \phi 2,65$

## Hole size with receptacle





Drills:  $\phi 2,99 - \phi 3,00$

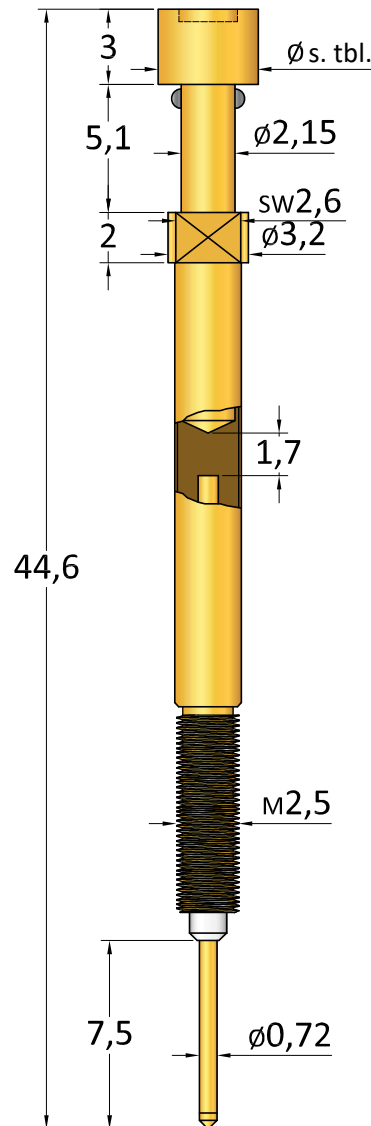


## Ordering example:

Series	Tip Style	Spring Force	Type alternative E
SP 33	B 03	230	G
Material		Tip $\phi$ mm	Plating
B=BeCu			G=Gold
P=Plastic			N=Nickel

## Available Tip Styles

Material	Tip Style	$\phi$ mm
B	01 	2,30 3,00
B P	03 	2,30 3,00
B	08 	2,30 3,00 4,00
B P	39 	3,00 3,50 4,00 4,50 5,00 5,50



## Technical Data

Recommended minimum centers:	3,50 mm
Recommended working stroke:	4,00 mm
Maximum stroke:	5,10 mm
Current rating:	5,0 A
Typical contact resistance:	<50 m $\Omega$
Operating temperature range:	-50° up to +100°

## Materials

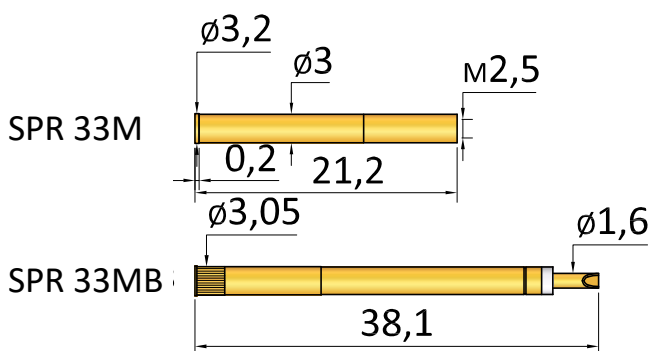
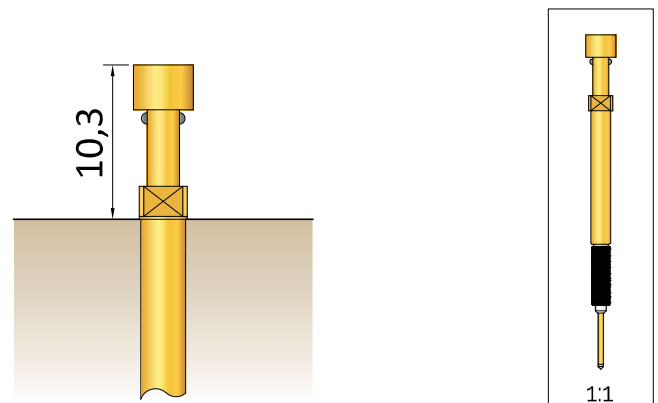
Plunger:	BeCu, nickel or gold plated
Barrel:	Brass, gold plated
Spring:	Music wire, gold plated
Receptacle:	Brass, gold plated
Isolated part:	Peek

## Spring Force ( g $\pm 20\%$ )

Spring force:	350 g
Alternative:	200 g 300 g

## Hole size for receptacle

Drills:	$\phi 2,99 - \phi 3,00$
---------	-------------------------



## Ordering example:

Series	Tip Style	Spring Force	Material	Tip $\phi$ mm	Plating
SP 33M	B	400	B=BeCu P=Plastic	200	G