

NEW

INNOTOOL

LOOK FORWARD



HIPOS QUAD

PLUNGE MILL PSP13D10

- *Soft cutting, axial positive insert position*
- *Width of cut up to max. 11.9 mm*
- *High process reliability also in deep cavities*
- *Mainly axial cutting forces, low radial deflection*
- *4-edged insert*
- *Cutting tool dia. 50 - 160 mm*
- *3 different insert geometries in 3 different corner radii*
- *Especially suitable for material groups P, K, M and S (titanium alloys)*

Product Overview

We extend our **HiPosQuad product line**, that has been successfully established in the market, with a new plunge mill. The **HiPosQuad plunge mill** with our **SD_S13... insert** allows a max. width of cut (ae) up to 11.9 mm.

The new series is available as shell-type cutter with diameter range $\text{Ø}50 - 160$ mm. Also semi-standard cutting tools in the smaller diameter range (from $\text{Ø}32$) can be produced on request as screw-in type version.

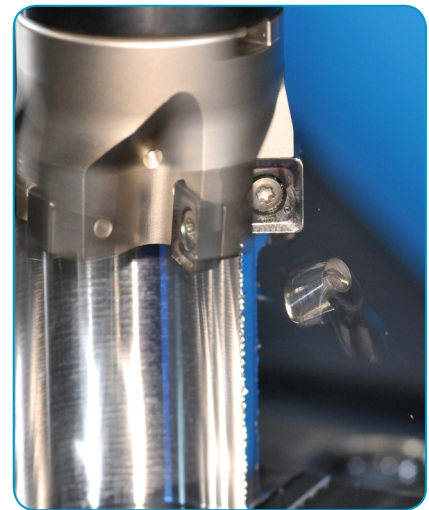
Application Range

When machining deep cavities process reliability is still the key factor in the selection of the right and suitable tooling system. Just then, when the cutting depth exceeds $3xD$, plunge milling ensures an incomparable process reliability due to the reduction of the radial cutting forces.

In general machine engineering, as well as in the mould & die industry this system and the former PlungeMaster mill series have been already well established.

The newly developed **HiPosQuad series PSP...** with the appropriate insert geometries and the **premium grade IN4035** is now well suited for machining difficult to machine materials of machinability group 'M' and above all of group "S", specifically for titanium alloys.

Thus we also make accessible now the application range of aerospace industry.



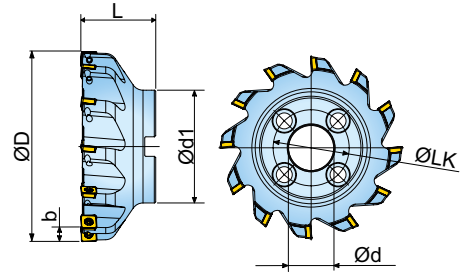
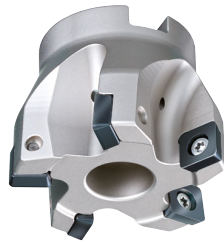
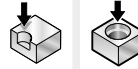
Technical Features

- 4-edged insert for width of cut up to max. 11.9 mm (depending on the corner radius of the insert).
- Different insert geometries for stable and unstable machining conditions, as well as the different materials.
- Neutral and positive insert geometries in 3 different corner radii for various applications provide process reliable machining also for difficult applications
- Due to the 2° approach angle of the insert it is necessary to consider that the bottom face is not being generated as a plane surface.

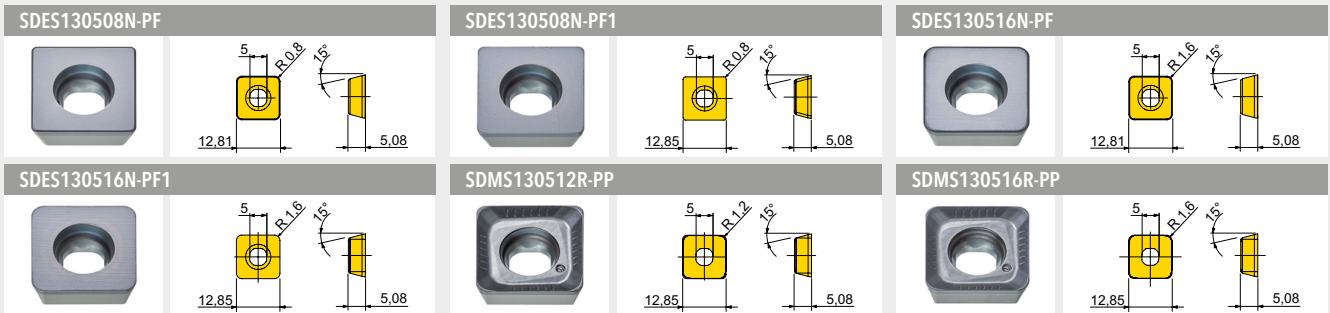
Advantages

- Soft cutting, axial positive rake
- Width of cut (ae) up to max. 11.9 mm (depending on corner radius of insert)
- 4-edged insert
- 3 different insert geometries in 3 different corner radii
- Cutter diameter 50 - 160 mm (alternative screw-in type mill from $\text{Ø} 32$ mm)
- For machining of materials of group 'P', 'K' as well as 'M' (stainless steel) and especially suitable for material group 'S' (super alloys and titanium alloys)

ADAPTION ACC. TO DIN 8030



Designation	D	d	d1	LK	L	b	Z	IK	kg
BS.050.007	50	22	40	-	40	11,9	4	✓	0,40
BS.052.002	52	22	40	-	40	11,9	4	✓	0,45
BS.066.001	66	27	48	-	50	11,9	5	✓	0,70
BS.080.001	80	27	60	-	50	11,9	6	✓	1,10
BS.085.001	85	27	60	-	50	11,9	6	✓	1,25
BS.100.001	100	32	70	-	50	11,9	8	✓	1,80
BS.125.001	125	40	80	-	63	11,9	9		2,60
BS.160.001	160	40	95	66,7	63	11,9	12		4,00



Designation	fz(min/max)	Design	Grade					
				IN2505	IN4005	IN4015	IN4030	IN4035
SDES130508N-PF	*/*	neutral geometry, K-land R0,8		●	●	●	●	●
SDES130508N-PF1	*/*	neutral titanium geometry R0,8					●	●
SDES130516N-PF	*/*	neutral geometry, K-land R1,6		●	●	●	●	●
SDES130516N-PF1	*/*	neutral geometry R1,6 sharp					●	●
SDMS130512R-PP	*/*	positive geometry, sharp R1,2					●	●
SDMS130516R-PP	*/*	positive geometry, sharp R1,6		●			●	●

● = P ● = M ● = K ● = N ● = S ○ = H



SM40-100-RO (4,5Nm) DS-A00T

① = Insert screw ② = Screw driver

Tips & Parameters



insert:	SDES130508N-PF SDES130508N-PF1	SDES130516N-PF SDES130516N-PF1	SDMS130512R-PP	SDMS130516R-PP
feed rate fz:	0,1 - 0,3 mm	0,1 - 0,3 mm	0,1 - 0,3 mm	0,1 - 0,3 mm
recommended width of cut [ae]:	9 mm	8 mm	8 mm	8 mm
max. width of cut [ae]:	11,9 mm	11,1 mm	11,6 mm	11,1 mm

Recommended Cutting Data:

material	SDES1305...		SDMS1305...	
	grade	cutting speed Vc [m/min]	grade	cutting speed Vc [m/min]
unalloyed steel	IN4005	150-200	-	-
alloyed steel 800 N/mm ²	IN4005	130-180	-	-
alloyed steel 1100 N/mm ²	IN4005	110-170	-	-
stainless steel	-	-	IN4035 / IN4030	80-150
gray cast iron	IN4015 / IN4005	160-220	-	-
nodular cast iron	IN4015 / IN4030	140-200	-	-
aluminum	-	-	-	-
high temperature alloys	-	-	IN4035	40-70
titanium alloys	IN4035	30-50	-	-
hard machining < 54 HRC	-	-	-	-
hard machining < 63 HRC	-	-	-	-

Tips

- The worse the material machinability, the smaller the tool engagement should be chosen.
- The smaller the cutting tool diameter, the higher the cutting speed can be.
- The longer the extension length, the lower the cutting speed.
- If plunging or grounding feed rate should be reduced by 30% on a length of 3 mm.
- It is recommended to retract from the contour, before travelling back to safety area (ca. 0,2 - 0,5 mm).

General Information - Insert Size 13:

insert screw:	SM40-100-R0
torque:	4 Nm
torque wrench:	DTNV00S with bit DS-T15TB

Successful machining results depend on many factors, so cutting data recommendations can only be a rough guideline. Therefore in any case of doubt do not hesitate to contact your Innotool partner.