

**NEW**

Member IMC Group  
**Ingersoll**  
Cutting Tools

**SPEED UP**  
HIGH SPEED & FEED

**HIPOSTRIO**

END MILLS FOR THLS04

**90° END MILLS WITH  
SMALL 4 MM INSERTS**

- True 90° milling solution •*
- Small 4 mm inserts •*
- High positive geometry for low cutting force •*
- Maximized productivity •*



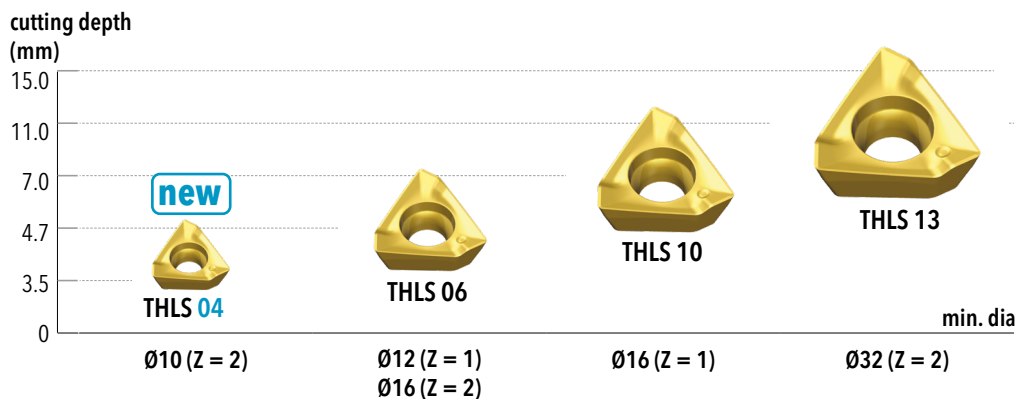
## Product Overview

Ingersoll has expanded the HiPosTrio family with the new THLS04 insert and related cutters.

With the introduction of the THLS04 insert and associated cutters, Ingersoll has expanded the line by adding an extra size to the HiPosTrio-family. A total of four insert sizes are now available with the Ingersoll standard range for HiPosTrio.

## Technical Features

With the three soft cutting cutting edges of the THLS insert and the positive axial rake angle, the line has matured into a highly productive true 90° milling solution. Moreover, the smaller insert means increased productivity, since a higher number of insert seats can be realized in the corresponding tool diameter.



With HiPosTrio Ingersoll provides now the right and - compared to double-edged indexable inserts - a much more economical solution for all common 90° end and shoulder milling applications. The new HiPosTrio-logo will be applied to THLS06, THLS10 and THLS13 inserts and associated cutters.

## Advantages

- True 90° milling solution
- 4 mm small insert
- Minimum diameters: Ø10 (Z = 2) end mill
- High positive axial rake angle for low cutting force and improved productivity
- Fine pitch cutters maximize productivity



## THLS04



Insert:	THLS0402_R-M
average chip thickness:	hm = 0,04 mm
max. cutting depth:	ap = 3,5 mm

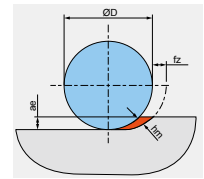
### Recommended cutting data:

ISO	material	cutting speed Vc [m/min]				feed per tooth fz [mm]
		1st choice dry machining resp. wear resistant carbide		1st choice wet machining resp. rough carbide		
P	unalloyed steel	IN2505	250 - 290	IN2530	200 - 240	0,04 - 0,08
	alloyed steel 800 N/mm <sup>2</sup>	IN2505	210 - 250	IN2530	160 - 200	0,04 - 0,06
	alloyed steel 1100 N/mm <sup>2</sup>	IN2505	160 - 180	IN2530	110 - 130	0,04
M	stainless steel	IN2505	120 - 180	IN2530	80 - 130	0,04 - 0,06
K	gray cast iron	IN2505	180 - 250	IN2530	150 - 200	0,04 - 0,08
	nodular cast iron	IN2505	140 - 210	IN2530	110 - 160	0,04 - 0,06
N	aluminum	-	-	-	-	-
S	high temperature alloys	IN2505	110 - 125	IN2530	60 - 80	0,04
	titanium alloys	IN2505	40 - 50	IN2530	30 - 40	0,04
H	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.
- If tool engagement is less than 1/3 of cutting tool diameter, the feed per tooth should be calculated with the following formula:

$$fz = hm \times \sqrt{\frac{D}{ae}}$$



### Ramping data and circular interpolation:

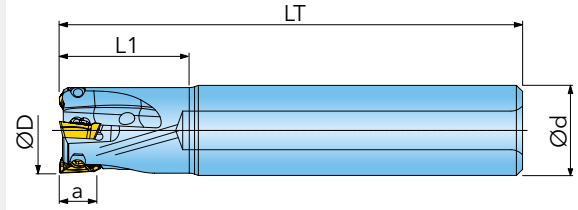
tool diameter [mm]	max. ramp. angle [°]	min. bore dia. uneven ground [mm]	max. ap/rev. [mm]	min. bore dia. even ground [mm]	max. ap/rev. [mm]	max. bore dia. even ground [mm]	max. ap/rev. [mm]
10	5,5	15,2	1,5	18,2	2,4	19	2,7
12	2,5	19,8	1,0	22,1	1,3	23	1,5
16	1,7	27,7	1,0	30,1	1,3	31	1,3
20	1,3	35,7	1,1	38,1	1,2	39	1,3
25	0,7	46,0	0,8	48,1	0,8	49	0,9

### General information:

Insert screw: **SM18-041-00** Torque: **0,5 Nm**  
 Torque wrench: **DTN005S with bit DS-TP06TB**

# HIPOSTRIO END MILL 1KJ1B...T

ADAPTION ACC. TO DIN 1835 A



Designation	D	d	LT	L1	a	Z			
1KJ1B010016T1R00	10	10	55	16	3,5	2	5,5	✓	0,03
1KJ1B012017T2R00	12	12	60	17	3,5	3	2,5	✓	0,04
1KJ1B016019T3R00	16	16	90	19	3,5	4	1,7	✓	0,12
1KJ1B020017T4R00	20	20	105	17	3,5	5	1,3	✓	0,23
1KJ1B025065T4R00	25	20	115	65	3,5	6	0,7	✓	0,25

THLS040202R-M			THLS040204R-M								
Designation	fz(min/max)	Design	Grade	IN2505	IN2530						
THLS040202R-M	0,04/0,08	positive geometry R0,2									
THLS040204R-M	0,04/0,08	positive geometry R0,4									

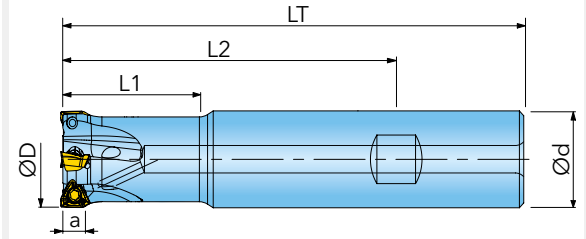
● = P ● = M ● = K ● = N ● = S ○ = H

SPARE PARTS		
	SM18-041-00 (0,5Nm)	TXPLUS06x90-B

① = Insert screw ② = Torx-bit

# HIPOSTRIO END MILL 1KJ1B...W

ADAPTION ACC. TO DIN 1835 B



Designation	D	d	LT	L1	L2	a	Z			
1KJ1B010018W3R00	10	16	80	18	56	3,5	2	5,5	✓	0,10
1KJ1B012020W3R00	12	16	80	20	56	3,5	3	2,5	✓	0,10
1KJ1B016026W3R00	16	16	85	26	61	3,5	4	1,7	✓	0,11
1KJ1B020030W4R00	20	20	90	30	65	3,5	5	1,3	✓	0,19
1KJ1B025040W5R00	25	25	100	40	68	3,5	6	0,7	✓	0,33

THLS040202R-M			THLS040204R-M								
Designation	fz(min/max)	Design	Grade								
THLS040202R-M	0,04/0,08	positive geometry R0,2									
THLS040204R-M	0,04/0,08	positive geometry R0,4									

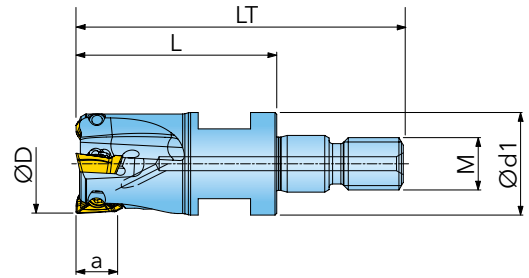
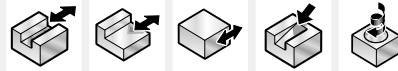
● = P ● = M ● = K ● = N ● = S ○ = H

SPARE PARTS		
	SM18-041-00 (0,5Nm)	TXPLUS06x90-B

① = Insert screw ② = Torx-bit

# HIPOSTRIO END MILL 1KJ1B...X

SCREW-IN TYPE ADAPTION



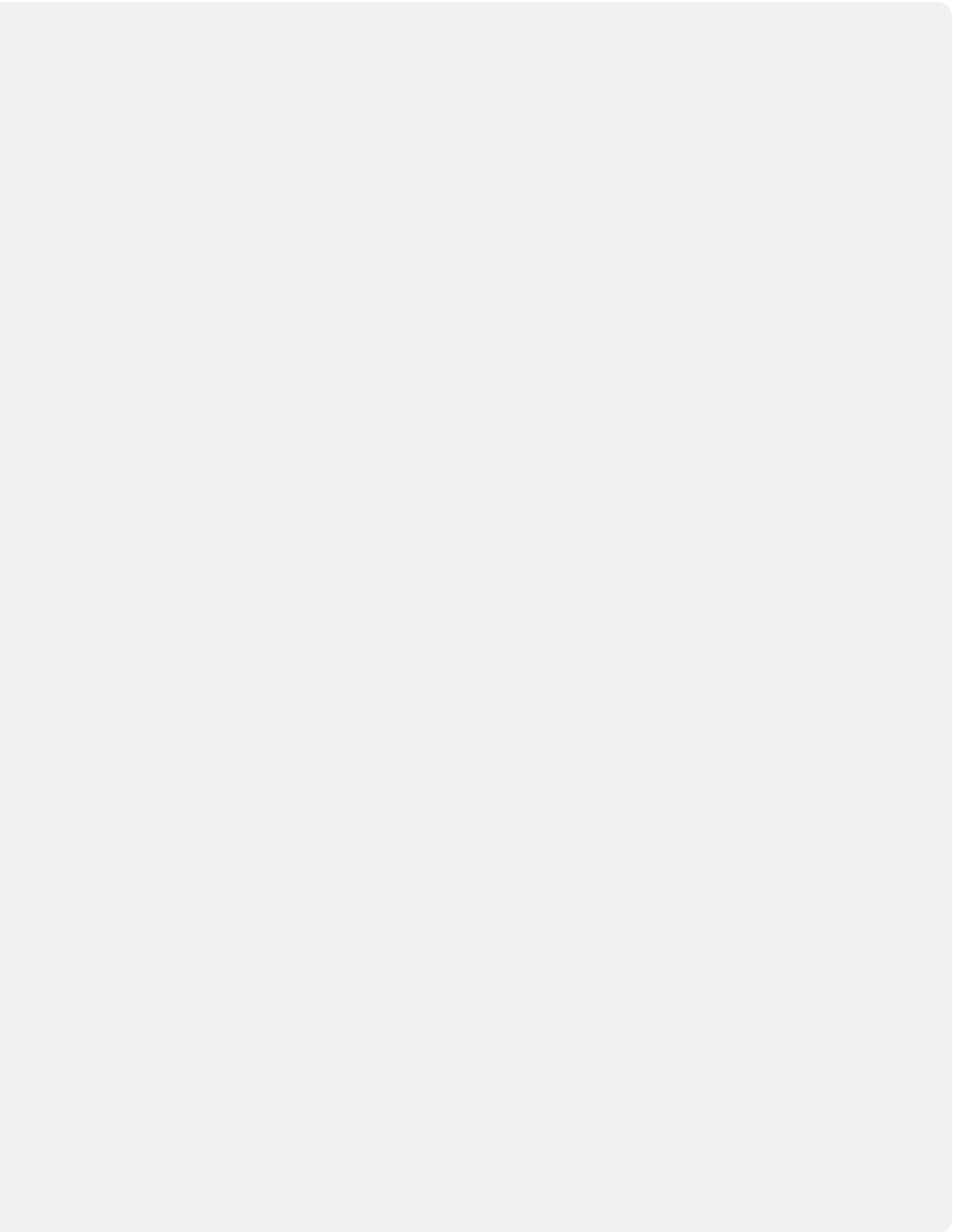
Designation	D	d1	LT	L	a	M	Z			
1KJ1B010017X4R00	10	9,8	31,5	17	3,5	M6	2	5,5	✓	0,01
1KJ1B012023X4R01	12	11,8	37,5	23	3,5	M6	2	2,5	✓	0,02
1KJ1B012023X4R00	12	11,8	37,5	23	3,5	M6	3	2,5	✓	0,02
1KJ1B016023X5R00	16	13	40,8	23	3,5	M8	4	1,7	✓	0,03
1KJ1B020030X6R00	20	18	49,8	30	3,5	M10	5	1,3	✓	0,06
1KJ1B025035X7R00	25	21	57	35	3,5	M12	6	0,7	✓	0,10

THLS040202R-M			THLS040204R-M								
Designation	fz(min/max)	Design	Grade	IN2505	IN2530						
THLS040202R-M	0,04/0,08	positive geometry R0,2									
THLS040204R-M	0,04/0,08	positive geometry R0,4									

● = P ● = M ● = K ● = N ● = S ○ = H

SPARE PARTS		
	SM18-041-00 (0,5Nm)	TXPLUS06x90-B

① = Insert screw ② = Torx-bit



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**HIPOSTRIO**