

TOOL SELECTION GUIDE - STEELS

Step 1 - Select the insert geometry

Cutting Parameters

Metric				
Negative Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FPS	0.04	0.05	0.25	1
-MPS	0.11	0.16	0.5	3.6

Metric				
Positive Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FFS	0.02	0.13	0.12	1.26
-LFS	0.02	0.19	0.15	2.7
-PPS	0.01	0.06	0.1	4.5
-FPS	0.04	0.05	0.25	1
-MPS	0.11	0.16	0.5	3.6

Inch				
Negative Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FPS	0.0016	0.002	0.0098	0.039
-MPS	0.0043	0.006	0.0197	0.142

Inch				
Positive Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FFS	0.0008	0.005	0.0047	0.050
-LFS	0.0008	0.007	0.0059	0.106
-PPS	0.0004	0.002	0.0039	0.177
-FPS	0.0016	0.002	0.0098	0.039
-MPS	0.0043	0.006	0.0197	0.142

Step 2 - Select the grade

Negative Insert Geometry		
Cutting Condition	-FPS	-MPS
heavily interrupted cut	KTP25S	KTP25S
lightly interrupted cut	KTP25S	KTP25S
varying depth of cut, casting, or forging skin	KTP25S	KTP25S
smooth cut, pre-turned surface	KTP25S	KTP25S
smooth cut, high precision / tight tolerance	KTP25S	KTP25S

Positive Insert Geometry					
Cutting Condition	-FFS	-LFS	-PPS	-FPS	-MPS
heavily interrupted cut	-	-	-	KTP25S	KTP25S
lightly interrupted cut	-	KCP20S KCM25S	-	KTP25S	KTP25S
varying depth of cut, casting, or forging skin	-	KCP20S KCM25S	KCP20S KCM25S KCS25S KTP25S	KTP25S	KTP25S
smooth cut, pre-turned surface	KCM25S KCS25S	KCP20S KCM25S KCS25S	KCP20S KCM25S KCS25S KTP25S	KTP25S	KTP25S
smooth cut, high precision / tight tolerance	KCM25S KCS25S	KCP20S KCM25S KCS25S	KCP20S KCM25S KCS25S KTP25S	KTP25S	KTP25S

NOTE: **Bold** is first choice when showing multiple grades.

Step 3 - Select the cutting speed

Low-Carbon (<0,3% C) and Free-Machining Steel		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
P0/P1	KCP20S	50	165	274	165	540	900
	KTP25S	122	216	351	400	710	1150

Medium- and High-Carbon Steels (>0,3% C)		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
P2	KCP20S	50	149	250	165	490	820
	KTP25S	122	204	312	400	670	1025

Alloy Steels and Tool Steels; <330 HB; <35 HRC		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
P3	KCP20S	50	110	165	165	360	540
	KTP25S	122	189	274	400	620	900

Alloy Steels and Tool Steels; 350–450 HB; 35–48 HRC		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
P4	KCP20S	50	101	149	165	330	490
	KTP25S	107	152	189	350	500	620

Ferritic, Martensitic, and PH Stainless Steels; <330 HB; <35 HRC		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
P5	KCS25S	53	75	107	175	245	350
	KCM25S	43	64	85	140	210	280
	KTP25S	122	155	204	400	510	670

Ferritic, Martensitic, and PH Stainless Steels; 350–450 HB; 35–48 HRC		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
P6	KCS25S	50	70	101	165	230	330
	KCM25S	40	59	79	130	195	260
	KTP25S	116	146	183	380	480	600

WIPER TECHNOLOGY

Step 1 - Select the insert geometry

Cutting Parameters

Metric				
Negative Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FWS	0.05	0.14	0.5	2.5
-MWS	0.14	0.49	0.56	3.2

Metric				
Positive Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FWS	0.05	0.14	0.5	2.5
-MWS	0.14	0.49	0.56	3.2

Inch				
Negative Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FWS	0.002	0.006	0.020	0.098
-MWS	0.006	0.019	0.022	0.126

Inch				
Positive Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FWS	0.002	0.006	0.020	0.098
-MWS	0.006	0.019	0.022	0.126

Step 2 - Select the grade

Negative Insert Geometry		
Cutting Condition	-FWS	-MWS
heavily interrupted cut	KTP25S	KTP25S
lightly interrupted cut	KTP25S	KTP25S
varying depth of cut, casting, or forging skin	KTP25S	KTP25S
smooth cut, pre-turned surface	KTP25S	KTP25S
smooth cut, high precision / tight tolerance	KTP25S	KTP25S

Positive Insert Geometry		
Cutting Condition	-FWS	-MWS
heavily interrupted cut	KTP25S	KTP25S
lightly interrupted cut	KTP25S	KTP25S
varying depth of cut, casting, or forging skin	KTP25S	KTP25S
smooth cut, pre-turned surface	KTP25S	KTP25S
smooth cut, high precision / tight tolerance	KTP25S	KTP25S

Step 3 - Select the cutting speed

Low-Carbon (<0,3% C) and Free-Machining Steel		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
P0/P1	KTP25S	122	216	351	400	710	1150
Medium- and High-Carbon Steels (>0,3% C)		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
P2	KTP25S	122	204	312	400	670	1025
Alloy Steels and Tool Steels; <330 HB; <35 HRC		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
P3	KTP25S	122	189	274	400	620	900
Alloy Steels and Tool Steels; 350–450 HB; 35–48 HRC		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
P4	KTP25S	107	152	189	350	500	620
Ferritic, Martensitic, and PH Stainless Steels; <330 HB; <35 HRC		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
P5	KTP25S	122	155	204	400	510	670
Ferritic, Martensitic, and PH Stainless Steels; 350–450 HB; 35–48 HRC		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
P6	KTP25S	116	146	183	380	480	600

TOOL SELECTION GUIDE - STAINLESS STEELS

Step 1 - Select the insert geometry

Metric				
Negative Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FPS	0.04	0.05	0.25	1
-MPS	0.11	0.16	0.5	3.6

Metric				
Positive Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FFS	0.02	0.13	0.12	1.26
-LFS	0.02	0.19	0.15	2.7
-PPS	0.01	0.06	0.1	4.5
-FPS	0.04	0.05	0.25	1
-MPS	0.11	0.16	0.5	3.6

Inch				
Negative Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FPS	0.0016	0.002	0.0098	0.039
-MPS	0.0043	0.006	0.0197	0.142

Inch				
Positive Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FFS	0.0008	0.005	0.0047	0.050
-LFS	0.0008	0.007	0.0059	0.106
-PPS	0.0004	0.002	0.0039	0.177
-FPS	0.0016	0.002	0.0098	0.039
-MPS	0.0043	0.006	0.0197	0.142

Step 2 - Select the grade

Negative Insert Geometry		
Cutting Condition	-FPS	-MPS
heavily interrupted cut	KTP25S	KTP25S
lightly interrupted cut	KTP25S	KTP25S
varying depth of cut, casting, or forging skin	KTP25S	KTP25S
smooth cut, pre-turned surface	KTP25S	KTP25S
smooth cut, high precision / tight tolerance	KTP25S	KTP25S

Negative Insert Geometry					
Cutting Condition	-FFS	-LFS	-PPS	-FPS	-MPS
heavily interrupted cut	-	-	-	KTP25S	KTP25S
lightly interrupted cut	-	KCM25S KCS25S	-	KTP25S	KTP25S
varying depth of cut, casting, or forging skin	-	KCM25S KCS25S	KCM25S/KCS25S KTP25S	KTP25S	KTP25S
smooth cut, pre-turned surface	KCM25S KCS25S	KCM25S KCS25S	KCM25S/KCS25S KTP25S	KTP25S	KTP25S
smooth cut, high precision / tight tolerance	KCM25S KCS25S	KCM25S KCS25S	KCM25S/KCS25S KTP25S	KTP25S	KTP25S

NOTE: Bold is first choice when showing multiple grades.

Step 3 - Select the cutting speed

Austenitic Stainless Steel		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
M1	KCM25S	40	59	101	130	195	330
	KCS25S	59	101	149	195	330	490
	KTP25S	94	130	186	310	425	610

High Strength Austenitic Stainless and Cast Stainless Steels		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
M2	KCM25S	40	59	101	130	195	330
	KCS25S	59	101	149	195	330	490
	KTP25S	91	125	180	300	410	590

Duplex Stainless Steel (Ferritic and Austenitic Mixture)		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
M3	KCM25S	40	79	160	130	260	525
	KCS25S	50	101	180	165	330	590
	KTP25S	91	122	180	300	400	590

WIPER TECHNOLOGY

Step 1 - Select the insert geometry

Cutting Parameters

Metric				
Negative Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FWS	0.05	0.14	0.5	2.5
-MWS	0.14	0.49	0.56	3.2

Inch				
Negative Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FWS	0.002	0.006	0.020	0.098
-MWS	0.006	0.019	0.022	0.126

Metric				
Positive Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FWS	0.05	0.14	0.5	2.5
-MWS	0.14	0.49	0.56	3.2

Inch				
Positive Insert Geometry				
	min feed	min DOC	max feed	max DOC
-FWS	0.002	0.006	0.020	0.098
-MWS	0.006	0.019	0.022	0.126

Step 2 - Select the grade

Negative Insert Geometry		
Cutting Condition	-FWS	-MWS
heavily interrupted cut	KTP25S	KTP25S
lightly interrupted cut	KTP25S	KTP25S
varying depth of cut, casting, or forging skin	KTP25S	KTP25S
smooth cut, pre-turned surface	KTP25S	KTP25S
smooth cut, high precision / tight tolerance	KTP25S	KTP25S

Positive Insert Geometry		
Cutting Condition	-FWS	-MWS
heavily interrupted cut	KTP25S	KTP25S
lightly interrupted cut	KTP25S	KTP25S
varying depth of cut, casting, or forging skin	KTP25S	KTP25S
smooth cut, pre-turned surface	KTP25S	KTP25S
smooth cut, high precision / tight tolerance	KTP25S	KTP25S

Step 3 - Select the cutting speed

Austenitic Stainless Steel		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
M1	KTP25S	94	130	186	310	425	610

High Strength Austenitic Stainless and Cast Stainless Steels		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
M2	KTP25S	91	125	180	300	410	590

Duplex Stainless Steel (Ferritic and Austenitic Mixture)		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
M3	KTP25S	91	122	180	300	400	590

TOOL SELECTION GUIDE - NON-FERROUS

Step 1 - Select the insert geometry

Cutting Parameters

Metric				
Positive Insert Geometry				
	min feed	min DOC	max feed	max DOC
-PPS	0.01	0.06	0.1	4.5

Inch				
Positive Insert Geometry				
	min feed	min DOC	max feed	max DOC
-PPS	0.0004	0.002	0.0039	0.177

Step 2 - Select the grade

Positive Insert Geometry	
Cutting Condition	-PPS
heavily interrupted cut	-
lightly interrupted cut	KN10S
varying depth of cut, casting, or forging skin	KN10S
smooth cut, pre-turned surface	KN10S
smooth cut, high precision / tight tolerance	KN10S

NOTE: Bold is first choice when showing multiple grades.

Step 3 - Select the cutting speed

Wrought Aluminum Alloys		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
N1	KN10S	198	488	616	650	1600	2020

Low-Silicon Aluminum Alloys and Magnesium Alloys; Si12.2%		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
N2	KN10S	101	451	600	330	1480	1970

Copper, Brass, Zinc-Based on a Machinability Index Range of 70-100		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
N4	KN10S	107	259	366	350	850	1200

Nylon, Plastics, Rubbers, Phenolics, Resins, Fiberglass		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
N5	KN10S	101	149	351	330	490	1150

TOOL SELECTION GUIDE - HEAT RESISTANT ALLOYS & TITANIUM ALLOYS

Step 1 - Select the insert geometry

Cutting Parameters

Metric					Inch				
Positive Insert Geometry					Positive Insert Geometry				
	min feed	min DOC	max feed	max DOC		min feed	min DOC	max feed	max DOC
-FFS	0.02	0.13	0.12	1.26	-FFS	0.0008	0.005	0.0047	0.050
-LFS	0.02	0.19	0.15	2.7	-LFS	0.0008	0.007	0.0059	0.106
-PPS	0.01	0.06	0.1	4.5	-PPS	0.0004	0.002	0.0039	0.177

Step 2 - Select the grade

Positive Insert Geometry			
Cutting Condition	-FFS	-LFS	-PPS
heavily interrupted cut	-	-	-
lightly interrupted cut	-	KCS25S/KCM25S	-
varying depth of cut, casting, or forging skin	-	KCS25S/KCM25S	KCS25S/KCM25S
smooth cut, pre-turned surface	KCS25S/KCM25S	KCS25S/KCM25S	KCS25S/KCM25S/KN10S
smooth cut, high precision / tight tolerance	KCS25S/KCM25S	KCS25S/KCM25S	KCS25S/KCM25S/KN10S

NOTE: Bold is first choice when showing multiple grades.

Step 3 - Select the cutting speed

Iron-Based, Heat-Resistant Alloys; 160-260 HB; 25-48 HRC; 500-1200 Mpa Tensile Strength		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
S1	KN10S	9	30	76	30	100	250
	KCS25S	40	79	140	130	260	460
	KCM25S	9	40	61	30	130	200

Cobalt-Based, Heat-Resistant Alloys; 250-450 HB; 25-48 HRC; 1000-1450 Tensile Strength		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
S2	KN10S	9	34	76	30	110	250
	KCS25S	40	79	140	130	260	460
	KCM25S	9	30	61	30	100	200

Nickel-Based, Heat-Resistant Alloys 160-450HB; <48 HRC; 600-1700 Tensile Strength		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
S3	KN10S	9	40	76	30	130	250
	KCS25S	40	79	140	130	260	460
	KCM25S	9	40	61	30	130	200

Titanium and Titanium Alloys 300-400 HB; 33-48 HRC; 900-1600 Tensile Strength		m/min			SFM		
material group	grade	MIN	START	MAX	MIN	START	MAX
S4	KN10S	9	46	76	30	150	250
	KCS25S	40	79	140	130	260	460