

Modular Drills

Tool Selection GuideH2-H3
KenTipH4-H15
KSEMH16-H44
KSEM PLUSH46-H59



modular drills with internal coolant channel		standard*						standard range				
		grade/series	● first choice ○ alternate choice						diameter range			
			P	M	K	N	S	H	hole tolerance	D1 mm min-max	D1 inch min-max	drilling depth L/D1
KenTIP™ with front clamping mechanism												
	KenTIP inserts	KCP15 HP	●		○			IT9-IT11	7,94-27,99	.3125-1.1020		
		KC7410 HPC			●				7,94-27,99	.3125-1.1020		
		KC7410 HPCCL			●				7,94-26,19	.3125-1.0310		
		KC7320 HPL		●					7,94-27,99	.3125-1.1020		
	chamfering inserts	KC7014 FAS-GD	○	○	○	●	○		12,50-36,01	.4921-1.4177		
		KC7215 FAS GD	●	○	●	○	●					
	KenTIP bodies								7,94≤Ø<9,50	.3125≤Ø<.3740	max 1.5-8 x D	
									9,50≤Ø<11,00	.3740≤Ø<.4331		
										11,00≤Ø<12,50		.4331≤Ø<.4921
										12,50≤Ø<14,00		.4921≤Ø<.5512
										14,00≤Ø<15,50		.5512≤Ø<.6102
										15,50≤Ø<16,50		.6102≤Ø<.6496
										16,50≤Ø<20,50		.6496≤Ø<.8071
										20,50≤Ø<21,00		.8071≤Ø<.8268
								21,00≤Ø<27,99	.8268≤Ø<1.1020			
KSEM™ for extended length and drilling diameters												
	KSEM inserts	KC7235 HP	●		○			IT9-IT11	12,50-40,00	.4921-1.5748		
		KC7315 HP/HPG	●		○				12,50-40,00	.4921-1.5748		
		KC7410 HPL			●				12,50-40,00	.4921-1.5748		
		KC7410 HPCCL			●				12,50-32,00	.4921-1.2598		
		KC7320 HPL		●					12,50-40,00	.4921-1.5748		
		KC7135 PC	●	●					12,50-40,00	.4921-1.5748		
	chamfering inserts	KC7015 TPGX-GD		●		○			12,50-40,00	.4921-1.5748		
		KC7140 TPGX-GD	●	○	○	●	○					
		KC7315 TPGX-GD	○	○	●	○	●					
	KSEM bodies	WN							12,50≤Ø<16,50	.4921≤Ø<.6496	1-10 x D	
									16,50≤Ø<20,00	.6496≤Ø<.7874		
									20,00≤Ø≤32,00	.7874≤Ø≤1.2598		
		WD								32,00<Ø≤40,00	1.2598<Ø≤1.5748	1-5 x D
WN chamfer								12,50≤Ø<16,50	.4921≤Ø<.6496	1 x D		
								16,50≤Ø<20,00	.6496≤Ø<.7874			
								20,00≤Ø≤32,00	.7874<Ø≤1.2598			
								32,00<Ø≤40,00	1.2598<Ø<1.5748	1 x D		
KSEM PLUS™ for largest drilling depths and diameters												
	heads	A1 (regular)						IT9-IT11	28,00-70,00	1.1020-2.7559		
		B1 (guided)						IT9-IT11	B1 head available in 2012			
	KSEM PLUS inserts	KC7315 HPG	●	●	○	○	○		14,00 - 34,00			
		KC7410 HPC			●				<i>PDD reference only</i>			
	DFR™ inserts	KC7315 DFR-GD	●	○	○	○	●		(28,00-31,00)	(1.1020-1.2210)		
		KC7140 DFR-LD	●	●	○	○	○					
		KC7225 DFR-MD	○	○	●	●	○					
	DFT™ inserts	KC7315 DFT-HP	●	●	○	○	○		(31,75-70,00)	(1.2500-2.7560)		
		KC7140 DFT-MD	●	●	○	○	○					
	DFC inserts for B1 heads only	KCU40 DFC- HP	●	○	○	●	●		(28,00-70,00)	(1.1020-2.7560)		
		KCU25 DFC- HP	○	○	●	○	○					
		KC7140 DFC-MD	●	●	○	○	○					
	guiding pads for B1 heads only	KCU 40 DPT	●	●	●	●	●		B1 head available in 2012			
	KSEM PLUS bodies	WD						IT9-IT11	31,75≤Ø<40,00	1.2500≤Ø<2.7560	3-10 x D	
									40,00≤Ø≤70,00	1.5748≤Ø≤2.5590		
		SSF							IT9-IT11	31,75≤Ø<40,00	1.2500-1.5748	3-10 x D
										40,00≤Ø≤70,00	1.5748-2.5590	

* Apart from our standard drills, we can offer you a wide variety of special coating solutions and edge preparations to fulfill all your needs. If a specific drill is not suitable for your workpiece material, please contact our **Engineered Solutions Department**.

■ Standard Product
□ Engineered Solutions

engineered solution range			coolant	drilling	inclined exit	stacked plates	flat bottom	counter-sinking	counter-boring	cross hole	2 flute 2 margin cooled	2 flute 4 margin cooled	corner chamfer $\leq H_6$	plain shank $\leq H_6$	Whistle Notch 2°	WD shank	flat shank	SSF shank	KM [®] shank	HSX shank	page(s)
diameter range		max drilling depth																			
D1 metric min-max	D1 inch min-max																				
7,94-27,99	.3125-1.1020	-	■	■	□	■	□				■	□	□								H6
12,50-36,01	.4921-1.4177	-						■													H14
7,94 ≤ Ø < 9,50	.3125 ≤ Ø < .3740	12 x D	■	■	■	■	□	**	□					■	□	□	■	□	□	□	H12
9,50 ≤ Ø < 11,00	.3740 ≤ Ø < .4331	13 x D	■	■	■	■	□	**	□					■	□	□	■	□	□	□	
11,00 ≤ Ø < 12,50	.5424 ≤ Ø < .4921	14 x D	■	■	■	■	□	**	□					■	□	□	■	□	□	□	
12,50 ≤ Ø < 14,00	.4921 ≤ Ø < .5512	15 x D	■	■	■	■	□	**	□					■	□	□	■	□	□	□	
14,00 ≤ Ø < 15,00	.5512 ≤ Ø < .6102	16 x D	■	■	■	■	□	**	□					■	□	□	■	□	□	□	
15,50 ≤ Ø < 16,50	.6102 ≤ Ø < .6496	17 x D	■	■	■	■	□	**	□					■	□	□	■	□	□	□	
16,50 ≤ Ø < 20,50	.6496 ≤ Ø < .8070	18 x D	■	■	■	■	□	**	□					■	□	□	■	□	□	□	
20,50 ≤ Ø < 21,00	.8070 ≤ Ø < .8267	20 x D	■	■	■	■	□	**	□					■	□	□	■	□	□	□	
21,00 ≤ Ø < 27,99	.8267 ≤ Ø < 1.1010	500,0mm	■	■	■	■	□	**	□					■	□	□	■	□	□	□	
12,50-40,00	.4921-1.5748	-		■	■	■	□				■/□	■/□	□								H17
		-		■	■	■	□				■/□	■/□	□								
		-		■	■	■	□				■/□	■/□	■								
		-		■	■	■	□				■	□	□								
		-		■	■	■	□				■/□	■/□	□								
12,50-40,00	.4921-1.5748	-						■													H36
		-						■													
		-						■													
12,50 ≤ Ø < 16,50	.4921 ≤ Ø < .6496	15 x D	■	■	■	■	□	□	□					□	■	□	□	□	□	□	H25
16,50 ≤ Ø < 20,00	.6496 ≤ Ø < .7874	18 x D	■	■	■	■	□	□	□					□	■	□	□	□	□	□	
20,00 ≤ Ø ≤ 32,00	.7874 ≤ Ø ≤ 1.2598	20 x D	■	■	■	■	□	□	□					□	■	□	□	□	□	□	
32,00 ≤ Ø ≤ 40,00	1.2598 ≤ Ø ≤ 1.5748	20 x D (max 750mm)	■	■	■	■	□	□	□					□	□	■	□	□	□	□	
12,50 ≤ Ø < 16,50	.4921 ≤ Ø < .6496	1 x D	■	■	■	■	□	■	□					□	■	□	□	□	□	□	H25
16,50 ≤ Ø < 20,00	.6496 ≤ Ø < .7874		■	■	■	■	□	■	□					□	■	□	□	□	□	□	
20,00 ≤ Ø ≤ 32,00	.7874 ≤ Ø ≤ 1.2598		■	■	■	■	□	■	□					□	■	□	□	□	□	□	
32,00 ≤ Ø ≤ 40,00	1.2598 ≤ Ø ≤ 1.5748		■	■	■	■	□	■	□					□	□	■	□	□	□	□	
28,00-70,00	1.1020-2.7560	-	■	■	■	■	□			■											H50
B1 head available in 2012		-	■	■	■	■	□			■											
14,00-34,00	PDD reference only	-		■	■	■	□				■/□	■/□	□								H52
		-		■	■	■	□				■/□	■/□	□								
28,00 ≤ Ø ≤ 31,75	1.1020 ≤ Ø ≤ 1.2500	-		■	■	■	□				■/□	■/□	□								H53
		-		■	■	■	□				■/□	■/□	□								
31,75 ≤ Ø ≤ 70,00	1.2500 ≤ Ø ≤ 2.7560	-		■	■	■	□				■/□	■/□	□								-
		-		■	■	■	□				■/□	■/□	□								
28,00 ≤ Ø ≤ 70,00	1.1020 ≤ Ø ≤ 2.7560	-		■	■	■	□			■	■/□	■/□	□								-
70,00 ≤ Ø ≤ 127,00	2.7560 ≤ Ø ≤ 5.0000	-		■	■	■	□			■	■/□	■/□	□								
diameters >70mm available in 2012		-		■	■	■	□														
B1 head available in 2012		-		■	■	■	□			■											H48
31,75 ≤ Ø < 40,00	1.2500 ≤ Ø < 2.7560	3-20x (max 750mm)	■	■	■	■	□	□	□							■	□	□	□	□	
40,00 ≤ Ø ≤ 70,00	1.5748 ≤ Ø ≤ 2.5590	3-8 x D	■	■	■	■	□	□	□							■	□	□	□	□	
diameters >70mm available in 2012			■	■	■	■	□	□	□											□	
31,75 ≤ Ø < 40,00	1.2500 ≤ Ø < 2.7560	3-20x (max 750mm)	■	■	■	■	□	□	□								□	■	□	□	H48
40,00 ≤ Ø ≤ 70,00	1.5748 ≤ Ø ≤ 2.5590	3-8 x D	■	■	■	■	□	□	□										□	□	
70,00 ≤ Ø ≤ 127,00	2.7559 ≤ Ø ≤ 5.0000	3-8 x D	■	■	■	■	□	□	□										□	□	
diameters >70mm available in 2012			■	■	■	■	□	□	□											□	□

** Alternative chamfering solutions are available in combination with SEFAS™ or BF; see page I1.
Please use this table for orientation purposes only. Detailed information on available products (inserts, toolholders, etc.) can be found on the indicated pages of this catalog.

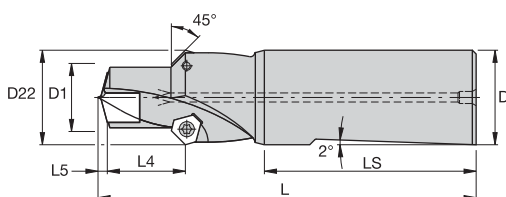


Modular Drills

KSEM Chamfering Solutions

- Drilling and chamfering in one operation.
- No height adjustment required.
- Low setup time.
- Use standard inserts.
- Tool bodies available as standard.

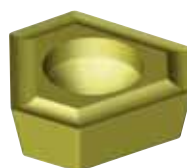
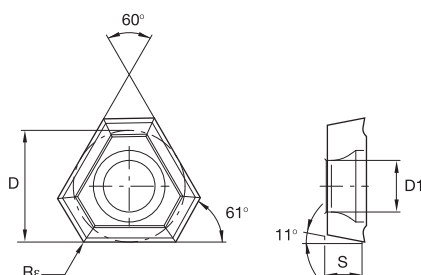
- Use any KSEM insert blade diameter within the designated seat size.
- Drill shipped with central lock screw, insert screw, and wrenches.
- Order insert blades separately; see pages H42–H43.
- Order TPGX chamfering insert separately; see page H36.



■ KSEM Bodies • WN/WD Shank with Chamfer • 1 x D • Metric



	D1		D1 max		D22	L	L4 max	L5	LS	D	seat size	chamfer insert	central lock screw	wrench
	mm	in	mm	in										
KSEM125R1WN16F45M	12,500	.4921	13,500	.5314	18	107	14	2,0	48,0	16	C	TPGX0902ZPR	364.017	170.051
KSEM136R1WN16F45M	13,510	.5319	14,500	.5708	19	107	15	2,2	48,0	16	B	TPGX0902ZPR	364.016	170.289
KSEM146R1WN20F45M	14,510	.5713	15,874	.6249	20	109	16	2,3	50,0	20	A	TPGX0902ZPR	364.016	170.289
KSEM160R1WN20F45M	16,000	.6299	18,000	.7086	22	110	18	2,5	50,0	20	1	TPGX1102ZPR	364.010	170.270
KSEM181R1WN25F45M	18,010	.7091	19,999	.7873	25	118	20	2,9	56,0	25	2	TPGX1102ZPR	364.010	170.270
KSEM200R1WN25F45M	20,000	.7874	22,000	.8661	28	120	22	3,2	56,0	25	3	TPGX1303ZPR	364.011	170.272
KSEM221R1WN25F45M	22,010	.8665	24,000	.9448	30	123	24	3,5	56,0	25	4	TPGX1303ZPR	364.011	170.272
KSEM241R1WN32F45M	24,010	.9453	26,000	1.0236	34	129	26	3,8	60,0	32	5	TPGX1603ZPR	364.012	170.055
KSEM261R1WN32F45M	26,010	1.0240	28,000	1.1023	36	131	28	4,0	60,0	32	6	TPGX1603ZPR	364.012	170.055
KSEM281R1WN32F45M	28,016	1.1028	30,000	1.1811	38	134	30	4,3	60,0	32	7	TPGX1603ZPR	364.013	170.276
KSEM301R1WN32F45M	30,010	1.1815	32,000	1.2598	40	136	32	4,6	60,0	32	8	TPGX1603ZPR	364.013	170.276
KSEM321R1WD50F45M	32,010	1.2602	36,000	1.4173	42	155	36	4,9	68,0	50	9	TPGX1603ZPR	364.015	170.276
KSEM361R1WD50F45M	36,010	1.4177	40,000	1.5748	46	165	40	5,5	68,0	50	10	TPGX1603ZPR	364.015	170.276



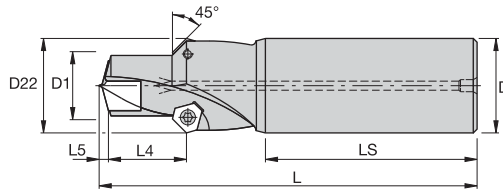
- first choice
- alternate choice

P	●	○	○
M	●	○	○
K	○	○	○
N	○	○	○
S	○	○	○
H	○	○	○

■ TPGX-GD Geometry

catalog number	D		S		Re		D1		KC7015	KC7140	KC7315
	mm	in	mm	in	mm	in	mm	in			
TPGX0902ZPRGD	5,56	.219	2,38	.094	0,20	.008	2,50	.098	●	●	●
TPGX1102ZPRGD	6,35	.250	2,38	.094	0,20	.008	2,85	.112	●	●	●
TPGX1303ZPRGD	7,94	.313	3,18	.125	0,20	.008	3,40	.134	●	●	●
TPGX1603ZPRGD	9,52	.375	3,18	.125	0,20	.008	4,40	.173	●	●	●

- Use any KSEM insert blade diameter within the designated seat size.
- Drill shipped with central lock screw, insert screw, and wrenches.
- Order insert blade separately; see pages H42–H43.
- Order TPGX chamfering insert separately; see page H36.

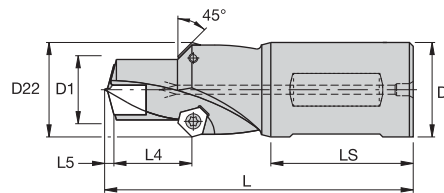


Modular Drills

■ **KSEM Bodies • Round Shank with Chamfer • 1 x D • Inch**



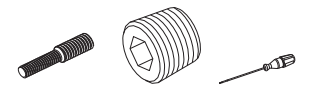
	D1		D1 max		D22	L	L4 max	L5	LS	D	seat size	chamfer insert	central lock screw	wrench
	mm	in	mm	in										
KSEM0493R1SS075F45	12,500	.4921	13,500	.5314	.70	3.75	.53	.08	2.00	.750	C	TPGX0902ZPR	364.017	170.051
KSEM0532R1SS075F45	13,600	.5350	14,500	.5708	.74	3.75	.57	.08	2.00	.750	B	TPGX0902ZPR	364.016	170.289
KSEM0571R1SS075F45	14,600	.5750	15,874	.6249	.77	3.75	.62	.09	2.00	.750	A	TPGX0902ZPR	364.016	170.289
KSEM0625R1SS075F45	15,880	.6250	18,000	.7086	.88	3.75	.71	.10	2.00	.750	1	TPGX1102ZPR	364.010	170.270
KSEM0709R1SS075F45	18,260	.7190	19,999	.7873	.96	3.75	.78	.11	2.00	.750	2	TPGX1102ZPR	364.010	170.270
KSEM0788R1SS100F45	20,000	.7870	22,000	.8661	1.11	5.00	.87	.13	3.00	1.000	3	TPGX1303ZPR	364.011	170.272
KSEM0867R1SS100F45	22,230	.8750	24,000	.9448	1.19	5.00	.94	.14	3.00	1.000	4	TPGX1303ZPR	364.011	170.272
KSEM0945R1SS100F45	24,500	.9650	26,000	1.0236	1.34	5.25	1.02	.15	3.00	1.000	5	TPGX1603ZPR	364.012	170.055
KSEM1024R1SS125F45	26,187	1.0310	28,000	1.1023	1.42	5.75	1.10	.16	3.25	1.250	6	TPGX1603ZPR	364.012	170.055
KSEM1103R1SS125F45	28,169	1.1090	30,000	1.1811	1.50	5.75	1.18	.17	3.25	1.250	7	TPGX1603ZPR	364.013	170.276
KSEM1182R1SS125F45	30,160	1.1880	32,000	1.2598	1.58	5.75	1.26	.18	3.25	1.250	8	TPGX1603ZPR	364.013	170.276
KSEM1260R1SS125F45	32,500	1.2800	36,000	1.4173	1.66	6.00	1.42	.19	3.25	1.250	9	TPGX1603ZPR	364.015	170.276
KSEM1418R1SS125F45	36,119	1.4220	40,000	1.5748	1.82	6.00	1.57	.22	3.25	1.250	10	TPGX1603ZPR	364.015	170.276



■ **KSEM Bodies • Flanged Shank with Chamfer • 1 x D • Inch**

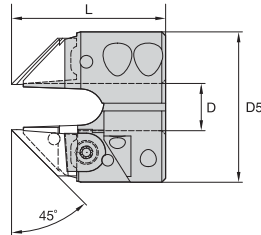


	D1		D1 max		D22	L	L4 max	L5	LS	D	seat size	chamfer insert	central lock screw	pipe plug	wrench
	mm	in	mm	in											
KSEM0493R1SSF075F45	12,500	.4921	13,500	.5314	.70	4.00	.53	.08	2.00	.750	C	TPGX0902ZPR	364.017	HSFS0125	170.051
KSEM0532R1SSF075F45	13,600	.5350	14,500	.5708	.74	4.25	.57	.08	2.00	.750	B	TPGX0902ZPR	364.016	HSFS0125	170.289
KSEM0571R1SSF075F45	14,600	.5750	15,874	.6249	.77	4.25	.62	.09	2.00	.750	A	TPGX0902ZPR	364.016	HSFS0125	170.289
KSEM0625R1SSF075F45	15,880	.6250	18,000	.7086	.88	4.25	.71	.10	2.00	.750	1	TPGX1102ZPR	364.010	HSFS0125	170.270
KSEM0709R1SSF075F45	18,260	.7190	19,999	.7873	.96	4.25	.78	.11	2.00	.750	2	TPGX1102ZPR	364.010	HSFS0125	170.270
KSEM0788R1SSF100F45	20,000	.7870	22,000	.8661	1.11	5.50	.87	.13	3.00	1.000	3	TPGX1303ZPR	364.011	HSFS0125	170.272
KSEM0867R1SSF100F45	22,230	.8750	24,000	.9448	1.19	5.50	.94	.14	3.00	1.000	4	TPGX1303ZPR	364.011	HSFS0125	170.272
KSEM0945R1SSF100F45	24,500	.9650	26,000	1.0236	1.34	5.75	1.02	.15	3.00	1.000	5	TPGX1603ZPR	364.012	HSFS0125	170.055
KSEM1024R1SSF125F45	26,187	1.0310	28,000	1.1023	1.42	5.75	1.10	.16	3.25	1.250	6	TPGX1603ZPR	364.012	HSFS0125	170.055
KSEM1103R1SSF125F45	28,169	1.1090	30,000	1.1811	1.50	6.25	1.18	.17	3.25	1.250	7	TPGX1603ZPR	364.013	HSFS0125	170.276
KSEM1182R1SSF125F45	30,160	1.1880	32,000	1.2598	1.58	6.25	1.26	.18	3.25	1.250	8	TPGX1603ZPR	364.013	HSFS0125	170.276
KSEM1260R1SSF125F45	32,500	1.2800	36,000	1.4173	1.66	6.25	1.42	.19	3.25	1.250	9	TPGX1603ZPR	364.015	HSFS0125	170.276
KSEM1418R1SSF125F45	36,119	1.4220	40,000	1.5748	1.82	6.25	1.57	.22	3.25	1.250	10	TPGX1603ZPR	364.015	HSFS0125	170.276



- The NEW chamfering rings for KSEM are available in a diameter range of 12,5–32mm.
- The KSEM SEF ring is double-edged, features a more rigid design to withstand high feed rates, and reduces time-consuming deburring and small chamfer operations.
- Reduce machining time — combine drilling and chamfering in one operation.
- Short-term availability — standard tooling off-the-shelf — KSEM body and inserts, SEF ring, and SEFAS™ inserts.
- Flexibility — adjustable drilling depth.
- For speed and feed recommendations, please refer to catalog recommendations based on geometry and tool body length of the carrying KSEM tool.

- Small chamfers up to 1mm do not need further feed reduction.
- At deeper chamfers, a feed rate reduction of 50% is highly recommended to avoid vibrations and movement of the ring during operation.
- For inserts, please refer to SEFAS System on page I26, insert 3.42807R021.

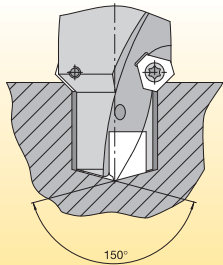


■ Chamfer Rings

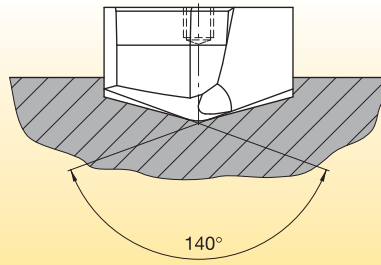


catalog number	D		L		D5		clamp assy	chip deflector	chip deflector screw	drill clamp screw	socket-head cap screw
	mm	in	mm	in	mm	in					
KSEM125SEFM	12,5	.4921	40	1.57	39	1.54	360.551	360.660	128.508	191.726	—
KSEM130SEFM	13,0	.5118	40	1.57	39	1.54	360.551	360.660	128.508	191.726	—
KSEM135SEFM	13,5	.5315	40	1.57	39	1.54	360.551	360.660	128.508	191.726	—
KSEM140SEFM	14,0	.5512	40	1.57	40	1.57	360.551	360.661	128.508	199.123	—
KSEM145SEFM	14,5	.5709	40	1.57	40	1.57	360.551	360.661	128.508	199.123	—
KSEM150SEFM	15,0	.5906	40	1.57	40	1.57	360.551	360.662	128.508	199.123	—
KSEM155SEFM	15,5	.6102	40	1.57	40	1.57	360.551	360.662	128.508	199.123	—
KSEM160SEFM	16,0	.6299	42	1.65	43	1.69	360.551	360.663	128.508	199.123	—
KSEM165SEFM	16,5	.6496	42	1.65	43	1.69	360.551	360.663	128.508	199.123	—
KSEM170SEFM	17,0	.6693	42	1.65	43	1.69	360.551	360.663	128.508	199.123	—
KSEM175SEFM	17,5	.6890	42	1.65	43	1.69	360.551	360.663	128.508	199.123	—
KSEM180SEFM	18,0	.7087	42	1.65	43	1.69	360.551	360.663	128.508	199.123	—
KSEM185SEFM	18,5	.7283	42	1.65	43	1.69	360.551	360.664	128.508	199.123	—
KSEM190SEFM	19,0	.7480	42	1.65	43	1.69	360.551	360.664	128.508	199.123	—
KSEM195SEFM	19,5	.7677	42	1.65	43	1.69	360.551	360.664	128.508	199.123	—
KSEM200SEFM	20,0	.7874	48	1.89	50	1.97	360.551	360.665	128.510	199.123	—
KSEM205SEFM	20,5	.8071	48	1.89	50	1.97	360.551	360.665	128.510	199.123	—
KSEM210SEFM	21,0	.8268	48	1.89	50	1.97	360.551	360.665	128.510	199.123	—
KSEM215SEFM	21,5	.8465	48	1.89	50	1.97	360.551	360.665	128.510	199.123	—
KSEM220SEFM	22,0	.8661	48	1.89	50	1.97	360.551	360.665	128.510	199.123	—
KSEM225SEFM	22,5	.8858	50	1.97	50	1.97	360.551	360.666	128.510	—	125.516
KSEM230SEFM	23,0	.9055	50	1.97	50	1.97	360.551	360.666	128.510	—	125.516
KSEM235SEFM	23,5	.9252	50	1.97	50	1.97	360.551	360.666	128.510	—	125.516
KSEM240SEFM	24,0	.9449	50	1.97	50	1.97	360.551	360.666	128.510	—	125.516
KSEM245SEFM	24,5	.9646	54	2.13	55	2.17	360.551	360.667	128.510	—	125.620
KSEM250SEFM	25,0	.9843	54	2.13	55	2.17	360.551	360.667	128.510	—	125.620
KSEM255SEFM	25,5	1.0039	54	2.13	55	2.17	360.551	360.667	128.510	—	125.620
KSEM260SEFM	26,0	1.0236	54	2.13	55	2.17	360.551	360.667	128.510	—	125.620
KSEM265SEFM	26,5	1.0433	56	2.20	55	2.17	360.551	360.668	128.510	—	125.620
KSEM270SEFM	27,0	1.0630	56	2.20	55	2.17	360.551	360.668	128.510	—	125.620
KSEM275SEFM	27,5	1.0827	56	2.20	55	2.17	360.551	360.668	128.510	—	125.620
KSEM280SEFM	28,0	1.1024	56	2.20	55	2.17	360.551	360.668	128.510	—	125.620
KSEM285SEFM	28,5	1.1220	61	2.40	60	2.36	360.551	360.669	128.510	—	125.620
KSEM290SEFM	29,0	1.1417	61	2.40	60	2.36	360.551	360.669	128.510	—	125.620
KSEM295SEFM	29,5	1.1614	61	2.40	60	2.36	360.551	360.669	128.510	—	125.620
KSEM300SEFM	30,0	1.1811	61	2.40	60	2.36	360.551	360.669	128.510	—	125.620
KSEM305SEFM	30,5	1.2008	61	2.40	60	2.36	360.551	360.670	128.510	—	125.620
KSEM310SEFM	31,0	1.2205	61	2.40	60	2.36	360.551	360.670	128.510	—	125.620
KSEM315SEFM	31,5	1.2402	61	2.40	60	2.36	360.551	360.670	128.510	—	125.620
KSEM320SEFM	32,0	1.2598	61	2.40	60	2.36	360.551	360.670	128.510	—	125.620

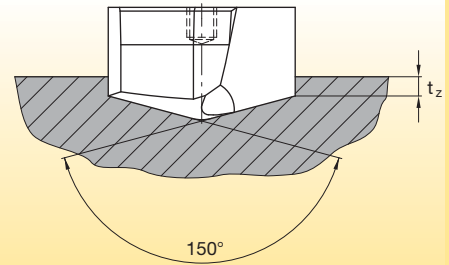
NOTE: Order inserts separately; see the SEFAS system, page I26, insert 3.42807R021.



Centering using PCM inserts



HPM inserts of the follower drill



Precentering with FAS centering tool

Why is precentering necessary?

- Generally speaking, for drilling depths 5x the nominal diameter and above (5 x D).
- In unstable conditions (workpiece and tool clamping).

Why precenter using PCM inserts?

- Soft-cut entry of follower drill due to 150° point angle of the PCM insert.
- No extension of the follower drill in the entry area.
- No breaks at the cutting edges.

What happens if...

...a center cannot be used for technical reasons?

- Spot drill with normal insert at normal and reduced cutting data (approximately 1/2 vc and approximately 1/2 vf), then continue drilling with regular cutting data without lifting off/stopping.

...there is no suitable PCM cutting insert in the standard range (ϕ)?

- Manufacture to order using PCM geometry and k7 tolerance.
or
- Center using the same cutter insert as for the follower drill but without the cutting edges penetrating the workpiece (spot drill ϕ approximately 90% of drill ϕ D1).

...only one tool body is required?

- Enter the workpiece with 50% feed until the cutting edges and the heels have penetrated the hole, then continue drilling without lifting off/stopping using regular cutting data.

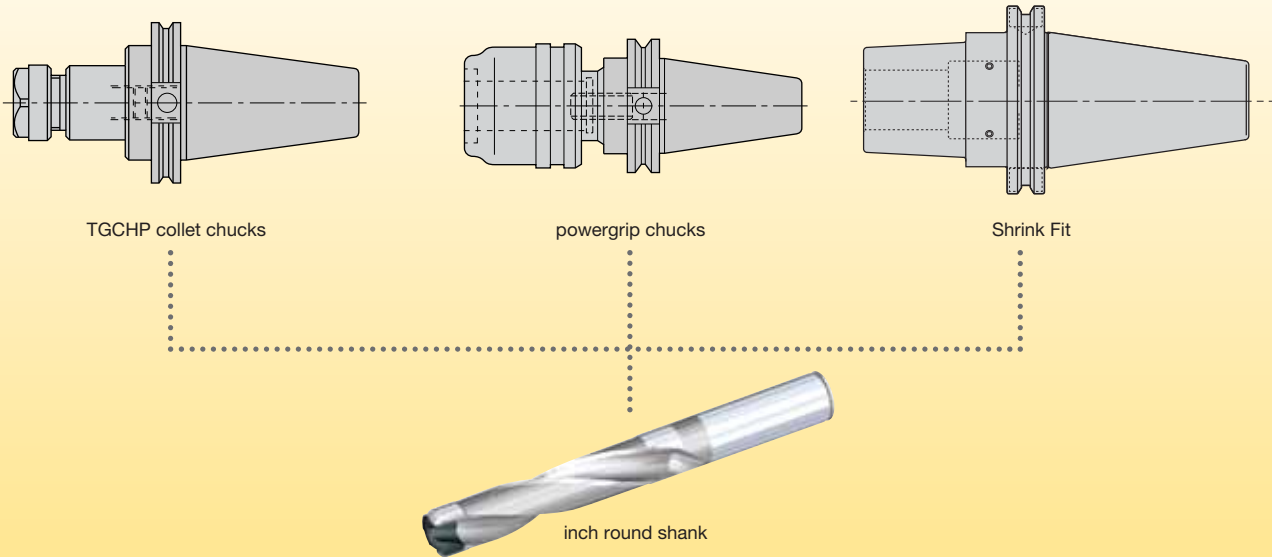
Other problems

Short hole drilling with precentering support tool?

- Up to 1x nominal diameter (1 x D) possible.

Rotating Applications

KSEM inch drills with round shanks (no flats) are specifically designed for rotating applications where the drill rotates and the workpiece remains stationary. The shank to drill-point location of these drills is held to an extremely close tolerance. To maintain accuracy, and get maximum performance from the KSEM drill, use only the approved toolholding method shown below.

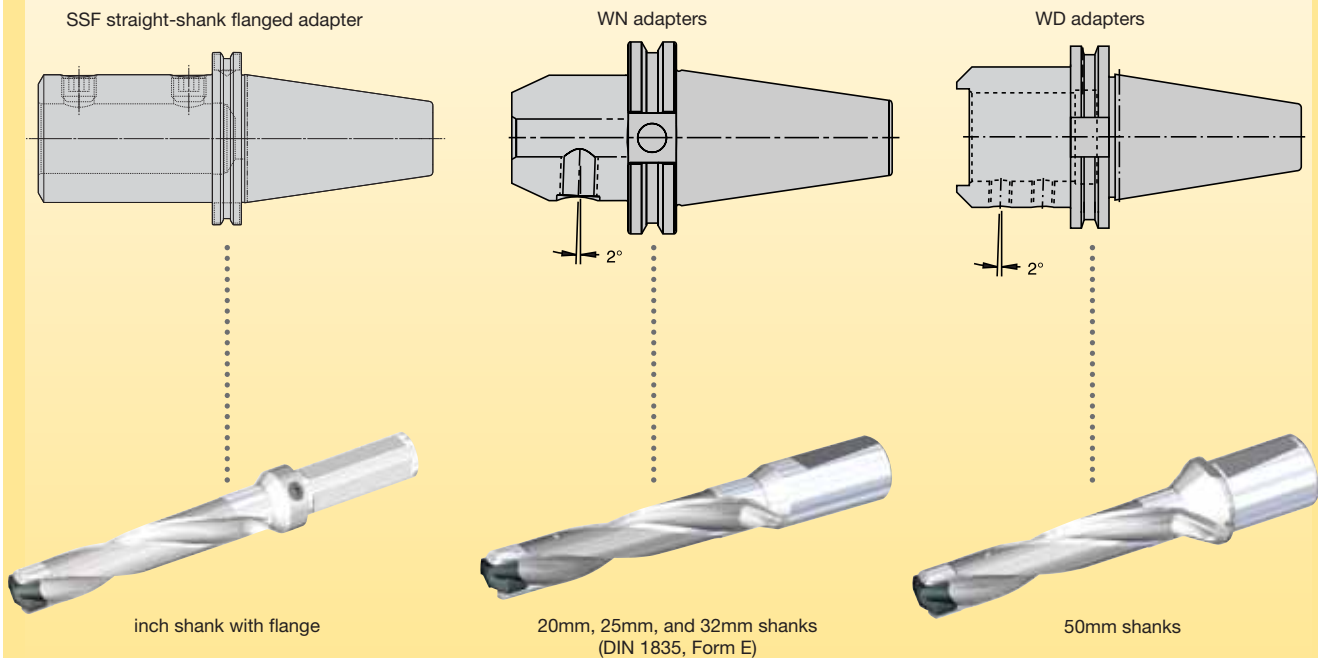


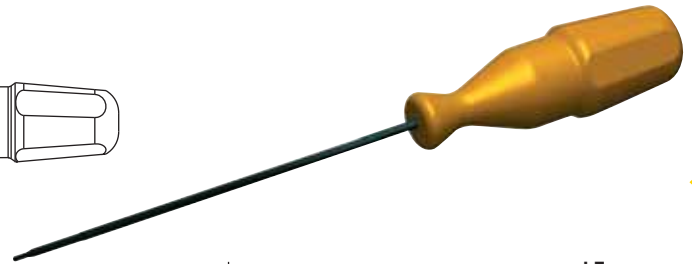
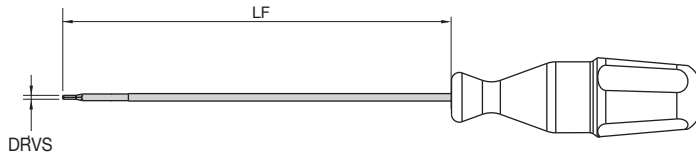
Inch Drill Bodies with Flange

KSEM inch drills with a flange can be used in rotating applications where the drill rotates and the workpiece remains stationary. To maintain accuracy and get maximum performance from the drill, use only the approved toolholding method shown here.

Metric Drill Bodies with a 2° Whistle Notch™

KSEM metric drills come equipped with 2° Whistle Notch shanks. The 20mm, 25mm, and 32mm diameter shanks use WN adapters. The 50mm shank uses a WD adapter. Choose the correct adapter to minimize runout and securely hold the drill.



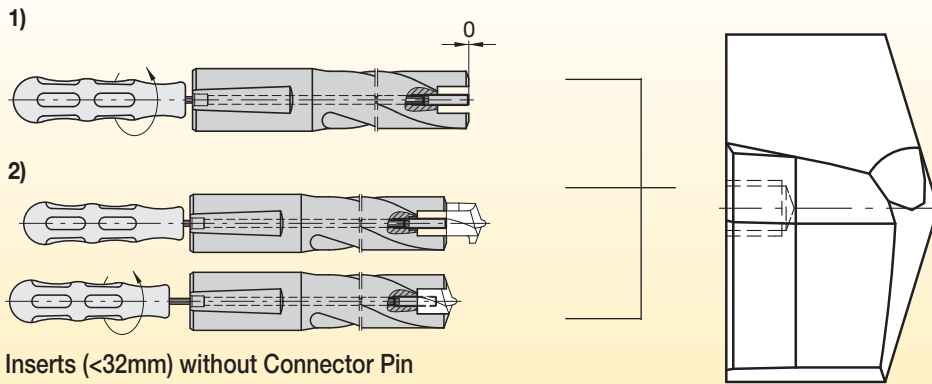


■ KSEM Spare Wrenches

order number	catalog number	DRVS	LF	
			mm	in
1126021	170.270	1.5mm	185,00	7
1126032	170.271	1.5mm	225,00	9
1510773	170.281	1.5mm	297,00	12
1255899	170.285	1.5mm	351,00	14
1126040	170.272	2mm	210,00	8
1126049	170.273	2mm	260,00	10
1510776	170.282	2mm	343,00	14
1255900	170.286	2mm	405,00	16
1126066	170.274	2.5mm	240,00	9
1126072	170.275	2.5mm	295,00	12
1510779	170.283	2.5mm	393,00	15
1255901	170.287	2.5mm	459,00	18
1126079	170.276	3mm	265,00	10
1126088	170.277	3mm	330,00	13
1510781	170.284	3mm	439,00	17
1255902	170.288	3mm	513,00	20
1834819	170.294	T5	156,00	6
1836470	170.295	T5	188,00	7
1836471	170.296	T5	290,00	11
1795811	170.289	T6	156,00	6
1795956	170.290	T6	188,00	7
1795960	170.291	T6	290,00	11

Modular Drills

Mounting the Inserts



Inserts (<32mm) without Connector Pin

- 1) Use the screwdriver to set the threaded pin:
 - for inserts up to Ø 32mm, flush with the drill face.
 - for inserts bigger Ø 32mm, set 2mm below the drill face.
- 2) Tighten the insert using the screwdriver to fit securely in the insert seat.

To change the insert, turn the clamping screw counter-clockwise until the insert is released.

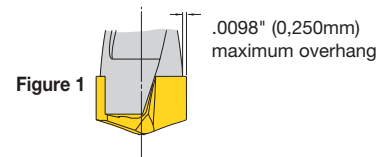
Repair of Damaged Threaded Pin

In the event that the central threaded pin becomes damaged, it can be removed after severing it in the tool body. To do this, drill beneath the insert seat in the tool body. The insert and threaded pin can then be removed. For information regarding the position and diameter of this repair hole, please refer to the manual (sheet 290.001 D/GB) supplied with the tool body.

NOTE: For inserts without a connector pin, avoid jamming during mounting through precise positioning.

Insert blades may be used, within limits, on different drill bodies. The insert blade must be of the same seat size. Overhang (see Figure 1) must be kept under .0098" (0,250mm) per side. For best drilling performance, rigidity, and efficient chip evacuation, always use the first-choice steel body. Performance may be compromised by using alternatives. In some applications, chips may bind between the drill body and the hole wall — especially when machining long-chipping materials like austenitic stainless steel and low-carbon steel.

(does not apply to stub length drills)



Modular Drills

diameter D		insert blade	seat size	first choice	alternate body 1	alternate body 2	alternate body 3	alternate body 4
inch	mm							
.492	12,50	KSEM1250	C	KSEM125..M	—	—	—	—
.500	12,70	KSEM0500	C	KSEM0500..	KSEM125..M	—	—	—
.509	12,93	KSEM0509	C	KSEM0509..	KSEM0500..	KSEM125..M	—	—
.512	13,00	KSEM1300	C	KSEM130..M	KSEM0509..	KSEM0500..	KSEM125..M	—
.516	13,10	KSEM0516	C	KSEM0516..	KSEM130..M	KSEM0509..	KSEM0500..	—
.531	13,50	KSEM1350	C	KSEM135..M	KSEM0531..	KSEM0516..	KSEM130..M	—
.547	13,89	KSEM0547	B	KSEM0547..	KSEM136..M	—	—	—
.551	14,00	KSEM1400	B	KSEM140..M	KSEM136..M	KSEM0547..	—	—
.563	14,29	KSEM0563	B	KSEM0563..	KSEM140..M	KSEM0547..	—	—
.571	14,50	KSEM1450	B	KSEM145..M	KSEM0563..	KSEM140..M	—	—
.578	14,68	KSEM0578	A	KSEM0578..	KSEM146..M	—	—	—
.591	15,00	KSEM1500	A	KSEM150..M	KSEM146..M	KSEM0578..	—	—
.594	15,08	KSEM0594	A	KSEM0594..	KSEM150..M	KSEM0578..	—	—
.609	15,48	KSEM0609	A	KSEM0609..	KSEM0594..	KSEM150..M	—	—
.610	15,50	KSEM1550	A	KSEM155..M	KSEM0609..	KSEM0594..	KSEM150..M	—
.625	15,88	KSEM0625	1	KSEM0625..	—	—	—	—
.630	16,00	KSEM1600	1	KSEM160..M	KSEM0625..	—	—	—
.634	16,09	KSEM0634	1	KSEM0634..	KSEM160..M	KSEM0625..	—	—
.641	16,27	KSEM0641	1	KSEM0641..	KSEM0634..	KSEM160..M	KSEM0625..	—
.650	16,50	KSEM1650	1	KSEM165..M	KSEM0641..	KSEM0634..	—	—
.656	16,67	KSEM0656	1	KSEM0656..	KSEM165..M	KSEM0641..	—	—
.669	17,00	KSEM1700	1	KSEM170..M	KSEM0656..	KSEM165..M	—	—
.672	17,07	KSEM0672	1	KSEM0672..	KSEM170..M	KSEM0656..	—	—
.688	17,46	KSEM0688	1	KSEM0688..	KSEM0672..	KSEM170..M	—	—
.689	17,50	KSEM1750	1	KSEM175..M	KSEM0688..	KSEM0672..	KSEM170..M	—
.700	17,78	KSEM0700	1	N/A	KSEM175..M	KSEM0688..	—	—
.703	17,86	KSEM0703	1	KSEM0703..	KSEM175..M	KSEM0688..	—	—
.709	18,00	KSEM1800	1	KSEM180..M	KSEM0703..	KSEM175..M	—	—
.719	18,26	KSEM0719	2	KSEM0719..	KSEM181..M	—	—	—
.728	18,50	KSEM1850	2	KSEM185..M	KSEM0719..	KSEM181..M	—	—
.734	18,65	KSEM0734	2	KSEM0734..	KSEM185..M	KSEM0719..	—	—
.748	19,00	KSEM1900	2	KSEM190..M	KSEM0734..	KSEM185..M	—	—
.750	19,05	KSEM0750	2	KSEM0750..	KSEM190..M	KSEM0734..	—	—
.759	19,27	KSEM0759	2	KSEM0759..	KSEM0750..	KSEM190..M	—	—
.766	19,45	KSEM0766	2	KSEM0766..	KSEM0759..	KSEM0750..	KSEM190..M	—
.768	19,50	KSEM1950	2	KSEM195..M	KSEM0766..	KSEM0759..	KSEM0750..	KSEM190..M
.781	19,84	KSEM0781	2	KSEM0781..	KSEM195..M	KSEM0766..	—	—
.787	20,00	KSEM2000	3	KSEM200..M	—	—	—	—
.797	20,24	KSEM0797	3	KSEM0797..	KSEM200..M	—	—	—
.800	20,32	KSEM0800	3	N/A	KSEM0797..	KSEM200..M	—	—
.807	20,50	KSEM2050	3	KSEM205..M	KSEM0797..	KSEM200..M	—	—
.813	20,64	KSEM0813	3	KSEM0813..	KSEM205..M	KSEM0797..	—	—
.827	21,00	KSEM2100	3	KSEM210..M	KSEM0813..	KSEM205..M	—	—
.844	21,43	KSEM0844	3	KSEM0844..	KSEM210..M	—	—	—
.847	21,50	KSEM2150	3	KSEM215..M	KSEM0844..	KSEM210..M	—	—
.859	21,83	KSEM0859	3	KSEM0859..	KSEM215..M	KSEM0844..	—	—
.866	22,00	KSEM2200	3	KSEM220..M	KSEM0859..	KSEM215..M	—	—
.875	22,23	KSEM0875	4	KSEM0875..	KSEM221..M	—	—	—
.884	22,44	KSEM0884	4	KSEM0884..	KSEM0875..	KSEM221..M	—	—
.886	22,50	KSEM2250	4	KSEM225..M	KSEM0884..	KSEM0875..	KSEM221..M	—
.906	23,00	KSEM2300	4	KSEM230..M	KSEM0906..	KSEM225..M	—	—
.922	23,42	KSEM0922	4	KSEM0922..	KSEM230..M	—	—	—
.925	23,50	KSEM2350	4	KSEM235..M	KSEM0922..	KSEM230..M	—	—
.938	23,81	KSEM0938	4	KSEM0938..	KSEM235..M	KSEM0922..	—	—
.945	24,00	KSEM2400	4	KSEM240..M	KSEM0938..	KSEM235..M	—	—

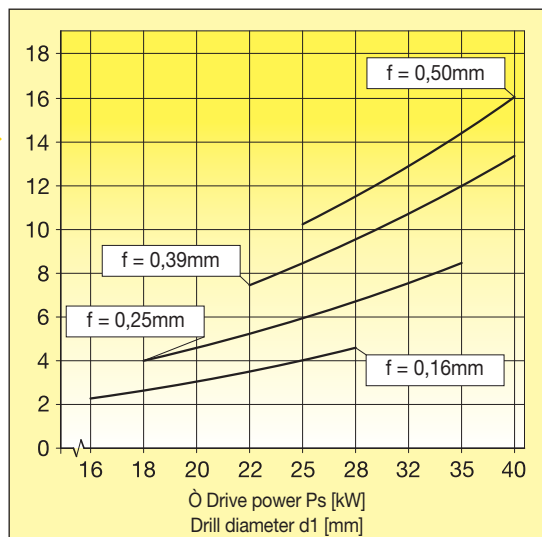
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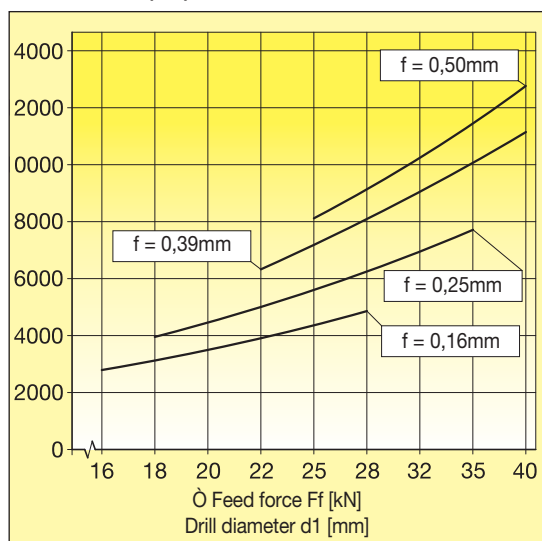
diameter D		insert blade	seat size	first choice	alternate body 1	alternate body 2	alternate body 3	alternate body 4
inch	mm							
.965	24,50	KSEM2450	5	KSEM245..M	KSEM241..M	—	—	—
.969	24,61	KSEM0969	5	KSEM0969..	KSEM245..M	—	—	—
.984	25,00	KSEM2500	5	KSEM250..M	KSEM0984..	KSEM0969..	KSEM245..M	—
1.000	25,40	KSEM1000	5	KSEM1000..	KSEM250..M	—	—	—
1.004	25,50	KSEM2550	5	KSEM255..M	KSEM1000..	KSEM250..M	—	—
1.011	25,67	KSEM1011	5	KSEM1011..	KSEM255..M	—	—	—
1.024	26,00	KSEM2600	5	KSEM260..M	KSEM1011..	KSEM255..M	—	—
1.031	26,19	KSEM1031	6	KSEM1031..	KSEM261..M	—	—	—
1.043	26,50	KSEM2650	6	KSEM265..M	KSEM1031..	KSEM261..M	—	—
1.047	26,59	KSEM1047	6	KSEM1047..	KSEM265..M	KSEM1031..	KSEM261..M	—
1.063	27,00	KSEM2700	6	KSEM270..M	KSEM1063..	KSEM1047..	KSEM265..M	—
1.083	27,50	KSEM2750	6	KSEM275..M	KSEM270..M	KSEM1063..	—	—
1.094	27,78	KSEM1094	6	KSEM1094..	KSEM275..M	—	—	—
1.102	28,00	KSEM2800	6	KSEM280..M	KSEM1094..	KSEM275..M	—	—
1.109	28,18	KSEM1109	7	KSEM1109..	KSEM281..M	—	—	—
1.122	28,50	KSEM2850	7	KSEM285..M	KSEM1109..	KSEM281..M	—	—
1.125	28,58	KSEM1125	7	KSEM1125..	KSEM285..M	KSEM1109..	KSEM281..M	—
1.142	29,00	KSEM2900	7	KSEM290..M	KSEM1125..	KSEM285..M	—	—
1.156	29,37	KSEM1156	7	KSEM1156..	KSEM290..M	—	—	—
1.161	29,50	KSEM2950	7	KSEM295..M	KSEM1156..	KSEM290..M	—	—
1.172	29,77	KSEM1172	7	KSEM1172..	KSEM295..M	KSEM1156..	—	—
1.181	30,00	KSEM3000	7	KSEM300..M	KSEM1172..	KSEM295..M	—	—
1.188	30,16	KSEM1188	8	KSEM1188..	KSEM301..M	—	—	—
1.201	30,50	KSEM3050	8	KSEM305..M	KSEM1188..	KSEM301..M	—	—
1.203	30,56	KSEM1203	8	KSEM1203..	KSEM305..M	KSEM1188..	KSEM301..M	—
1.219	30,96	KSEM1219	8	KSEM1219..	KSEM1203..	KSEM305..M	—	—
1.220	31,00	KSEM3100	8	KSEM310..M	KSEM1219..	KSEM1203..	KSEM305..M	—
1.240	31,50	KSEM3150	8	KSEM315..M	KSEM310..M	—	—	—
1.250	31,75	KSEM1250	8	KSEM1250..	KSEM315..M	—	—	—
1.260	32,00	KSEM3200	8	KSEM320..M	KSEM1250..	KSEM315..M	—	—
1.280	32,50	KSEM3250	9	—	KSEM321..M	—	—	—
1.281	32,54	KSEM1281	9	KSEM1281..	KSEM321..M	—	—	—
1.297	32,94	KSEM1297	9	KSEM1297..	KSEM1281..	—	—	—
1.299	33,00	KSEM3300	9	KSEM330..M	KSEM1297..	KSEM1281..	—	—
1.313	33,34	KSEM1313	9	KSEM1313..	KSEM330..M	KSEM1297..	—	—
1.319	33,50	KSEM3350	9	—	—	KSEM1313..	KSEM330..M	—
1.328	33,73	KSEM1328	9	KSEM1328..	KSEM1313..	—	—	—
1.339	34,00	KSEM3400	9	KSEM340..M	KSEM1328..	—	—	—
1.344	34,13	KSEM1344	9	KSEM1344..	KSEM340..M	KSEM1328..	—	—
1.358	34,50	KSEM3450	9	—	—	KSEM1344..	KSEM340..M	—
1.375	34,93	KSEM1375	9	KSEM1375..	—	—	—	—
1.378	35,00	KSEM3500	9	KSEM350..M	KSEM1375..	—	—	—
1.398	35,50	KSEM3550	9	—	—	KSEM350..M	—	—
1.406	35,72	KSEM1406	9	KSEM1406..	—	—	—	—
1.417	36,00	KSEM3600	9	KSEM360..M	KSEM1406..	—	—	—
1.422	36,12	KSEM1422	10	KSEM1422..	KSEM361..M	—	—	—
1.437	36,50	KSEM3650	10	—	—	KSEM1422..	KSEM361..M	—
1.438	36,51	KSEM1438	10	KSEM1438..	KSEM1422..	KSEM361..M	—	—
1.457	37,00	KSEM3700	10	KSEM370..M	KSEM1438..	—	—	—
1.469	37,31	KSEM1469	10	KSEM1469..	KSEM370..M	—	—	—
1.476	37,50	KSEM3750	10	—	—	KSEM1469..	KSEM370..M	—
1.496	38,00	KSEM3800	10	KSEM380..M	—	—	—	—
1.500	38,10	KSEM1500	10	KSEM1500..	KSEM380..M	—	—	—
1.514	38,46	KSEM1514	10	KSEM1514..	KSEM1500..	KSEM380..M	—	—
1.516	38,50	KSEM3850	10	—	—	KSEM1514..	KSEM1500..	KSEM380..M
1.535	39,00	KSEM3900	10	KSEM390..M	—	—	—	—
1.555	39,50	KSEM3950	10	—	—	KSEM390..M	—	—
1.575	40,00	KSEM4000	10	KSEM400..M	—	—	—	—

Modular Drills

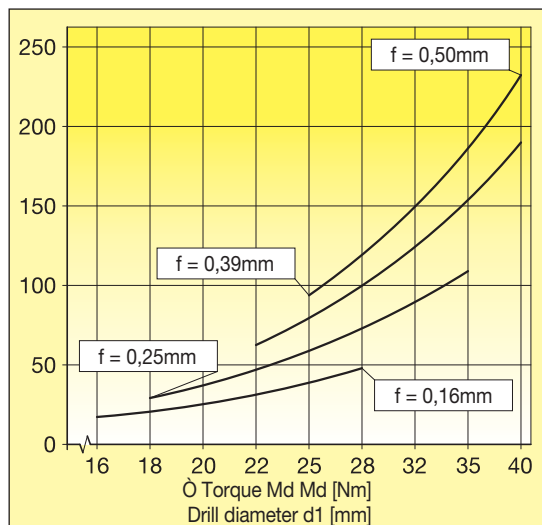
Drive Power (kW)



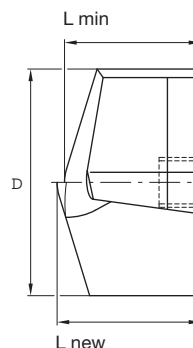
Feed Force (kN)



Torque (Nm)




NOTE: The diagrams above are used to determine the drive power, feed force, and torque. They are based on cutting force measurement in tempered steels in Cgr. 6. Tensile strength: Rm = 600 N/mm². The base cutting speed used is: vc = 80 m/min.



The following coolant pressure is recommended:

relative drilling depth	coolant pressure
1-3 x D	8 bars
5 x D	12 bars
7 x D	20 bars
10 x D	30 bars

insert seat size	diameter range D (mm)	L min (mm)	L new (mm)
C	12,50-13,50	8,5	9,6
B	13,51-14,50	8,9	10,1
A	14,51-15,88	9,4	10,6
1	15,88-18,00	10,3	11,6
2	18,01-19,99	11,2	12,6
3	20,00-22,00	12,1	13,6
4	22,01-24,00	13,0	14,6
5	24,01-26,00	13,9	15,6
6	26,01-28,00	14,8	16,6
7	28,01-30,00	15,7	17,6
8	30,01-32,00	16,6	18,6
9	32,01-36,00	18,4	20,6
10	36,01-40,00	20,2	22,6



WIND ENERGY TAPS

The new high-performance, large-sized HSS-E-PM taps called Wind Taps were developed for the manufacturers of some of the most important wind turbine components like hubs, rings, and gearbox housings to increase productivity and keep up with the rapid increase in demand for such components.

- Designed for both conventional non-rigid and CNC-synchronous tapping machines.
- Manufactured to DIN 376 dimension.
- Extra-long version developed to reach longer overhang that is very common on these big components.
- Precision h6 shanks enable use in either conventional tap holders with square drive or in precision round toolholders.

Tap into something great at your Authorized Kennametal Distributor or at www.kennametal.com.

www.kennametal.com

 **KENNAMETAL®**



KSEM PLUS™ Modular Drill System

The KSEM PLUS drill concept is simple but effective. It combines the benefits of the KSEM modular drill (high feeds and length-to-diameter [L/D] ratios) with the benefits of an indexable drill (high speeds and low consumable costs).

Primary Application

The KSEM PLUS modular drill in steel, cast iron, and stainless steel materials replaces HSS or indexable drilling tool solutions in the diameter range of 1.102–2.756" (28–70mm) from 3–10 x D. For applications within the energy market (e.g., bearing rings for windmills), this tool delivers vast improvements in productivity and capacity.

Features and Benefits

Replaceable Head with Newly Developed FDS-Interface Coupling

- Quickly and easily replace inserts or drill heads without the need to remove the complete tool body from the machine.
- Save money and reduce tool stock by changing just the drill head and not the complete tool body if the front section wears out.
- Use one tool body for different sizes of drill heads.

Two Effective Cutting Edges

- Higher metal removal rates than indexable drills.
- Up to 100% increased productivity.
- L/D ratio capabilities from 3–10 x D.

KSEM PLUS Center Insert with HP

- Feed rate capabilities of modular drills.
- Longer life of KSEM PLUS inserts and no chip flow obstruction.
- No precentering at L/D less than 8 x D.

DFT™/DFR™ Outboard Inserts

- Higher speeds than modular drills.
- More stable cutting conditions.
- Improved surface finish and hole diameter accuracy.



Tailored Grades and Geometries

- KC7315™ grade is a TiAlN-based PVD grade, offering superior performance in all steel applications.
- KC7410™ grade contains multiple layers of PVD coating, offering outstanding wear-resistance when drilling cast irons.
- KC7140™ grade is a TiCN-based PVD grade, offering excellent toughness in unstable conditions and is the first choice in stainless steel.

Customization

- Heads are available in intermediate diameters and up to Ø 76mm available as semi-standards.
- Tool bodies are available with different shank styles and up to 20x drill Ø as long as total length including shank <920mm.
- Heads for reground inserts are available as semi-standards.
- Tool bodies are available with different shank styles.
- B1 style heads with DFC outboard inserts are available for machining stacked plates, cross hole applications, and situations with inclined exits.

To learn more, [scan here](#).
For instructions on how to scan, please see page xxix.

