

# KSEM SKJÆRDATA

■ Modular Drill Carbide Insert Blades • KSEM • **HP Geometry** • Grade KC7315 • Through Coolant • Metric

Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max	12,5	16,0	20,0	25,4	32,0	40,0		
P	1	70	90	110	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	2	80	100	120	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	3	65	75	80	mm/r	0,15–0,28	0,17–0,31	0,19–0,36	0,25–0,46	0,23–0,53	0,33–0,60
	4	50	65	75	mm/r	0,12–0,28	0,14–0,31	0,16–0,36	0,20–0,46	0,23–0,53	0,30–0,60
	5	45	50	65	mm/r	0,09–0,15	0,11–0,18	0,12–0,21	0,15–0,25	0,17–0,29	0,20–0,33
	6	45	50	65	mm/r	0,12–0,23	0,14–0,26	0,16–0,29	0,20–0,38	0,23–0,43	0,26–0,54

■ Modular Drill Carbide Insert Blades • KSEM™ • **HPG Geometry** • Grade KC7315™ • Through Coolant • Metric

Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max	12,5	16,0	20,0	25,4	32,0	40,0		
P	1	75	110	140	mm/r	0,15–0,34	0,17–0,40	0,19–0,45	0,25–0,58	0,29–0,66	0,33–0,76
	2	90	120	150	mm/r	0,15–0,34	0,17–0,40	0,19–0,45	0,25–0,58	0,29–0,66	0,33–0,76
	3	50	75	100	mm/r	0,15–0,28	0,17–0,34	0,19–0,40	0,25–0,51	0,29–0,58	0,33–0,66
	4	55	75	95	mm/r	0,12–0,31	0,14–0,34	0,16–0,40	0,20–0,51	0,23–0,58	0,26–0,66
	5	50	65	80	mm/r	0,09–0,17	0,11–0,20	0,12–0,23	0,15–0,28	0,17–0,32	0,20–0,36
	6	50	65	80	mm/r	0,12–0,25	0,14–0,29	0,16–0,32	0,20–0,42	0,23–0,47	0,26–0,54
K	1	90	135	175	mm/r	0,17–0,35	0,21–0,42	0,25–0,48	0,31–0,59	0,37–0,70	0,43–0,81
	2	90	110	125	mm/r	0,17–0,33	0,21–0,41	0,25–0,48	0,31–0,59	0,37–0,70	0,43–0,81
	3	40	95	125	mm/r	0,18–0,36	0,20–0,41	0,21–0,44	0,23–0,48	0,25–0,53	0,27–0,57

■ Modular Drill Carbide Insert Blades • KSEM™ • **HPG Geometry** • Grade KCPM45™ • Through Coolant • Metric



Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max	12,5	16,0	20,0	25,4	32,0	40,0		
P	1	100	110	120	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	2	80	95	110	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	3	65	70	80	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
M	1	30	60	90	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	2	30	50	90	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	3	20	40	60	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31

■ Modular Drill Carbide Insert Blades • KSEM • **HPG Geometry** • Grade KCPM45 • MQL\* • Metric



Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max	12,5	16,0	20,0	25,4	32,0	40,0		
P	1	60	70	80	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	2	50	60	70	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	3	65	45	80	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
M	1	30	40	50	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	2	25	30	35	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	3	20	25	30	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31

\*Recommended for drilling depths  $\leq 1.5 \times D$ .

■ Modular Drill Carbide Insert Blades • KSEM™ • HPCCL Geometry • Grade KC7410™ • Through Coolant • Metric

Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	40,0	
K	1	100	175	200	mm/r	0,17–0,35	0,21–0,42	0,25–0,48	0,31–0,59	0,37–0,70	0,43–0,81
	2	100	160	180	mm/r	0,17–0,33	0,21–0,41	0,25–0,48	0,31–0,59	0,37–0,70	0,43–0,81
	3	70	85	100	mm/r	0,18–0,36	0,20–0,41	0,21–0,44	0,23–0,48	0,25–0,53	0,27–0,57

■ Modular Drill Carbide Insert Blades • KSEM • HPL Geometry • Grade KC7320 • Through Coolant • Metric

Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	40,0	
M	1	30	60	90	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	2	30	50	90	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	3	20	40	60	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31

■ Modular Drill Carbide Insert Blades • KSEM™ • SPL Geometry • Grade KCMS35™ • Through Coolant • Metric

Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	40,0	
P	1	110	140	170	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	2	100	120	140	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
	3	80	100	120	mm/r	0,15–0,31	0,17–0,36	0,19–0,41	0,25–0,53	0,29–0,60	0,33–0,69
M	1	40	60	80	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	2	35	55	70	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	3	20	40	60	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
N	1	90	155	220	mm/r	0,19–0,40	0,25–0,50	0,28–0,56	0,32–0,63	0,32–0,70	0,32–0,70
	2	90	155	220	mm/r	0,19–0,40	0,25–0,50	0,28–0,56	0,32–0,63	0,32–0,70	0,32–0,70
	3	80	120	160	mm/r	0,19–0,40	0,25–0,50	0,28–0,56	0,32–0,63	0,32–0,70	0,32–0,70
S	4	90	155	220	mm/r	0,19–0,40	0,25–0,50	0,28–0,56	0,32–0,63	0,32–0,70	0,32–0,70
	1	20	40	60	mm/r	0,05–0,10	0,07–0,12	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25
	2	15	30	45	mm/r	0,05–0,10	0,07–0,12	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25
	3	15	30	45	mm/r	0,05–0,10	0,07–0,12	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25
	4	10	25	40	mm/r	0,05–0,10	0,07–0,12	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31

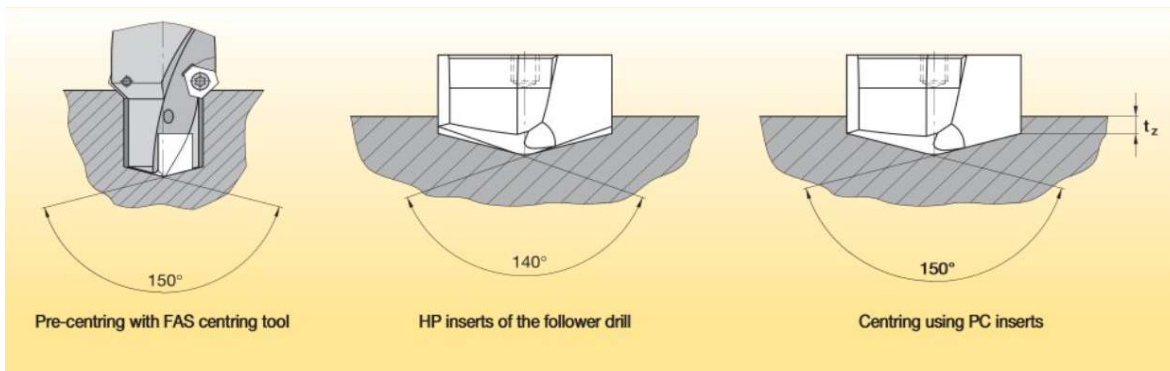
Application recommendation: We recommend pre-centring when drilling with SPL inserts >5 x D.  
For deeper holes (> = 10 x D), and for drilling M1 and M2 materials in general, we recommend using KSEM HPL inserts as a first choice.

■ Modular Drill Carbide Insert Blades • KSEM™ • PC Geometry • Grade KC7135™ • Through Coolant • Metric

Material Group	Cutting Speed – vc			Metric						
	Range – m/min			Recommended Feed Rate (f) by Diameter						
	min	Starting Value	max		12,5	16,0	20,0	25,4	32,0	
P	1	90	100	110	mm/r	0,14–0,23	0,17–0,25	0,19–0,29	0,23–0,38	0,26–0,43
	2	80	90	100	mm/r	0,17–0,23	0,19–0,25	0,22–0,29	0,29–0,38	0,32–0,43
	3	55	65	75	mm/r	0,14–0,20	0,15–0,23	0,17–0,25	0,23–0,34	0,26–0,38
	4	50	60	70	mm/r	0,11–0,20	0,13–0,23	0,14–0,25	0,18–0,34	0,21–0,38
	5	45	50	60	mm/r	0,08–0,11	0,10–0,13	0,11–0,14	0,14–0,18	0,15–0,20
	6	45	55	65	mm/r	0,11–0,17	0,13–0,18	0,14–0,20	0,18–0,28	0,21–0,31
K	1	60	60	90	mm/r	0,08–0,24	0,09–0,28	0,11–0,31	0,14–0,43	0,15–0,48
	2	60	60	75	mm/r	0,18–0,24	0,21–0,28	0,23–0,31	0,28–0,37	0,32–0,42
	3	40	40	75	mm/r	0,15–0,24	0,18–0,26	0,21–0,29	0,23–0,37	0,25–0,42

■ Modular Drill Carbide Insert Blades • KSEM™ • FEG Geometry • Grade KCPM45™ • Through Coolant • Metric

Material Group	Cutting Speed – vc			Metric							
	Range – m/min			Recommended Feed Rate (f) by Diameter							
	min	Starting Value	max	12,5	16,0	20,0	25,4	32,0	40,0		
P	1	110	140	170	mm/r	0,14–0,23	0,17–0,25	0,19–0,29	0,23–0,38	0,26–0,43	0,33–0,76
	2	100	120	140	mm/r	0,17–0,23	0,19–0,25	0,22–0,29	0,29–0,38	0,32–0,43	0,33–0,76
	3	80	100	120	mm/r	0,14–0,20	0,15–0,23	0,17–0,25	0,23–0,34	0,26–0,38	0,33–0,66
	4	70	90	110	mm/r	0,11–0,20	0,13–0,23	0,14–0,25	0,18–0,34	0,21–0,38	0,26–0,66
M	1	40	60	80	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	2	35	55	70	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	3	20	40	60	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
K	1	90	135	175	mm/r	0,17–0,23	0,19–0,25	0,22–0,29	0,29–0,38	0,32–0,43	0,33–0,76
	2	80	120	140	mm/r	0,17–0,23	0,19–0,25	0,22–0,29	0,29–0,38	0,32–0,43	0,33–0,76
	3	70	110	125	mm/r	0,15–0,24	0,18–0,26	0,21–0,29	0,23–0,37	0,25–0,42	0,27–0,57
S	1	20	40	60	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31
	3	15	30	45	mm/r	0,09–0,14	0,11–0,17	0,13–0,20	0,16–0,25	0,18–0,28	0,21–0,31



### Why is pre-centring necessary?

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

### Why pre-centre using PC inserts?

- Soft-cut entry of follower drill due to 150° point angle of the PC insert.
- No extension of the follower drill in the entry area.
- Prevent chipping and breaking on the cutting edges.
- To avoid deflection, it is recommended to pre-centre with PC inserts using toolholders as short as possible (1 x D).

### What happens if...

#### ...a centre 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 PC cutting insert in the standard range (ø)?

- Use a made-to-order PC insert with k7 tolerance in the required nominal diameter.

OR

- Pre-centre, using the same cutting insert as used for the follower drill but without the cutting edges penetrating the workpiece (spot drill ø approximately 90% of drill ø 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.