



KSEM™ ST LINE MODULAR DRILLING SYSTEM

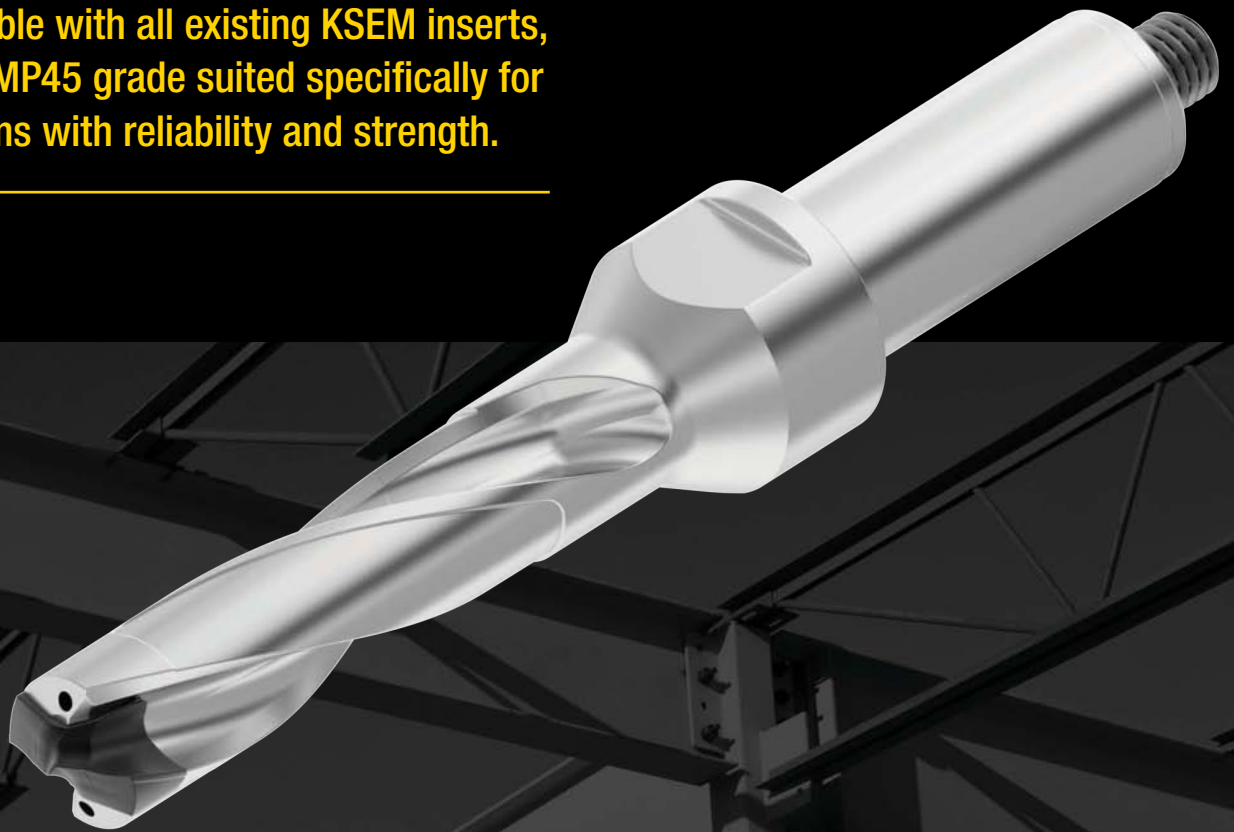


**New high-performance modular
drilling solution designed
specifically for structural steel
and construction operations**



The **KSEM ST Line Modular Drilling System** addresses the challenges associated with drilling holes with long drills in the construction industry and can deliver better stability, tool life and noise control to general engineering and construction machinists.

The new toolholders and hydraulic chucks are compatible with all existing KSEM inserts, with the KCMP45 grade suited specifically for drilling beams with reliability and strength.



Hydraulic clamping for less vibrations, delivering better tool life and hole quality

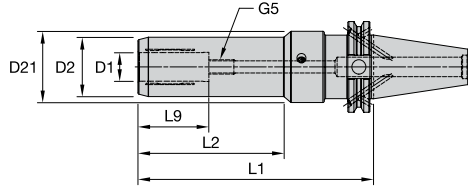
Straight shank with flange and threaded pin for extraordinary rigidity and stiffness, delivering longer tool life and boosted performance

KSEM Modular Drilling System for strong insert clamping, delivering enhanced durability and reliability

MQL optimized coolant channels for improved cooling and lubrication

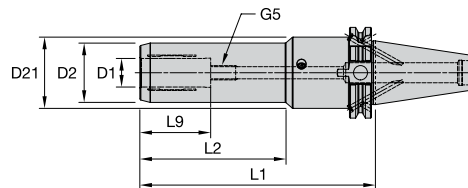
HYDRAULIC CHUCKS

CV40



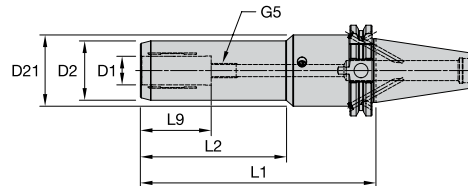
Order Number	Catalog Number	D1		D2		D21		L1		L2		G5
		mm	in	mm	in	mm	in	mm	in	mm	in	
7138022	CV40BHCP16190M	16,00	.630	37,50	1.476	49,85	1.963	190,00	7.480	125,00	4.921	M10
7138023	CV40BHCP20170M	20,00	.787	41,50	1.634	49,85	1.963	170,00	6.693	105,00	4.134	M10
7138024	CV40BHCP25150M	25,00	.984	49,90	1.965	62,85	2.474	150,00	5.906	85,00	3.347	M12
7138025	CV40BHCP32130M	32,00	1.260	59,90	2.358	62,85	2.474	130,00	5.118	65,00	2.559	M12

DV40



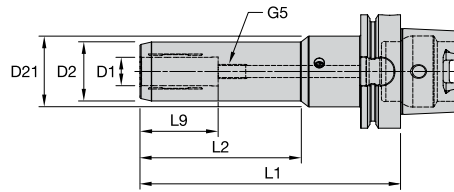
Order Number	Catalog Number	D1		D2		D21		L1		L2		G5
		mm	in	mm	in	mm	in	mm	in	mm	in	
7137968	DV40BHCP16190M	16,00	.630	37,50	1.476	49,85	1.963	190,00	7.480	125,00	4.921	M10
7137969	DV40BHCP20170M	20,00	.787	41,50	1.634	49,85	1.963	170,00	6.693	105,00	4.134	M10
7137970	DV40BHCP25150M	25,00	.984	49,90	1.965	62,85	2.474	150,00	5.906	85,00	3.347	M12
7138021	DV40BHCP32130M	32,00	1.260	59,90	2.358	62,85	2.474	130,00	5.118	65,00	2.559	M12

BT40



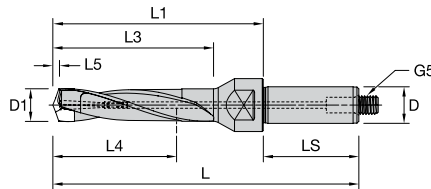
Order Number	Catalog Number	D1		D2		D21		L1		L2		G5
		mm	in	mm	in	mm	in	mm	in	mm	in	
7226169	BT40BHCP16190M	16,00	.630	37,50	1.476	49,85	1.963	190,00	7.480	125,00	4.921	M10
7226170	BT40BHCP20170M	20,00	.787	41,50	1.634	49,85	1.963	170,00	6.693	105,00	4.134	M10
7226191	BT40BHCP25150M	25,00	.984	49,90	1.965	62,85	2.474	150,00	5.906	85,00	3.347	M12
7226192	BT40BHCP32130M	32,00	1.260	59,90	2.358	62,85	2.474	130,00	5.118	65,00	2.559	M12

HSK80



Order Number	Catalog Number	D1		D2		D21		L1		L2		G5
		mm	in	mm	in	mm	in	mm	in	mm	in	
7138027	HSK80AHCP16190M	16,00	.630	37,50	1.476	49,85	1.963	190,00	7.480	125,00	4.921	M10
7138028	HSK80AHCP20170M	20,00	.787	41,50	1.634	49,85	1.963	170,00	6.693	105,00	4.134	M10
7138029	HSK80AHCP25150M	25,00	.984	49,90	1.965	62,85	2.474	150,00	5.906	85,00	3.347	M12
7138030	HSK80AHCP32130M	32,00	1.260	59,90	2.358	62,85	2.474	130,00	5.118	65,00	2.559	M12

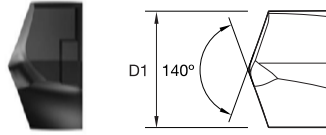
DRILLS



Order Number	Catalog Number	D1		D1 Max		L1		D		L4		G5	Insert Seat Size (SSC)
		mm	in	mm	in	mm	in	mm	in	mm	in		
7138070	KSEM125ST090SFP16M	12,000	.4922	13,500	.5314	90,00	3.543	16,00	0.630	50,00	1.969	M10	C
7138081	KSEM136ST090SFP16M	13,501	.5315	13,999	.5511	90,00	3.543	16,00	0.630	50,00	1.969	M10	B
7138082	KSEM140ST110SFP20M	14,000	.5512	14,500	.5708	110,00	4.331	20,00	0.787	64,00	2.520	M10	B
7138083	KSEM146ST110SFP20M	14,501	.5709	15,874	.6249	110,00	4.331	20,00	0.787	64,00	2.520	M10	A
7138084	KSEM158ST110SFP20M	15,875	.6250	16,999	.6692	110,00	4.331	20,00	0.787	63,50	2.500	M10	1
7138085	KSEM170ST110SFP20M	17,000	.6693	17,999	.7086	110,00	4.331	20,00	0.787	63,00	2.480	M10	1
7138086	KSEM180ST110SFP20M	18,000	.7087	18,000	.7087	110,00	4.331	20,00	0.787	62,50	2.461	M10	1
7138087	KSEM181ST110SFP20M	18,001	.7087	18,999	.7480	110,00	4.331	20,00	0.787	62,50	2.461	M10	2
7138088	KSEM190ST110SFP20M	19,000	.7481	19,999	.7874	110,00	4.331	20,00	0.787	62,50	2.461	M10	2
7138089	KSEM200ST110SFP20M	20,000	.7875	20,999	.8267	110,00	4.331	20,00	0.787	62,00	2.441	M10	3
7138090	KSEM210ST110SFP20M	21,000	.8268	21,999	.8661	110,00	4.331	20,00	0.787	61,50	2.421	M10	3
7138101	KSEM220ST110SFP20M	22,000	.8661	22,000	.8661	110,00	4.331	20,00	0.787	61,50	2.421	M10	3
7138102	KSEM221ST130SFP25M	22,001	.8662	22,999	.9055	130,00	5.118	25,00	0.984	74,50	2.933	M12	4
7138103	KSEM230ST130SFP25M	23,000	.9056	23,999	.9448	130,00	5.118	25,00	0.984	74,00	2.913	M12	4
7138104	KSEM240ST130SFP25M	24,000	.9449	24,000	.9449	130,00	5.118	25,00	0.984	74,00	2.913	M12	4
7138105	KSEM241ST130SFP25M	24,001	.9449	24,999	.9842	130,00	5.118	25,00	0.984	74,00	2.913	M12	5
7138106	KSEM250ST130SFP25M	25,000	.9843	25,999	1.0236	130,00	5.118	25,00	0.984	73,50	2.894	M12	5
7138107	KSEM260ST130SFP25M	26,000	1.0236	26,000	1.0236	130,00	5.118	25,00	0.984	73,00	2.874	M12	5
7138108	KSEM261ST130SFP25M	26,001	1.0237	27,999	1.1023	130,00	5.118	25,00	0.984	73,00	2.874	M12	6
7138109	KSEM280ST130SFP25M	28,000	1.1024	28,000	1.1024	130,00	5.118	25,00	0.984	72,50	2.854	M12	6
7138110	KSEM281ST150SFP32M	28,001	1.1024	29,999	1.1810	150,00	5.906	32,00	1.260	84,50	3.327	M12	7
7138111	KSEM300ST150SFP32M	30,000	1.1811	30,000	1.1811	150,00	5.906	32,00	1.260	84,00	3.307	M12	7
7138112	KSEM301ST150SFP32M	30,001	1.1812	31,999	1.2598	150,00	5.906	32,00	1.260	84,00	3.307	M12	8
7138113	KSEM320ST150SFP32M	32,000	1.2598	32,000	1.2598	150,00	5.906	32,00	1.260	83,50	3.287	M12	8
7138114	KSEM321ST150SFP32M	32,001	1.2599	32,999	1.2992	150,00	5.906	32,00	1.260	83,50	3.287	M12	9
7138115	KSEM330ST150SFP32M	33,000	1.2993	36,000	1.4173	150,00	5.906	32,00	1.260	83,00	3.268	M12	9

INSERTS

HPG Geometry



- Primary
- Secondary

P	●	●
M	○	○
K	●	●
N	●	●
S	●	●
H	●	●

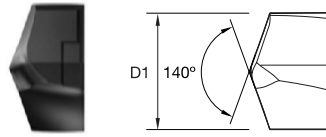
Order Number	Catalog Number	D1		Insert Seat Size (SSC)	KCPM45
		mm	in		
5626642	KSEM1250HPGM	12,500	.4921	C	●
5397385	KSEM1270HPGM	12,700	.5000	C	●
5626643	KSEM1280HPGM	12,800	.5039	C	●
5397386	KSEM1293HPGM	12,930	.5091	C	●
5626644	KSEM1300HPGM	13,000	.5118	C	●
5626645	KSEM1350HPGM	13,500	.5315	C	●
5626647	KSEM1360HPGM	13,600	.5354	B	●
5626648	KSEM1380HPGM	13,800	.5433	B	●
5626649	KSEM1389HPGM	13,890	.5469	B	●
5397387	KSEM1400HPGM	14,000	.5512	B	●
5626700	KSEM1410HPGM	14,100	.5551	B	●
5397388	KSEM1429HPGM	14,290	.5626	B	●
5626701	KSEM1450HPGM	14,500	.5709	B	●
5626702	KSEM1468HPGM	14,680	.5780	A	●
5626703	KSEM1500HPGM	15,000	.5906	A	●
5626704	KSEM1508HPGM	15,080	.5937	A	●
5626705	KSEM1550HPGM	15,500	.6102	A	●
5626706	KSEM1580HPGM	15,800	.6221	A	●
5626707	KSEM1588HPGM	15,880	.6252	1	●
5626708	KSEM1600HPGM	16,000	.6299	1	●
5397389	KSEM1609HPGM	16,090	.6335	1	●
5397470	KSEM1620HPGM	16,200	.6378	1	●
5626709	KSEM1627HPGM	16,270	.6406	1	●
5626710	KSEM1650HPGM	16,500	.6496	1	●
5397471	KSEM1667HPGM	16,670	.6563	1	●
5626711	KSEM1700HPGM	17,000	.6693	1	●
5626712	KSEM1707HPGM	17,070	.6721	1	●
5397473	KSEM1746HPGM	17,460	.6874	1	●
5626713	KSEM1750HPGM	17,500	.6890	1	●
5626714	KSEM1786HPGM	17,860	.7032	1	●
5397474	KSEM1800HPGM	18,000	.7087	1	●
5397475	KSEM1826HPGM	18,260	.7189	2	●
5626715	KSEM1850HPGM	18,500	.7284	2	●
5626716	KSEM1865HPGM	18,650	.7343	2	●
5397476	KSEM1900HPGM	19,000	.7480	2	●
5397478	KSEM1905HPGM	19,050	.7500	2	●
5397477	KSEM1920HPGM	19,200	.7559	2	●
5626717	KSEM1923HPGM	19,228	.7571	2	●
5397479	KSEM1925HPGM	19,250	.7579	2	●

Order Number	Catalog Number	D1		Insert Seat Size (SSC)	KCPM45
		mm	in		
5397480	KSEM1927HPGM	19,270	.7587	2	●
5626718	KSEM1945HPGM	19,450	.7658	2	●
5397481	KSEM1950HPGM	19,500	.7677	2	●
6163505	KSEM1965HPGM	19,650	.7736	2	●
5397482	KSEM1984HPGM	19,840	.7811	2	●
5397483	KSEM2000HPGM	20,000	.7874	3	●
5626719	KSEM2024HPGM	20,240	.7969	3	●
5626720	KSEM2050HPGM	20,500	.8071	3	●
5397484	KSEM2064HPGM	20,640	.8126	3	●
5397485	KSEM2100HPGM	21,000	.8268	3	●
5626721	KSEM2143HPGM	21,430	.8437	3	●
5626722	KSEM2150HPGM	21,500	.8465	3	●
5626723	KSEM2183HPGM	21,830	.8595	3	●
5397486	KSEM2200HPGM	22,000	.8661	3	●
5397487	KSEM2223HPGM	22,230	.8752	4	●
5626724	KSEM2244HPGM	22,440	.8835	4	●
5626725	KSEM2250HPGM	22,500	.8858	4	●
5397488	KSEM2300HPGM	23,000	.9055	4	●
5626726	KSEM2342HPGM	23,420	.9221	4	●
5626727	KSEM2350HPGM	23,500	.9252	4	●
5991410	KSEM2370HPGM	23,700	.9331	4	●
5397489	KSEM2381HPGM	23,810	.9374	4	●
5397490	KSEM2400HPGM	24,000	.9449	4	●
5626728	KSEM2450HPGM	24,500	.9646	5	●
5626729	KSEM2461HPGM	24,610	.9689	5	●
5397491	KSEM2500HPGM	25,000	.9843	5	●
5397492	KSEM2540HPGM	25,400	1.0000	5	●
5626730	KSEM2550HPGM	25,500	1.0039	5	●
5397493	KSEM2560HPGM	25,600	1.0079	5	●
5397494	KSEM2565HPGM	25,654	1.0098	5	●
5397495	KSEM2567HPGM	25,670	1.0106	5	●
6194814	KSEM2572HPGM	25,720	1.0126	5	●
5397496	KSEM2581HPGM	25,810	1.0161	5	●
5397497	KSEM2600HPGM	26,000	1.0236	5	●
5397498	KSEM2619HPGM	26,190	1.0311	6	●
5626731	KSEM2650HPGM	26,500	1.0433	6	●
5626732	KSEM2659HPGM	26,590	1.0469	6	●
5397499	KSEM2700HPGM	27,000	1.0630	6	●
5626733	KSEM2750HPGM	27,500	1.0827	6	●

Continued On Next Page

INSERTS

HPG Geometry



- Primary
- Secondary

P		●
M		○
K		
N		
S		
H		

Order Number	Catalog Number	D1		Insert Seat Size (SSC)	KCPM45
		mm	in		
5626734	KSEM2778HPGM	27,780	1.0937	6	●
5397500	KSEM2800HPGM	28,000	1.1024	6	●
5626735	KSEM2818HPGM	28,180	1.1095	7	●
6104860	KSEM2835HPGM	28,350	1.1161	7	●
5626736	KSEM2850HPGM	28,500	1.1221	7	●
5397501	KSEM2858HPGM	28,580	1.1252	7	●
5515226	KSEM2900HPGM	29,000	1.1417	7	●
5626737	KSEM2937HPGM	29,370	1.1563	7	●
5626738	KSEM2950HPGM	29,500	1.1614	7	●
5626739	KSEM2977HPGM	29,770	1.1721	7	●
5397502	KSEM3000HPGM	30,000	1.1811	7	●
5397503	KSEM3016HPGM	30,160	1.1874	8	●
5626740	KSEM3050HPGM	30,500	1.2008	8	●
5626741	KSEM3096HPGM	30,960	1.2189	8	●
5626742	KSEM3100HPGM	31,000	1.2205	8	●

Order Number	Catalog Number	D1		Insert Seat Size (SSC)	KCPM45
		mm	in		
6117023	KSEM3115HPGM	31,150	1.2264	8	●
5626743	KSEM3150HPGM	31,500	1.2402	8	●
5397504	KSEM3175HPGM	31,750	1.2500	8	●
5397505	KSEM3200HPGM	32,000	1.2598	8	●
5626746	KSEM3250HPGM	32,500	1.2795	9	●
5626747	KSEM3254HPGM	32,540	1.2811	9	●
5397506	KSEM3300HPGM	33,000	1.2992	9	●
5397507	KSEM3334HPGM	33,340	1.3126	9	●
5626748	KSEM3350HPGM	33,500	1.3189	9	●
5626749	KSEM3400HPGM	34,000	1.3386	9	●
5626760	KSEM3450HPGM	34,500	1.3583	9	●
5626761	KSEM3493HPGM	34,930	1.3752	9	●
5626762	KSEM3500HPGM	35,000	1.3780	9	●
5397508	KSEM3600HPGM	36,000	1.4173	9	●



KSEM ST LINE APPLICATION DATA



Cutting Speed - Vc				METRIC							
Range - m/min				Recommended Feed Rate by Revolution							
	min	Starting Value	max		12.5	16.0	20.0	25.4	32.0	40.0	
P	0	75	110	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
	1	75	110	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
	2	70	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	60	75	100	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
	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	0,09 - 0,17	0,11 - 0,20	0,12 - 0,23	0,15 - 0,28	0,17 - 0,32	0,20 - 0,36



Range - sfm				INCH							
Range - sfm				Recommended Feed Rate by Revolution							
	min	Starting Value	max		0.462	0.630	0.787	1.000	1.260	1.575	
P	0	250	360	460	ipr	.006 - .012	.007 - .014	.007 - .016	.010 - .021	.011 - .024	.013 - .027
	1	250	360	460	ipr	.006 - .012	.007 - .014	.007 - .016	.010 - .021	.011 - .024	.013 - .027
	2	230	330	390	ipr	.006 - .012	.007 - .014	.007 - .016	.010 - .021	.011 - .024	.013 - .027
	3	200	250	330	ipr	.006 - .012	.007 - .014	.007 - .016	.010 - .021	.011 - .024	.013 - .027
	4	180	250	310	ipr	.005 - .012	.006 - .013	.006 - .016	.008 - .020	.009 - .023	.010 - .026
	5	160	210	260	ipr	.004 - .007	.004 - .008	.005 - .009	.006 - .011	.007 - .013	.008 - .014
	6	160	210	260	ipr	.004 - .007	.004 - .008	.005 - .009	.006 - .011	.007 - .013	.008 - .014



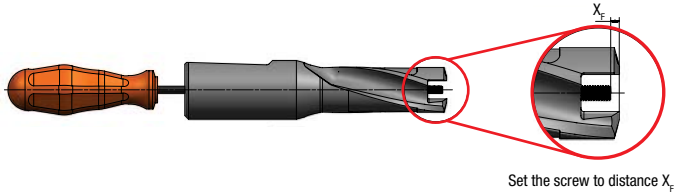
Minimum Quantity Lubrication

MQL: Reduce cutting speeds by 30-40% when MQL is applied

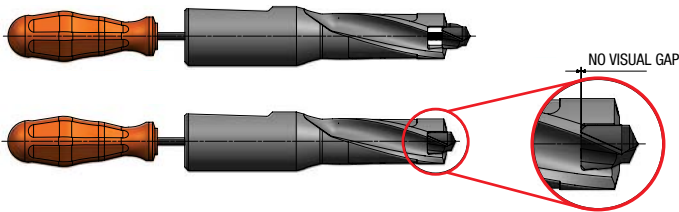


Mounting Instruction

D (mm)	D (inch)	X _F (mm)	X _F (inch)
12,50 - 32,00	0.492 - 1.260	0	0
32,01 - 40,00	1.261 - 1.575	2	0.08



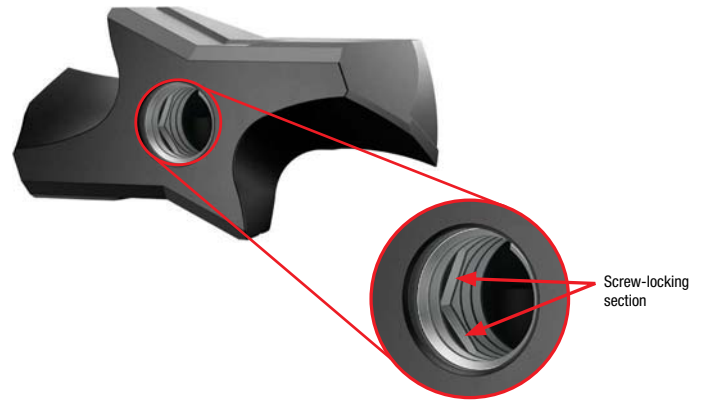
Start to pull the KSEM insert into the pocket seat by turning the wrench clockwise until there is full contact with the bottom of the pocket seat.



Mounting Recommendations

A thread inlay with a screw-locking section improves process safety. Some effort may be required to mount the insert, but anti-seize lubricant on the pocket seat helps to ease the mounting process.

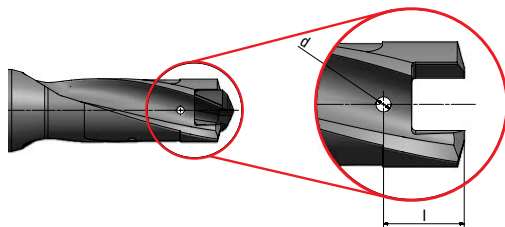
Visually inspect the screw after every insert exchange.



Repair Instructions

In case the central clamping screw gets damaged and the KSEM insert cannot be disassembled anymore, drilling a repair hole enables the removal and replacement of the damaged screw.

See the chart below for the position of the repair hole relative to the drill diameter, and the replacement of the central locking screw.



D (mm)	D (inch)	Seat Size	Central Lock Screw	d (mm)	d (inch)	l (mm)	l (inch)
12,500 - 13,500	0.492 - 0.531	C	364.017	1.5	0.06	9.4	0.370
13,501 - 14,500	0.532 - 0.570	B	364.016	1.5	0.06	10.2	0.402
14,501 - 15,874	0.571 - 0.624	A	364.016	1.5	0.06	10.5	0.413
15,875 - 18,000	0.625 - 0.708	1	364.010	2	0.08	11.6	0.457
18,001 - 19,999	0.709 - 0.786	2	364.010	2	0.08	12.2	0.480
20,000 - 22,000	0.787 - 0.866	3	364.011	2.5	0.10	13.6	0.535
22,001 - 24,000	0.867 - 0.944	4	364.011	2.5	0.10	14.2	0.559
24,001 - 26,000	0.945 - 1.023	5	364.012	3	0.12	15.8	0.622
26,001 - 28,000	1.024 - 1.102	6	364.012	3	0.12	16.4	0.646
28,001 - 30,000	1.103 - 1.180	7	364.013	3.5	0.14	17.9	0.705
30,001 - 32,000	1.181 - 1.259	8	364.013	3.5	0.14	18.5	0.728
32,001 - 36,000	1.260 - 1.417	9	364.015	4	0.16	20.8	0.819
36,001 - 40,000	1.418 - 1.575	10	364.015	4	0.16	22.9	0.902
Tolerance				+/- 0,1	+/- 0.004	+0,3	+0.012

Assembly

1. Put the KSEM holder into the hydraulic chuck until the threaded pin hits the ground of the hydraulic chuck.
2. Screw the KSEM holder clockwise into the chuck by hand till you have full face contact on the tool flange (no remaining visual gap).
3. Clamp the hydraulic chuck.

Disassembly

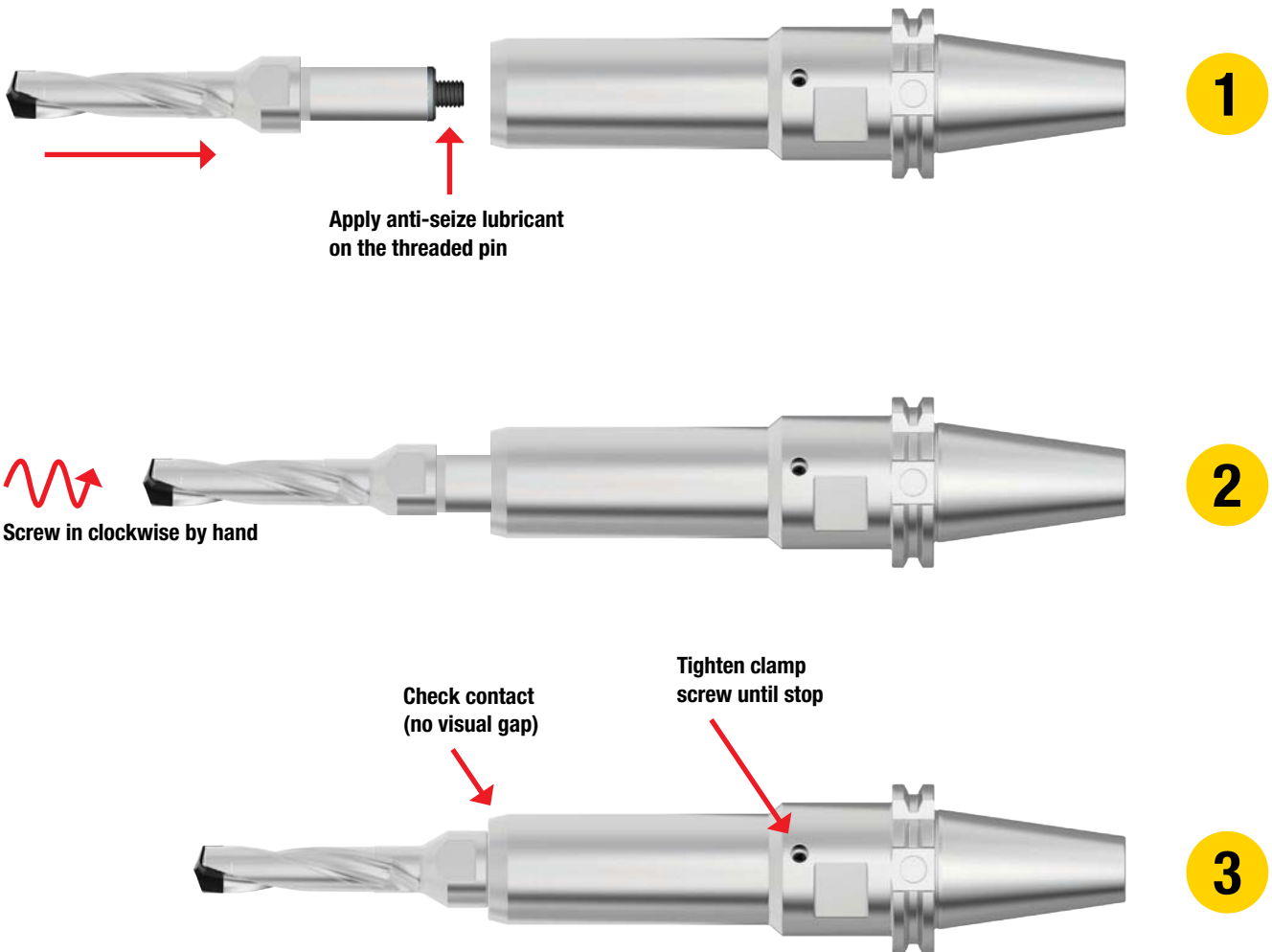
1. Unclamp the hydraulic chuck.
2. Screw the KSEM holder anti-clockwise out of the chuck by hand. Use the wrench flats in case the drill cannot be moved by hand.

General Instructions

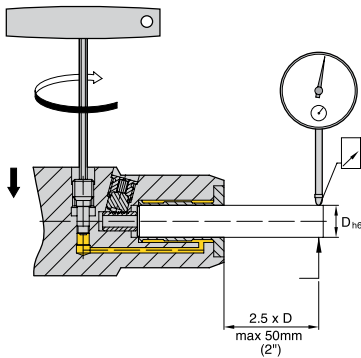
1. Do not use a wrench to tighten the drill. Tightening by hand is sufficient.
2. Wrench flats are only applied to ease disassembly.
3. Hydraulic chucks must not be clamped without a tool in the adapter.
4. Always stock the hydraulic chuck in unclamped position and protect against corrosion.



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Runout (metric)



Max Runout (mm)	Steep Taper (BT, DV, CV, QC, BTKV, CVKV) at Gage Projected Length (mm)	Short Taper (HSK, KM...) at Gage Projected Length (mm)
0.003	≤ 130	≤ 160
0.005	>130 ≤ 160	>160 ≤ 200
0.006		
0.008	>160 ≤ 200	>200 ≤ 350
0.009		
0.012	>200 ≤ 350	>350
0.015	>350	

Torque

Size Availability	ST LINE	
∅ mm	Nm	ft.lbs.
16	135	100
20	220	162
25	500	369
32	700	516



General Application Instructions for Hydraulic Chucks

1. Shank and clamping bore surfaces must be clean and degreased.
2. Bore/shank surface should be free from damage.
3. Shank tolerance should be h6 and shank surface quality Ra 0.3 (0.012") minimum.
4. Insert the shank in the clamping bore and tighten the clamping screw with a hex wrench as far as the limit stop, by hand tightening. For ∅ 32mm and ∅ 1 1/4" High Torque (HT) chuck, please use L-shaped Allen key with side length approximately 200mm (7.87").
5. Never use a power or cordless screwdriver for the clamping screw.
6. Depending on the environment conditions, it is necessary to clean and grease the clamping and adjustment screw.
7. Runout is measured by testing pin.
8. Adjust tool length only in the unclamped condition.
 - Radially operated
 - Axially operated
9. By using reducer sleeve, gripping torque increases and the runout might deteriorate.
10. Max operating temperature: 50 °C.
11. Always stock the Hydraulic Chucks in unclamped position and protect against corrosion.
12. In case of repair or maintenance, contact Kennametal.



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Our Story Is One of Continuous Innovation

It starts in 1938 with our founder, metallurgist Philip M. McKenna, who after years of research created a tungsten-titanium carbide alloy specifically for cutting tools. That single development not only led to a new class of machining tools that cut faster, lasted longer and drove productivity in everything from the automobile to the airplane, but also led to the opening of McKenna Metals Company in Latrobe, Pennsylvania, United States. Today, that company is Kennametal Inc.—a recognized leader in metalworking serving customers across continents and industries including transportation, construction, aerospace, machining and cutting, energy and general engineering. We have a reputation for building innovative solutions for our customers' most challenging applications. The name Kennametal is synonymous for high-quality, high-performance tools that can withstand the most strenuous conditions and bring ease to a wide range of machining operations. We help our customers' operations run longer, faster and with greater precision. We don't cut corners. We cut metal. Your toughest materials don't stand a chance.

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