



MASTER CATALOG 2018

VOLUME TWO | **ROTATING TOOLS**



HOLEMAKING | TAPPING | SOLID END MILLING | INDEXABLE MILLING

CTR™ Counterboring Tools

CTR counterboring tools are designed for high-production screw-head counterbores and similar counterboring operations. Tools can be adapted to almost all applications for optimum cutting performance and long tool life.

Extremely unequal insert positioning and flutes prevent chattering and generate less noise. A precise 90° bottom can be achieved with the S2 S inserts.

Features and Benefits

Productivity and Reliability

- S2 S inserts reduce additional drill operations to achieve a precise 90° bottom.
- Chatter-free operations for improved surface quality due to extremely unequal insert positioning and flutes.
- Achieve high metal removal rates to reduce machine time and manufacturing costs.

Versatility

- Counterboring tools can be used in steel, stainless steel, non-ferrous materials, cast irons, and heat-resistant alloy applications.
- Toolholders are double- or triple-fluted at a diameter range of 15–46mm (.591–1.811") with through-coolant capabilities.
- S2 S standard inserts are double-edged and available in various grades and geometries.

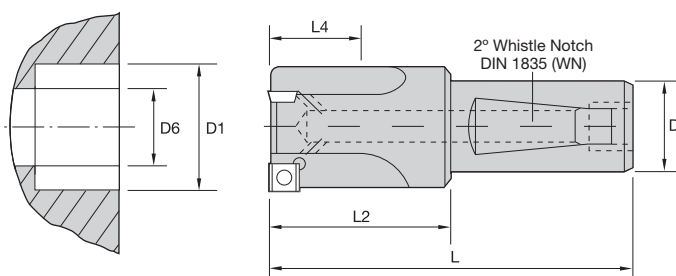
Achieve high metal removal rates to reduce machine time and manufacturing costs.



Customization

- Length and diameter variations with and without adjustable cartridges available.
- Combination and multistep tooling based on drilling tools, like the Drill Fix™ system, with short distance and small diameter steps.
- Various radii and customized grades available upon request.

- Counterboring tool shipped with insert screws and Torx wrench.
- Order inserts separately; see pages J115–J117.



■ S2 S Whistle Notch WN Shank • Metric

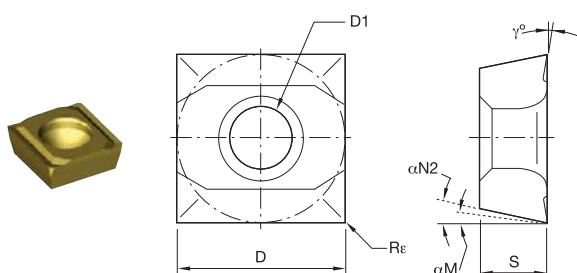
catalog number	D1		tol min D1		tol max D1		D	D6	L	L2	L4 max	gage insert	number of inserts
	mm	in	mm	in	mm	in							
CBTF150R2WD20N2M	15,14	0.596	-0,120	-0.005	0,120	0.005	20	6,0	81	31	8,5	SPHX060204R..	2
CBTF160R2WD20N2M	16,14	0.635	-0,120	-0.005	0,120	0.005	20	7,0	81	31	8,5	SPHX060204R..	2
CBTF170R2WD20N2M	17,14	0.675	-0,120	-0.005	0,120	0.005	20	8,0	86	36	13,5	SPHX060204R..	2
CBTF180R2WD20N2M	18,14	0.714	-0,120	-0.005	0,120	0.005	20	8,4	86	36	13,5	SPHX070304R..	2
CBTF180R2WD20N3M	18,14	0.714	-0,120	-0.005	0,120	0.005	20	8,4	86	36	13,5	SPHX060204R..	3
CBTF200R2WD20N2M	20,17	0.794	-0,120	-0.005	0,120	0.005	20	8,5	86	36	16,0	SPHX070304R..	2
CBTF200R2WD20N3M	20,17	0.794	-0,120	-0.005	0,120	0.005	20	8,5	86	36	16,0	SPHX060204R..	3
CBTF210R2WD20N2M	21,17	0.833	-0,120	-0.005	0,120	0.005	20	8,5	86	36	16,0	SPHX070304R..	2
CBTF210R2WD20N3M	21,17	0.833	-0,120	-0.005	0,120	0.005	20	10,5	86	36	11,0	SPHX060204R..	3
CBTF220R2WD20N2M	22,17	0.873	-0,120	-0.005	0,120	0.005	20	10,4	86	36	16,0	SPHX070304R..	2
CBTF220R2WD20N3M	22,17	0.873	-0,120	-0.005	0,120	0.005	20	10,5	86	36	16,0	SPHX060204R..	3
CBTF230R2WD20N2M	23,17	0.912	-0,120	-0.005	0,120	0.005	20	10,5	91	41	21,0	SPHX090304R..	2
CBTF230R2WD20N3M	23,17	0.912	-0,120	-0.005	0,120	0.005	20	10,5	91	41	16,0	SPHX070304R..	3
CBTF240R2WD20N2M	24,17	0.951	-0,120	-0.005	0,120	0.005	20	10,5	91	41	18,5	SPHX090304R..	2
CBTF240R2WD20N3M	24,17	0.951	-0,120	-0.005	0,120	0.005	20	10,5	91	41	16,0	SPHX070304R..	3
CBTF250R2WD20N2M	25,17	0.991	-0,120	-0.005	0,120	0.005	20	12,0	96	46	23,5	SPHX090304R..	2
CBTF250R2WD20N3M	25,17	0.991	-0,120	-0.005	0,120	0.005	20	10,5	96	46	21,0	SPHX070304R..	3
CBTF260R2WD20N2M	26,17	1.030	-0,120	-0.005	0,120	0.005	20	13,0	96	46	23,5	SPHX090304R..	2
CBTF270R2WD20N3M	27,17	1.070	-0,120	-0.005	0,120	0.005	20	10,5	96	46	21,0	SPHX090304R..	3
CBTF280R2WD20N3M	28,17	1.109	-0,120	-0.005	0,120	0.005	20	15,0	101	51	23,5	SPHX090304R..	3
CBTF300R2WD20N3M	30,17	1.188	-0,120	-0.005	0,120	0.005	20	15,0	101	51	23,0	SPHX090304R..	3
CBTF320R2WD20N3M	32,20	1.268	-0,120	-0.005	0,120	0.005	20	17,0	101	51	23,0	SPHX090304R..	3
CBTF330R2WD20N3M	33,20	1.307	-0,120	-0.005	0,120	0.005	20	17,0	101	51	25,5	SPHX090304R..	3
CBTF340R2WD32N3M	34,20	1.346	-0,120	-0.005	0,120	0.005	32	18,0	111	51	25,5	SPHX090304R..	3
CBTF350R2WD32N3M	35,20	1.386	-0,120	-0.005	0,120	0.005	32	19,0	111	51	25,5	SPHX090304R..	3
CBTF360R2WD32N3M	36,20	1.425	-0,120	-0.005	0,120	0.005	32	19,0	116	56	27,5	SPHX090304R..	3
CBTF380R2WD32N3M	38,20	1.504	-0,120	-0.005	0,120	0.005	32	22,0	121	61	30,0	SPHX120404R..	3
CBTF400R2WD32N3M	40,20	1.582	-0,120	-0.005	0,120	0.005	32	21,0	121	61	30,5	SPHX120404R..	3
CBTF420R2WD32N3M	42,20	1.661	-0,120	-0.005	0,120	0.005	32	22,0	126	66	33,5	SPHX120404R..	3
CBTF460R2WD32N3M	46,20	1.819	-0,120	-0.005	0,120	0.005	32	25,0	126	66	33,5	SPHX120404R..	3

■ Spare Parts



gage insert	insert screw	wrench	Torx size
SPHX060204R..	192.432	170.028	T8
SPHX070304R..	192.432	170.028	T8
SPHX090304R..	191.924	170.024	T9
SPHX120404R..	191.916	170.025	T15

- Double-sided insert style.



- first choice
- alternate choice

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

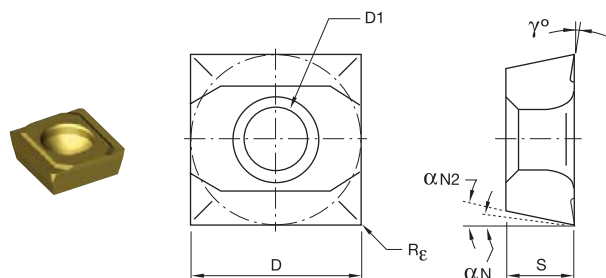
■ SPHX..R-20

catalog number	D		D1		S		Re		γ°	$\alpha N2$	$\alpha N M$	KCJ25	KCJ40	KC7215	KC7140
	mm	in	mm	in	mm	in	mm	in							
SPHX060202R20	6,35	.250	2,85	.112	2,38	.094	0,20	.008	12	11	7	-	-	●	-
SPHX060204R20	6,35	.250	2,85	.112	2,38	.094	0,40	.016	12	11	7	●	●	-	●
SPHX060206R20	6,35	.250	2,85	.112	2,38	.094	0,60	.024	12	11	7	-	-	●	-
SPHX060208R20	6,35	.250	2,85	.112	2,38	.094	0,80	.031	12	11	7	-	-	●	-
SPHX070302R20	7,94	.313	2,85	.112	3,18	.125	0,20	.008	12	11	7	-	-	●	-
SPHX070304R20	7,94	.313	2,85	.112	3,18	.125	0,40	.016	12	11	7	●	●	-	●
SPHX070306R20	7,94	.313	2,85	.112	3,18	.125	0,60	.024	12	11	7	-	-	●	-
SPHX070308R20	7,94	.313	2,85	.112	3,18	.125	0,80	.031	12	11	7	-	-	●	-
SPHX070310R20	7,94	.313	2,85	.112	3,18	.125	1,00	.039	12	11	7	-	-	●	-
SPHX070312R20	7,94	.313	2,85	.112	3,18	.125	1,20	.047	12	11	7	-	-	●	-
SPHX090304R20	9,53	.375	3,50	.138	3,18	.125	0,40	.016	12	11	7	●	●	●	●
SPHX090308R20	9,53	.375	3,50	.138	3,18	.125	0,80	.031	12	11	7	●	●	-	-
SPHX090310R20	9,53	.375	3,50	.138	3,18	.125	1,00	.039	12	11	7	-	-	●	-
SPHX090312R20	9,53	.375	3,50	.138	3,18	.125	1,20	.047	12	11	7	-	-	●	-
SPHX090316R20	9,53	.375	3,50	.138	3,18	.125	1,60	.063	12	11	7	-	-	●	-
SPHX120404R20	12,70	.500	4,50	.177	4,76	.187	0,40	.016	12	11	7	●	●	-	●
SPHX120408R20	12,70	.500	4,50	.177	4,76	.187	0,80	.031	12	11	7	●	●	-	-
SPHX120410R20	12,70	.500	4,50	.177	4,76	.187	1,00	.039	12	11	7	-	-	●	-
SPHX120412R20	12,70	.500	4,50	.177	4,76	.187	1,20	.047	12	11	7	-	-	●	-
SPHX120416R20	12,70	.500	4,50	.177	4,76	.187	1,60	.063	12	11	7	-	-	●	-
SPHX120420R20	12,70	.500	4,50	.177	4,76	.187	2,00	.079	12	11	7	-	-	●	-
SPHX150504R20	15,88	.625	5,50	.217	5,95	.234	0,40	.016	12	11	7	●	●	-	-
SPHX150508R20	15,88	.625	5,50	.217	5,95	.234	0,80	.031	12	11	7	●	●	-	-
SPHX150512R20	15,88	.625	5,50	.217	5,95	.234	1,20	.047	12	11	7	-	-	●	-
SPHX150516R20	15,88	.625	5,50	.217	5,95	.234	1,60	.063	12	11	7	-	-	●	-
SPHX150520R20	15,88	.625	5,50	.217	5,95	.234	2,00	.079	12	11	7	-	-	●	-

NOTE: SPHX...R-20: This geometry is first choice for steel applications.



Indexable Drills



● first choice
○ alternate choice

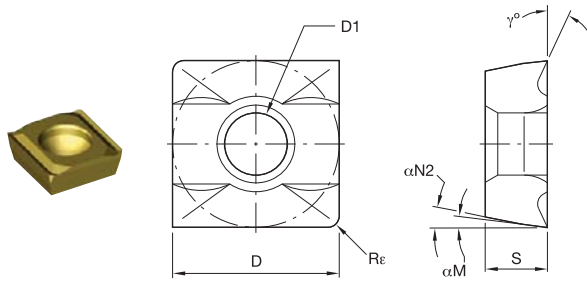
P	○	○	○	○	○
M	○	○	○	○	○
K	●	●	●	●	●
N	○	○	○	○	○
S	○	○	○	○	○
H	○	○	○	○	○

SPHX..R-21

Indexable Drills

catalog number	D		D1		S		Rε		γ°	αN2	αN	KCPK10	KCU25	KCU40	KC7215	KM1
	mm	in	mm	in	mm	in	mm	in								
SPHX060202R21	6,35	.250	2,85	.112	2,38	.094	0,20	.008	4	11	7	-	-	-	●	-
SPHX060204R21	6,35	.250	2,85	.112	2,38	.094	0,40	.016	4	11	7	●	●	●	-	-
SPHX060204R-21	6,35	.250	2,85	.112	2,38	.094	0,40	.016	4	11	7	-	-	-	-	●
SPHX060206R21	6,35	.250	2,85	.112	2,38	.094	0,60	.024	4	11	7	-	-	-	●	-
SPHX060208R21	6,35	.250	2,85	.112	2,38	.094	0,80	.031	4	11	7	-	-	-	-	●
SPHX070304R21	7,94	.313	2,85	.112	3,18	.125	0,40	.016	4	11	7	●	●	●	-	-
SPHX070304R-21	7,94	.313	2,85	.112	3,18	.125	0,40	.016	4	11	7	-	-	-	-	●
SPHX070306R21	7,94	.313	2,85	.112	3,18	.125	0,60	.024	4	11	7	-	-	-	●	-
SPHX070308R21	7,94	.313	2,85	.112	3,18	.125	0,80	.031	4	11	7	●	-	●	-	-
SPHX070310R21	7,94	.313	2,85	.112	3,18	.125	1,00	.039	4	11	7	-	-	-	●	-
SPHX090304R21	9,53	.375	3,50	.138	3,18	.125	0,40	.016	4	11	7	●	●	●	-	-
SPHX090304R-21	9,53	.375	3,50	.138	3,18	.125	0,40	.016	4	11	7	-	-	-	-	●
SPHX090308R21	9,53	.375	3,50	.138	3,18	.125	0,80	.032	4	11	7	●	●	●	-	-
SPHX090310R21	9,53	.375	3,50	.138	3,18	.125	1,00	.039	4	11	7	-	-	-	●	-
SPHX090312R21	9,53	.375	3,50	.138	3,18	.125	1,20	.047	4	11	7	-	-	-	●	-
SPHX090316R21	9,53	.375	3,50	.138	3,18	.125	1,60	.063	4	11	7	-	-	-	●	-
SPHX120404R21	12,70	.500	4,50	.177	4,76	.187	0,40	.016	4	11	7	●	●	●	-	-
SPHX120404R-21	12,70	.500	4,50	.177	4,76	.187	0,40	.016	4	11	7	-	-	-	-	●
SPHX120408R21	12,70	.500	4,50	.177	4,76	.187	0,80	.031	4	11	7	-	-	-	●	-
SPHX120410R21	12,70	.500	4,50	.177	4,76	.187	1,00	.039	4	11	7	-	-	-	●	-
SPHX120412R21	12,70	.500	4,50	.177	4,76	.187	1,20	.047	4	11	7	-	-	-	●	-
SPHX120416R21	12,70	.500	4,50	.177	4,76	.187	1,60	.063	4	11	7	-	-	-	●	-
SPHX120420R21	12,70	.500	4,50	.177	4,76	.187	2,00	.079	4	11	7	-	-	-	●	-
SPHX150504R-21	15,88	.625	5,50	.217	5,95	.234	0,40	.016	4	11	7	-	-	-	-	●

NOTE: SPHX...R-21: This geometry is first choice for cast iron applications.



● first choice
○ alternate choice

P	■	
M	■	
K	■	○
N	■	●
S	■	
H	■	

■ SPHX..R-22

catalog number	D		D1		S		Re		γ°	$\alpha N2$	$\alpha N M$	KM1
	mm	in	mm	in	mm	in	mm	in				
SPHX060204R-22	6,35	.250	2,85	.112	2,38	.094	0,40	.016	25	11	—	●
SPHX070304R-22	7,94	.313	2,85	.112	3,18	.125	0,40	.016	25	11	—	●
SPHX090304R-22	9,53	.375	3,50	.138	3,18	.125	0,40	.016	25	11	—	●
SPHX120404R-22	12,70	.500	4,50	.177	4,76	.187	0,40	.016	25	11	—	●
SPHX150504R-22	15,88	.625	5,50	.217	5,95	.234	0,40	.016	25	11	7	●

NOTE: SPHX...R-22: This geometry is first choice for aluminum applications.



Indexable Drills