

NORMALTECH MF

PRODUZIONE E DISTRIBUZIONE UTENSILI AD ASPORTAZIONE TRUCIOLO



NT-SpeedDRILL

PUNTE A CUSPIDI INTERCAMBIABILI PER FORATURA

CARATTERISTICHE DEL CORPO PUNTE FEATURES OF NT-DRILLSPEED HOLDERS

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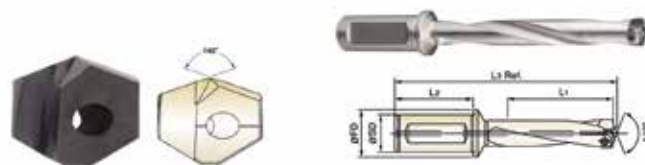
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SERIE MISURE	COD. INSERTI		Ø			Prof. For.	CODICE portainseriti	SD	L2	FD	L1	L3 REF	TORX
	TiAIN	TiCN	h7										
(mm)	General	INOX	dec.	frac.	mm								
A da Ø 12.00 a Ø 13.99	YA1A1200	YA2C1200	0.4729		12.00	3D	ZH12003020				36	112.4	TX1213T08
	YA1A1210	YA2C1210	0.4762		12.10	5D	ZH12005020	20	50	25	60	136.4	
	YA1A1220	YA2C1220	0.4803		12.20								
	YA1A1230	YA2C1230	0.4844	31/64	12.30	7D	ZH12007020				84	160.4	
	YA1A1250	YA2C1250	0.4921		12.50	3D	ZH12503020				37.5	113.4	
	YA1A1260	YA2C1260	0.4961		12.60								
	YA1A1270	YA2C1270	0.5000	1/2	12.70	5D	ZH12505020	20	50	25	62.5	138.4	
	YA1A1280	YA2C1280	0.5039		12.80								
	YA1A1290	YA2C1290	0.5079		12.90	7D	ZH12507020				87.5	163.4	
	YA1A1300	YA2C1300	0.5118		13.00	3D	ZH13003020				39	115.4	TX1314T08
	YA1A1310	YA2C1310	0.5156	33/64	13.10	5D	ZH13005020	20	50	25	65	141.4	
	YA1A1320	YA2C1320	0.5197		13.20								
	YA1A1349	YA2C1349	0.5312	17/32	13.49	7D	ZH13007020				91	167.4	
	YA1A1350	YA2C1350	0.5315		13.50	3D	ZH13503020				40.5	116.4	
	YA1A1360	YA2C1360	0.5354		13.60								
	YA1A1370	YA2C1370	0.5394		13.70	5D	ZH13505020	20	50	25	67.5	143.4	
	YA1A1380	YA2C1380	0.5433		13.80								
	YA1A1389	YA2C1389	0.5469	35/64	13.89	7D	ZH13507020				94.5	170.4	

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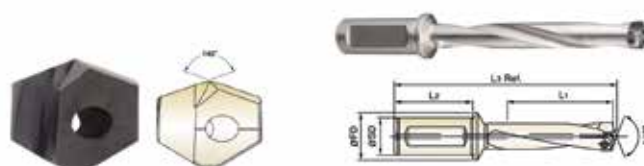
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	TiAIN	TiCN	h7										
(mm)	General	INOX	dec.	frac.	mm								
B da Ø 14.00 a Ø 15.99	YB1A1400	YB2C1400	0.5512		14.00	3D	ZH14003020				42	118.9	TX1415T08
	YB1A1410	YB2C1410	0.5551		14.10								
	YB1A1420	YB2C1420	0.5591		14.20	5D	ZH14005020	20	50	25	70	146.9	
	YB1A1429	YB2C1429	0.5625	9/16	14.29								
	YB1A1430	YB2C1430	0.5630		14.30	7D	ZH14007020				98	174.9	
	YB1A1440	YB2C1440	0.5669		14.40								
	YB1A1450	YB2C1450	0.5709		14.50	3D	ZH14503020				43.5	120.9	
	YB1A1460	YB2C1460	0.5748		14.60	5D	ZH14505020	20	50	25	72.5	149.9	
	YB1A1468	YB2C1468	0.5781	37/64	14.68	7D	ZH14703020				101.5	178.9	
	YB1A1480	YB2C1480	0.5827		14.80								
	YB1A1500	YB2C1500	0.5906		15.00	3D	ZH15003020				45	122.9	
	YB1A1508	YB2C1508	0.5938	19/32	15.08								
	YB1A1510	YB2C1510	0.5945		15.10	5D	ZH15005020	20	50	25	75	152.9	
	YB1A1520	YB2C1520	0.5984		15.20								
	YB1A1530	YB2C1530	0.6024		15.30	7D	ZH15007020				105	182.9	
	YB1A14548	YB2C14548	0.6094	39/64	15.48								
	YB1A1550	YB2C1550	0.6102		15.50								
	YB1A1560	YB2C1560	0.6142		15.60	3D	ZH15503020				46.5	123.9	
	YB1A1570	YB2C1570	0.6181		15.70	5D	ZH15505020	20	50	25	77.5	154.9	
	YB1A1580	YB2C1580	0.6220		15.80								
	YB1A1587	YB2C1587	0.6250	5/8	15.87	7D	ZH15507020				108.5	185.9	

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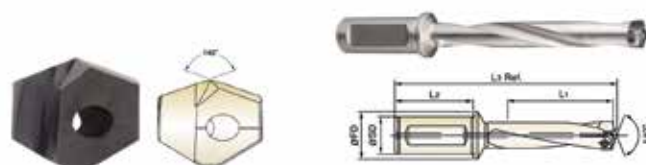
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	TiAIN	TiCN	h7										
(mm)	General	INOX	dec.	frac.	mm								
C da Ø 16.00 a Ø 17.99	YC1A1600	YC2C1600	0.6299		16.00	3D	ZH16003020				48	125.0	TX1617T08
	YC1A1609	YC2C1609	0.6335		16.09								
	YC1A1620	YC2C1620	0.6378		16.20	5D	ZH16005020	20	50	25	80	157.0	
	YC1A1627	YC2C1627	0.6406	41/64	16.27								
	YC1A1630	YC2C1630	0.6417		16.30	7D	ZH16007020				112	189.0	
	YC1A1650	YC2C1650	0.6496		16.50	3D	ZH16503020				49.5	127.0	
	YC1A1667	YC2C1667	0.6562	21/32	16.67	5D	ZH16505020	20	50	25	82.5	160.0	
	YC1A1680	YC2C1680	0.6614		16.80	7D	ZH16507020				115.5	193.0	
	YC1A1700	YC2C1700	0.6693		17.00	3D	ZH17003020				51	128.0	TX1718T08
	YC1A1707	YC2C1707	0.6719	43/64	17.07	5D	ZH17005020	20	50	25	85	162.0	
	YC1A1746	YC2C1746	0.6875	11/16	17.46	7D	ZH17007020				119	196.0	
	YC1A1750	YC2C1750	0.6890		17.50	3D	ZH17003020				52.5	130.0	
	YC1A1780	YC2C1780	0.7008		17.80	5D	ZH17005020	20	50	25	87.5	165.0	
	YC1A1786	YC2C1786	0.7031	45/64	17.86	7D	ZH17007020				122.5	200.0	
D da Ø 18.00 a Ø 19.99	YD1A1800	YD2C1800	0.7087		18.00	3D	ZH18003025				54	140.3	TX1819T15
	YD1A1826	YD2C1826	0.7188	23/32	18.26	5D	ZH18005025	25	56	32	90	176.3	
						7D	ZH18007025				126	212.3	
	YD1A1850	YD2C1850	0.7283		18.50	3D	ZH18503025				55.5	141.3	
	YD1A1865	YD2C1865	0.7344	47/64	18.65	5D	ZH18505025	25	56	32	92.5	178.3	TX1920T15
	YD1A1880	YD2C1880	0.7402		18.80	7D	ZH18507025				129.5	215.3	
	YD1A1900	YD2C1900	0.7480		19.00	3D	ZH19003025				57	144.3	
	YD1A1905	YD2C1905	0.7500	3/4	19.05	5D	ZH19005025	25	56	32	95	182.3	
	YD1A1927	YD2C1927	0.7587		19.27								
	YD1A1945	YD2C1945	0.7656	49/64	19.45	7D	ZH10507025				133	220.3	
	YD1A1950	YD2C1950	0.7677		19.50	3D	ZH19503025				58.5	145.3	
	YD1A1980	YD2C1980	0.7795		19.80	5D	ZH19505025	25	56	32	97.5	184.3	
	YD1A1984	YD2C1984	0.7812	25/32	19.84	7D	ZH19507025				136.5	223.3	

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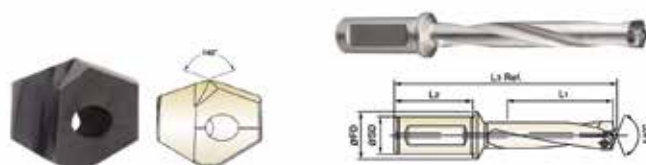
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	TiAIN	TiCN	h7										
(mm)	General	INOX	dec.	frac.	mm								
E da Ø 20.00 a Ø 21.99	YE1A2000	YE2C2000	0.7874		20.00	3D	ZH20003025				60	145.5	TX2021T20
	YE1A2024	YE2C2024	0.7969	51/64	20.24	5D	ZH20005025	25	56	32	100	185.5	
						7D	ZH20007025				140	225.5	
	YE1A2050	YE2C2050	0.8071		20.50	3D	ZH20503025				61.5	147.5	
	YE1A2064	YE2C2064	0.8125	13/16	20.64	5D	ZH20505025	25	56	32	102.5	188.5	
	YE1A2070	YE2C2070	0.8150		20.70	7D	ZH20507025				143.5	229.5	
	YE1A2100	YE2C2100	0.8268		21.00	3D	ZH21003025				63	149.5	TX2122T20
	YE1A2103	YE2C2103	0.8281	53/64	21.03	5D	ZH21005025	25	56	32	105	191.5	
	YE1A2143	YE2C2143	0.8438	27/32	21.43	7D	ZH21007025				147	233.5	
	YE1A2150	YE2C2150	0.8465		21.50	3D	ZH21503025				64.5	150.5	
	YE1A2170	YE2C2170	0.8543		21.70	5D	ZH21505025	25	56	32	107.5	193.5	
	YE1A2183	YE2C2183	0.8594	55/64	21.83	7D	ZH21507025				150.5	236.5	
F da Ø 22.00 a Ø 23.99	YF1A2200	YF2C2200	0.8661		22.00	3D	ZH22003025				66	152.4	TX2223T20
	YF1A2223	YF2C2223	0.8750	7/8	22.23	5D	ZH22005025	25	56	32	110	196.4	
						7D	ZH22007025				154	240.4	
	YF1A2250	YF2C2250	0.8858		22.50	3D	ZH22503025				67.5	153.4	
	YF1A2262	YF2C2262	0.8906	57/64	22.62	5D	ZH22505025	25	56	32	112.5	198.4	
	YF1A2270	YF2C2270	0.8937		22.70	7D	ZH22507025				157.5	243.4	
	YF1A2300	YF2C2300	0.9055		23.00	3D	ZH23003025				69	155.4	TX2324T20
	YF1A2302	YF2C2302	0.9062	29/32	23.02	5D	ZH23005025	25	56	32	115	201.4	
	YF1A2342	YF2C2342	0.9219	59/64	23.42	7D	ZH23007025				161	247.4	
	YF1A2350	YF2C2350	0.9252		23.50	3D	ZH23503025				70.5	157.4	
	YF1A2370	YF2C2370	0.9331		23.70	5D	ZH23505025	25	56	32	117.5	204.4	
	YF1A2381	YF2C2381	0.9375	15/16	23.81	7D	ZH23507025				164.5	251.4	

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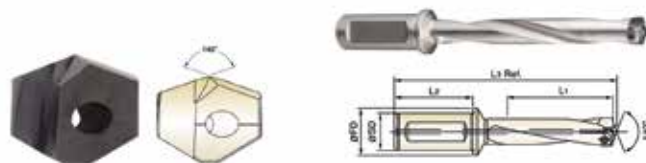
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	TiAIN	TiCN	h7										
(mm)	General	INOX	dec.	frac.	mm								
G da Ø 24.00 a Ø 25.99	YG1A2400	YG2C2400	0.9449		24.00	3D	ZH24003032				72	164.8	TX2425T20
	YG1A2421	YG2C2421	0.9531	61/64	24.21	5D	ZH24005032	32	60	37	120	212.8	
						7D	ZH24007032				168	260.8	
	YG1A2450	YG2C2450	0.9646		24.50	3D	ZH24503032				73.5	165.8	
	YG1A2461	YG2C2461	0.9688	31/32	24.61	5D	ZH24505032	32	60	37	122.5	214.8	
	YG1A2470	YG2C2470	0.9724		24.70	7D	ZH24507032				175	263.8	TX2526T20
	YG1A2500	YG2C2500	0.9843	63/64	25.00	3D	ZH25003032				75	167.8	
	YG1A2540	YG2C2540	1.0000	1	25.40	5D	ZH25005032	32	60	37	125	217.8	
	YG1A2550	YG2C2550	1.0039		25.50	7D	ZH25007032				175	267.8	
	YG1A2567	YG2C2567	1.0106		25.67	3D	ZH25503032				76.5	170.8	
YG1A2570	YG2C2570	1.0118		25.70	5D	ZH25505032	32	60	37	127.5	221.8	TX2627T25	
YG1A2580	YG2C2580	1.0156	1*1/64	25.80	7D	ZH25507032				178.5	272.8		
YH1A2600	YH2C2600	1.0236		26.00	3D	ZH26003032				78	171.2		
H da Ø 26.00 a Ø 27.99	YH1A2619	YH2C2619	1.0312	1*1/32	26.19	5D	ZH26005032	32	60	37	130	223.2	TX2728T25
						7D	ZH26007032				182	275.2	
	YH1A2650	YH2C2650	1.0433		26.50	3D	ZH26503032				79.5	172.2	
	YH1A2659	YH2C2659	1.0469	1*3/64	26.59	5D	ZH26505032	32	60	37	132.5	225.2	TX2728T25
	YH1A2699	YH2C2699	1.0625	1*1/16	26.99	7D	ZH26507032				185.5	278.2	
	YH1A2700	YH2C2700	1.0630		27.00	3D	ZH27003032				81	174.2	
						5D	ZH27005032	32	60	37	135	228.2	
						7D	ZH27007032				189	282.2	
	YH1A2750	YH2C2750	1.0827		27.50	3D	ZH27503032				82.5	175.2	
YH1A2778	YH2C2778	1.0938	1*3/32	27.78	5D	ZH27505032	32	60	37	137.5	230.2	TX2728T25	
					7D	ZH27507032				192.5	285.2		

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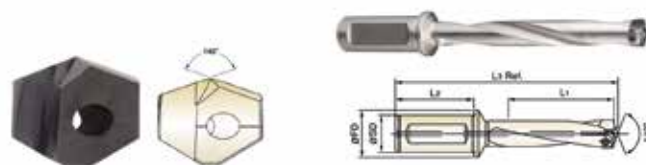
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	TiAlN	TiCN	h7										
(mm)	General	INOX	dec.	frac.	mm								
I da Ø 28.00 a Ø 29.99	YI1A2800	YI2C2800	1.1024		28.00	3D	ZH28003032				84	178.2	TX2829T25
	YI1A2818	YI2C2818	1.1094	1*7/64	28.18	5D	ZH28005032	32	60	37	140	234.2	
						7D	ZH28007032				196	290.2	
	YI1A2850	YI2C2850	1.1220		28.50	3D	ZH28503032				85.5	179.2	
	YI1A2858	YI2C2858	1.1250	1*1/8	28.58	5D	ZH28505032	32	60	37	142.5	236.2	TX2930T25
						7D	ZH28507032				199.5	293.2	
	YI1A2900	YI2C2900	1.1417		29.00	3D	ZH29003032				87	182.2	
	YI1A2937	YI2C2937	1.1562	1*5/32	29.37	5D	ZH29005032	32	60	37	145	240.2	
					7D	ZH29007032				203	298.2		
YI1A2950	YI2C2950	1.1614		29.50	3D	ZH29503032				88.5	183.2	TX2930T25	
YI1A2977	YI2C2977	1.1719	1*11/64	29.77	5D	ZH29505032	32	60	37	147.5	242.2		
					7D	ZH29507032				206.5	301.2		
J da Ø 30.00 a Ø 31.99	YJ1A3000	YJ2C3000	1.1811		30.00	3D	ZH30003032				90	186.0	TX3031T25
	YJ1A3016	YJ2C3016	1.1875	1*3/16	30.16	5D	ZH30005032	32	60	37	150	246.0	
						7D	ZH30007032				210	306.0	
	YJ1A3050	YJ2C3050	1.2008		30.50	3D	ZH30503032				91.5	187.0	
	YJ1A3056	YJ2C3056	1.2031	1*11/64	30.56	5D	ZH30505032	32	60	37	152.5	248.0	TX3132T25
	YJ1A3096	YJ2C3096	1.2188	1*7/32	30.96	7D	ZH30507032				213.5	309.0	
	YJ1A3100	YJ2C3100	1.2205		31.00	3D	ZH31003032				93	188.0	
					5D	ZH31005032	32	60	37	153	250.0	TX3132T25	
					7D	ZH31007032				217	312.0		
YJ1A3150	YJ2C3150	1.2402		31.50	3D	ZH31503032				94.5	191.0		
YJ1A3175	YJ2C3175	1.2500	1*1/4	31.75	5D	ZH31505032	32	60	37	157.5	254.0		
					7D	ZH31507032				220.5	317.0		

METRICO

Materiali		Resist. Trazione [N/mm ²]	Durezza		Velocità di taglio Vc (m/min)	Avanzamento a giro (mm/giro)				
			HB	HRc		Ø12.0 ~ Ø14.9	Ø15.0 ~ Ø17.9	Ø18.0 ~ Ø21.9	Ø22.0 ~ Ø26.9	Ø27.0 ~ Ø31.9
Acciai dolci	9SMn28, 9SMnPb28, 10SPb20 etc	~500	100-150		95-120	0.16-0.28	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
		500-850	150-250	~24	80-105	0.14-0.24	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
Acciai basso legati, Acciai al carbonio	C15, C22, 20Mn5, Ck45, C45 etc	~450	85-125		90-115	0.14-0.25	0.20-0.33	0.25-0.39	0.31-0.47	0.34-0.50
		450-755	125-225	~19	70-90	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.33-0.49
		755-900	225-265	19-27	60-80	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.33-0.49
		900-1200	265-350	27-37	55-70	0.10-0.16	0.15-0.25	0.21-0.30	0.25-0.38	0.29-0.43
Acciai legati	45CrMo4, 42CrMo4, 16MnCr5, Ck75, 35CrMo4, 16MnCr5 etc	~600	125-175	~7	80-100	0.14-0.24	0.17-0.28	0.22-0.32	0.30-0.46	0.34-0.50
		600-800	175-235	7-22	70-90	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.34-0.50
		800-950	235-280	22-29	60-80	0.12-0.20	0.15-0.25	0.22-0.32	0.30-0.46	0.34-0.50
		950-1110	280-330	29-35	55-70	0.10-0.16	0.13-0.21	0.21-0.30	0.25-0.38	0.29-0.43
		1110-1230	330-360	35-39	45-60	0.08-0.12	0.13-0.21	0.21-0.30	0.25-0.38	0.29-0.43
Acciai alto legati	36CrNiMo4, 41CrAlMo7 etc	600-1020	225-300	19-32	45-60	0.12-0.20	0.15-0.25	0.21-0.30	0.20-0.31	0.24-0.35
		1020-1200	300-355	32-38	40-55	0.10-0.16	0.11-0.18	0.21-0.30	0.20-0.31	0.24-0.35
		1200-1330	355-390	38-42	40-50	0.08-0.12	0.09-0.14	0.18-0.26	0.19-0.29	0.23-0.34
Acciai strutturali	St33, St37-2, St44-2, St52, St60 etc	350-500	100-150		75-95	0.14-0.24	0.21-0.35	0.27-0.39	0.29-0.44	0.32-0.47
		500-850	150-250	~24	60-75	0.12-0.20	0.20-0.33	0.22-0.32	0.25-0.38	0.29-0.43
		850-1200	250-355	24-38	50-65	0.10-0.16	0.17-0.28	0.21-0.30	0.21-0.32	0.26-0.38
Acciai da utensili	102Cr6, 105WCr6, C75W etc	500-705	150-210	~16	50-65	0.10-0.16	0.13-0.21	0.18-0.26	0.20-0.31	0.24-0.35
		705-950	210-280	16-29	40-50	0.10-0.16	0.13-0.21	0.18-0.26	0.20-0.31	0.24-0.35
Ghisa grigia	Perlitica - Ferritica Perlitica	500-700	150-210	~16	100-125	0.15-0.26	0.20-0.37	0.27-0.42	0.36-0.51	0.40-0.55
		700-850	210-250	16-24	75-95	0.11-0.20	0.16-0.29	0.20-0.30	0.25-0.35	0.29-0.40
Ghisa nodulare	Ferritica Perlitica	540	165	4	95-120	0.13-0.22	0.17-0.31	0.21-0.32	0.28-0.40	0.32-0.44
		850	250	24	75-95	0.11-0.20	0.14-0.26	0.19-0.29	0.25-0.35	0.29-0.40
Ghisa malleabile	Ferritica Perlitica	450	125		100-125	0.13-0.22	0.17-0.31	0.21-0.32	0.28-0.40	0.32-0.44
		780	230	21	75-95	0.11-0.18	0.14-0.26	0.19-0.29	0.25-0.35	0.29-0.40
Leghe di alluminio lavorate	Non trattate termicamente Indurite		65		250-330	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55	0.50-0.60
			150		200-250	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55	0.50-0.60
Leghe di alluminio fuse	≤ 12% Si, non tratt. termicam. ≤ 12% Si, Indurite > 12% Si, non tratt. termicam.		75		200-50	0.25-0.35	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55
			90		150-220	0.25-0.35	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55
			130		100-200	0.20-0.30	0.25-0.35	0.30-0.40	0.35-0.45	0.40-0.50
Leghe di rame	Lav. Facilitata (Pb > 1%) Ottone Rame elettrolitico		110		115-145	0.16-0.28	0.23-0.36	0.29-0.36	0.37-0.45	0.41-0.48
			90		145-185	0.17-0.29	0.24-0.37	0.30-0.38	0.38-0.46	0.42-0.49
			100		95-120	0.06-0.09	0.09-0.13	0.11-0.13	0.15-0.18	0.19-0.22
Materiali non ferrosi	Termodurenti Fibre di plastica Gomma dura									
Acciai Inox	Austenitici Austenitici - Ferritici	450-610	135-185	~9	45-60	0.10-0.16	0.12-0.18	0.14-0.20	0.15-0.26	0.18-0.28
		610-930	185-275	9-28	30-45	0.08-0.14	0.09-0.15	0.10-0.16	0.12-0.20	0.14-0.22

LEGENDA

Vc - Velocità di taglio (m/min)

Giri - Numero di giri (giri/min)

fn - Avanzamento a giro (mm/giro)

Vf - Avanzamento tavola (mm/min)

D - Diametro nominale punta (mm)

FORMULE

$$Vc = \frac{\pi \times D \times N}{1000} = (\text{m/min})$$

$$Giri = \frac{Vc \times 1000}{\pi \times D} = (\text{giri/min})$$

$$Vf = Giri \times fn = (\text{mm/min})$$

ANNOTAZIONI

► 5 x D ridurre l'avanzamento del 15 %

► 7 x D ridurre l'avanzamento del 30 %

► Per forature eseguite con punte
7 x D è raccomandato un preforo di
centraggio avente un angolo di attacco
maggiore o uguale a 140° per una
profondità pari a 1 - 2 x D.

Questo al fine di migliorare la centratura
del foro e ottenere una migliore finitura
superficiale.

MONTAGGIO INSERTI



Make sure to clean the insert and insert seat.

Pulire accuratamente sede ed inserto prima del montaggio.



Slide the drill insert into the slot of the holder and press down the insert to touch the bottom of the slot.
Far scorrere l'inserto lungo la sede inclinata fino alla battuta.



After confirming the insert is pressed down to the bottom of the slot, tighten the screw using anti-seize compound.

Tenere l'inserto pressato sul fondo, serrare la vite di bloccaggio con l'apposita chiave.

TIPO CHIAVE	CODICE	SUPPORTO	SERIE (mm)
A BANDIERA 	TWFT08	—	A (Ø 12.00~Ø 13.99)
			B (Ø 14.00~Ø 15.99)
			C (Ø 16.00~Ø 17.99)
TORX BIT 	TWBT20	TWH600 	E, F, G (Ø 20.00~Ø 25.99)
			H, I, J (Ø 26.00~Ø 31.99)
	TWBT25		

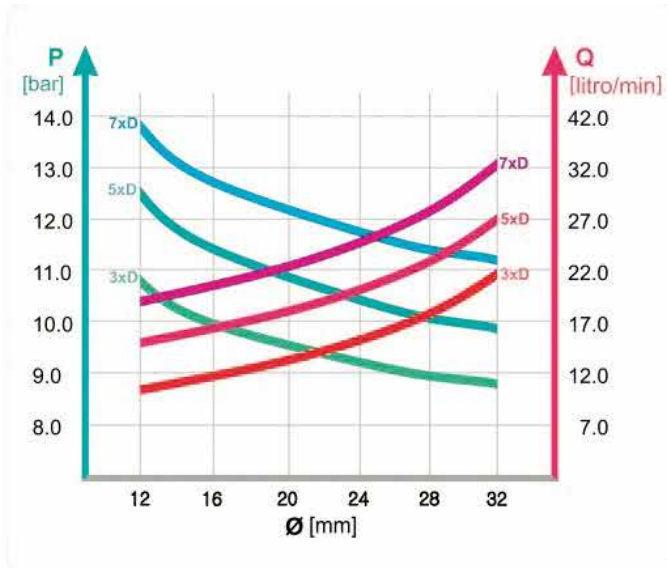
►Need to use appropriate wrenches and screws as indicated.

È necessario utilizzare sempre le viti e le chiavi appropriate, come indicato in tabella.

►It's important to tighten up the screw properly.

È importante applicare una forza di serraggio appropriata onde evitare il danneggiamento della vite

PARAMETRI DI PRESSIONE E PORTATA CONSIGLIATI



- Recommended emulsion mix is 6% - 8%.
Emulsione con percentuale pari a 6 - 8 %.
- For Drilling in Stainless and High Strength steels, a mix of 10% is recommended.
Per forature su Acciai Inox o Acciai ad alta resistenza incrementare l'emulsione al 10 %.
- For horizontal drilling, 30% reduction on the coolant pressure and flow rate is possible.
Per forature orizzontali è possibile ridurre i valori di pressione e portata del 30% circa.
- Dry drilling is possible for 1-2xD drilling. But not recommended.
È possibile forare senza l'ausilio di refrigerante interno limitatamente ad una profondità max di 2 - 2.5 x D.

CAUSE E RIMEDI



1) Usura sul fianco rapida

- Ridurre Vc
- Incrementare avanzamento



2) Scheggiatura filo tagliente

- Ridurre l'avanzamento
- Verificare rigidità staffaggio punta
- Rigidità presa pezzo



3) Tagliente di riporto

- Incrementare Vc



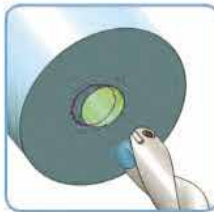
4) Scheggiatura spigoli esterni

- Ridurre l'avanzamento
- Verificare rigidità presa pezzo



5) Usura fasi cilindriche

- Verificare rigidità presa pezzo
- Ridurre Vc
- Aumentare portata refrigerante



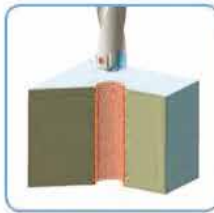
6) Insoddisfacente posizione del foro

- Rigidità presa pezzo
- Ridurre l'avanzamento in entrata e in uscita



7) Sfregamento corpo utensile

- Verificare rigidità presa pezzo
- Ridurre l'avanzamento
- Aumentare portata refrigerante



8) Insoddisfacente finitura superficiale

- Verificare rigidità presa pezzo
- Aumentare portata e pressione del refrigerante

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