

RAPID THREAD

Indexable Thread Mills - HELICAL

Diameters:

0.750", 1.000", 1.250"

Insert Sizes:

23mm (0.900), 32mm (1.260),
37mm (1.450), 38mm (1.490)

Thread Form:

ISO, UN, UNC, UNF, UNS, W, BSP,
BSW, BSF, BSP, BSPT, NPT

Applications:

Thread Milling

Materials:

Cast Iron, Steel, Stainless Steel,
Aluminum, Titanium and other
high temperature or nickel-based
alloys.



SERIES: 22Y3Q, 22Y3R, 22Y3S, 22Y3T

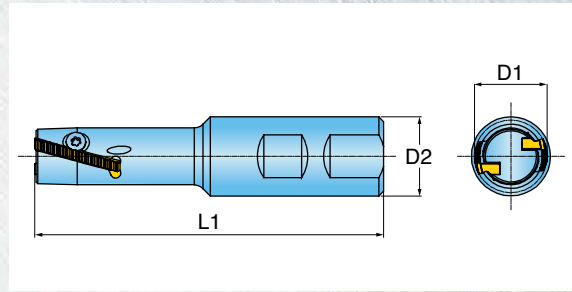
Endmills and shell mills with long helical and indexable inserts are the ultimate solution for very fast and efficient thread milling.

Series Features:

- Exert lower cutting forces and reduce vibration
- Helical inserts engage with the work piece smoothly
- Endmills hold 2, 5 & 6 inserts and shell mills hold 9 inserts
- Simple and very convenient screw clamping mechanism makes insert indexing accurate and user-friendly

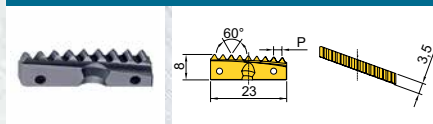
RAPID THREAD SERIES 22Y3Q (23MM)

INDEXABLE THREAD MILLS - HELICAL END MILL

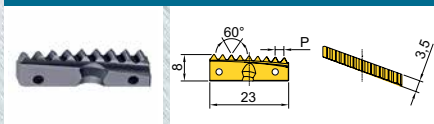


Cutter Number	a	D1	D2 Shank	L1 Overall Length	No. of Flutes
22Y3Q-0902280R01	0.900	1.060	1.000	4.500	2

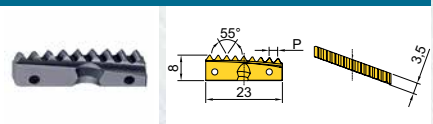
A ISO-threading (internal)



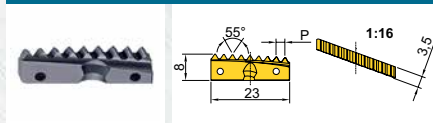
B UN/UNC/UNF/UNEF/UNS-threading (internal)



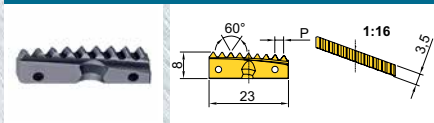
C W/BSP/BSW/BSF/BSP-threading (internal & external)



D BSPT-threading (internal & external)



E NPT-threading (internal & external)



Designation	Pitch	Grade	IN2005
ISO-THREADING (INTERNAL)			
LYER23100IS	1	A	⊕
LYER23150IS	1.5	A	⊕
LYER23200IS	2	A	⊕
LYER23300IS	3	A	⊕
UN/UNC/UNF/UNEF/UNS-THREADING (INTERNAL)			
LYER23240UN	24	B	⊕
LYER23160UN	16	B	⊕

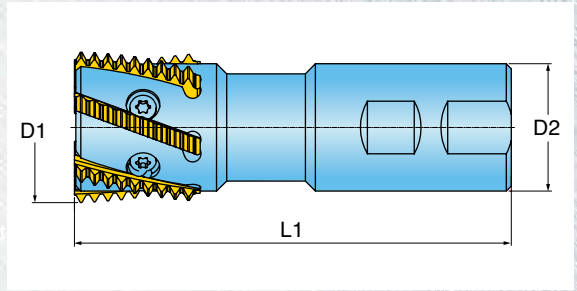
Designation	Pitch	Grade	IN2005
LYER23120UN	12	B	⊕
LYER23080UN	8	B	⊕
W/BSP/BSW/BSF/BSP-THREADING (INTERNAL & EXTERNAL)			
LYER23110BW	11	G	⊕
BSPT-THREADING (INTERNAL & EXTERNAL)			
LYER23110BT	11	D	⊕
NPT-THREADING (INTERNAL & EXTERNAL)			
LYER23115NT	11.5	B	⊕

⊕ = P ⊖ = M ⊙ = K ⊚ = N ⊛ = S ⊜ = H

HARDWARE	Driver	Screw
	DS-T15T	IS23

RAPID THREAD SERIES 22Y3R (32MM)

INDEXABLE THREAD MILLS - HELICAL END MILL



Cutter Number	a	D1	D2 Shank	L1 Overall Length	No. of Flutes
22Y3R-1302781R01	-	1.260	1.250	5.000	5

A ISO-threading (internal)

B UN/UNC/UNF/UNEF/UNS-threading (internal)

C W/BSP/BSW/BSF/BSP-threading (internal & external)

D BSPT-threading (internal & external)

E NPT-threading (internal & external)

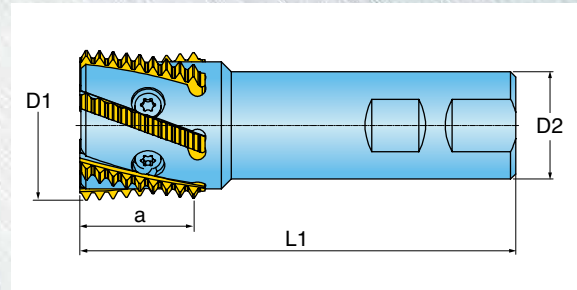
Designation	Pitch	Grade	IN2005	Designation	Pitch	Grade	IN2005
ISO-THREADING (INTERNAL)				W/BSP/BSW/BSF/BSP-THREADING (INTERNAL & EXTERNAL)			
LYER32150IS	1.5	A	⊕	LYER32080UN	8	B	⊕
LYER32200IS	2	A	⊕	LYER32060UN	6	B	⊕
LYER32300IS	3	A	⊕	BSPT-THREADING (INTERNAL & EXTERNAL)			
LYER32400IS	4	A	⊕	LYER32110BT	11	D	⊕
UN/UNC/UNF/UNEF/UNS-THREADING (INTERNAL)				NPT-THREADING (INTERNAL & EXTERNAL)			
LYER32160UN	16	B	⊕	LYER32115NT	11.5	B	⊕
LYER32120UN	12	B	⊕				

⊕ = P ⊕ = M ⊕ = K ⊕ = N ⊕ = S ⊕ = H

HARDWARE		
	Driver	Screw
	DS-T20T	IS32

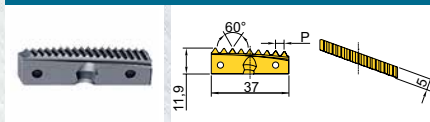
RAPID THREAD SERIES 22Y3S (37MM)

INDEXABLE THREAD MILLS - HELICAL END MILL

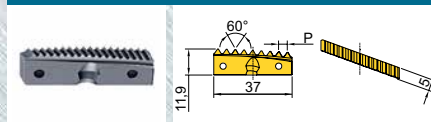


Cutter Number	a	D1	D2 Shank	L1 Overall Length	No. of Flutes
22Y3S-1802781R01	1.450	1.457	1.250	5.000	6

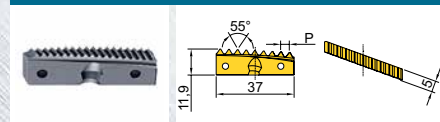
A ISO-threading (internal)



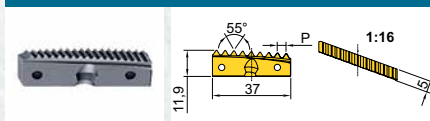
B UN/UNC/UNF/UNEF/UNS-threading (internal)



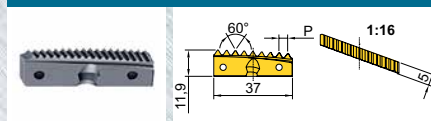
C W/BSP/BSW/BSF/BSP-threading (internal & external)



D BSPT-threading (internal & external)



E NPT-threading (internal & external)



Designation	Pitch	Grade	IN2005		
ISO-THREADING (INTERNAL)					
LYER37150IS	1.5	A			
LYER37200IS	2	A			
LYER37300IS	3	A			
LYER37400IS	4	A			
UN/UNC/UNF/UNEF/UNS-THREADING (INTERNAL)					
LYER37160UN	16	B			
LYER37120UN	12	B			

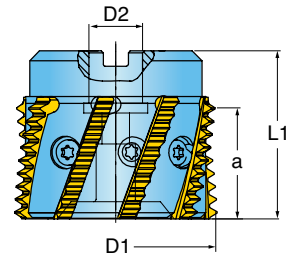
Designation	Pitch	Grade	IN2005		
LYER37080UN	8	B			
LYER37060UN	6	B			
W/BSP/BSW/BSF/BSP-THREADING (INTERNAL & EXTERNAL)					
LYER37110BW	11	C			
BSPT-THREADING (INTERNAL & EXTERNAL)					
LYER37110BT	11	D			
NPT-THREADING (INTERNAL & EXTERNAL)					
LYER37115NT	11.5	E			

● = P ● = M ● = K ● = N ● = S ○ = H

HARDWARE		
	Driver	Screw
	DS-T25T	IS45

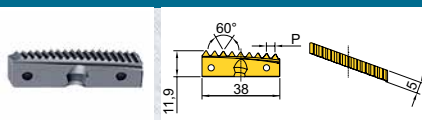
RAPID THREAD SERIES 22Y3T (38MM)

INDEXABLE THREAD MILLS - HELICAL SHELL MILL

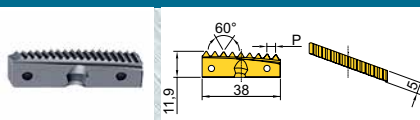


Cutter Number	a	D1	D2 Shank	L1 Height	No. of Flutes
22Y3T-25020D1R01	1.490	1.496	0.750	2.000	9

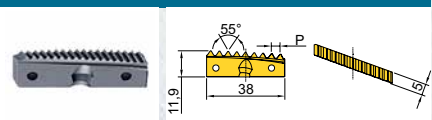
A ISO-threading (internal)



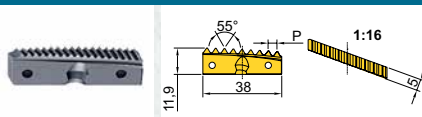
B UN/UNC/UNF/UNEF/UNS-threading (internal)



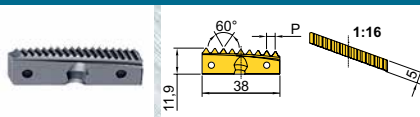
C W/BSP/BSW/BSF/BSP-threading (internal & external)



D BSPT-threading (internal & external)



E NPT-threading (internal & external)



Designation	Pitch	Grade	IN2005
ISO-THREADING (INTERNAL)			
LYER38150IS	1.5	A	●
LYER38200IS	2	A	●
LYER38300IS	3	A	●
LYER38400IS	4	A	●
UN/UNC/UNF/UNEF/UNS-THREADING (INTERNAL)			
LYER38160UN	16	B	●
LYER38120UN	12	B	●

Designation	Pitch	Grade	IN2005
LYER38080UN	8	B	●
LYER38060UN	6	B	●
W/BSP/BSW/BSF/BSP-THREADING (INTERNAL & EXTERNAL)			
LYER38110BT	11	C	●
BSPT-THREADING (INTERNAL & EXTERNAL)			
LYER38110BW	11	D	●
NPT-THREADING (INTERNAL & EXTERNAL)			
LYER38115NT	11.5	E	●

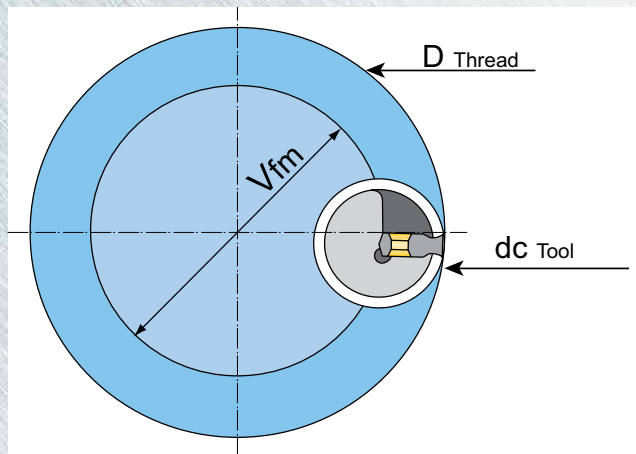
● = P ● = M ● = K ● = N ● = S ○ = H

HARDWARE	Driver	Screw
	DS-T25T	IS63

MACHINING DATA FOR INDEXABLE INSERT THREADING TOOLS

Main ISO-group	Workpiece Material	Remark	Tensile Strength	Hardness	Machin. Group	IN 2005
						Cutting speed (ft/min)
P	I 0,25 % C	Annealed	420	125	1	330-1085
	Unalloyed steel >= 0,25 % C	Annealed	650	190	2	265-690
	Cast steel I 0,25 % C	Tempered	850	250	3	215-600
	Free cutting steel >= 0,55 % C	Annealed	750	220	4	360-590
		Tempered	1000	300	5	315-525
	Steel medium tensile strength and cast steel	Annealed	600	200	6	300-525
	(with less than 5 % C)	Tempered	930	275	7	215-660
		Tempered	1000	300	8	230-690
		Tempered	1200	350	9	315-525
	High-alloyed cast steel	Annealed	680	200	10	430-600
	Steel and tool steel	Tempered	1100	325	11	245-330
M	Stainless steel	Ferritic, martensitic	680	200	12	360-600
	and cast steel	Martensitic	820	240	13	230-510
		Austenitic	600	180	14	280-330
K	Nodular gray cast iron (GGG)	Ferritic, pearlitic	-	180	15	230-495
		Pearlitic	-	260	16	360-500
	Gray cast iron (GG)	Ferritic	-	160	17	400-525
		Pearlitic	-	250	18	245-525
	Malleable cast iron	Ferritic	-	130	19	400-525
	Malleable cast iron	Pearlitic	-	230	20	360-500
N	Aluminum-wrought alloy	Untreated	-	60	21	525-985
	Aluminum-wrought alloy	Forged, alloyed	-	100	22	-
	Aluminum cast alloy <=12 % Si	Untreated	-	75	23	-
	Aluminum cast alloy	Forged, alloyed	-	90	24	-
	Aluminum cast alloy >12 % Si	High temp. resist.	-	130	25	-
	Copper alloys	Easy to machine	-	110	26	-
	CuZn-alloys (brass)		-	90	27	-
	Elektrolytic copper		-	100	28	-
	Duroplastics		-	90	29	-
	K Graphite		-	-	30	330-1315
S	Ebonite		-	-	-	-
	High temp. resisting alloys	Fe-base, tempered	-	200	31	-
	Superalloys	Ni/Co-base, treated	-	280	32	-
	Superalloys	Ni/Co-base, tempered	-	250	33	65-265
	Superalloys	Ni/Co-base, treated	-	350	34	-
	Titanium, cast		-	320	35	-
	Titanium		400	-	36	-
	M Titanium alloys	Alpha & beta alloy, treated	1050	-	37	65-265
H	Hardened steel	Hardened	-	55 HRC	38	180-215
	Hardened steel	Hardened	-	60 HRC	39	150-180
	Chill casting	Cast	400	-	40	300-345
	P/K Cast iron	Hardened	-	55 HRC	41	180-215

MACHINING DATA FOR INDEXABLE INSERT THREADING TOOLS



$$\text{Feed rate } V_{fm} = f_z \times \frac{(D-dc)}{D} \times n \times Z$$

fz: feed per tooth

D: diameter of thread

dc: diameter of tool

Vfm: feed rate of centerway of tool

n: RPM

Z: no. of teeth

fz = 0.001 mm - 0.005 mm

max. tool dia. < 2/3 thread size

Example:

M30 -> tool dia. : max. .750 mm

MACHINING DATA FOR INDEXABLE INSERT THREADING TOOLS

Main ISO-group	Workpiece Material	Remark	Tensile Strength	Hardness	Machin. Group
P	Unalloyed steel $\geq 0,25\% \text{ C}$	Annealed	420	125	1
	Cast steel $\geq 0,25\% \text{ C}$	Annealed	650	190	2
	Free cutting steel $\geq 0,55\% \text{ C}$	Tempered	850	250	3
		Annealed	750	220	4
		Tempered	1000	300	5
	Steel medium tensile strength and cast steel (with less than 5 % C)	Annealed	600	200	6
		Tempered	930	275	7
		Tempered	1000	300	8
		Tempered	1200	350	9
	High-alloyed cast steel	Annealed	680	200	10
	Steel and tool steel	Tempered	1100	325	11
M	Stainless steel and cast steel	Ferritic, martensitic	680	200	12
		Martensitic	820	240	13
		Austenitic	600	180	14
K	Nodular gray cast iron (GGG)	Ferritic, pearlitic	-	180	15
	Gray cast iron (GG)	Pearlitic	-	260	16
		Ferritic	-	160	17
		Pearlitic	-	250	18
	Malleable cast iron	Ferritic	-	130	19
	Malleable cast iron	Pearlitic	-	230	20
N	Aluminum-wrought alloy	Untreated	-	60	21
	Aluminum-wrought alloy	Forged, alloyed	-	100	22
	Aluminum cast alloy	Untreated	-	75	23
	Aluminum cast alloy	Forged, alloyed	-	90	24
	Aluminum cast alloy $>12\% \text{ Si}$	High temp. resist.	-	130	25
	Copper alloys	Easy to machine	-	110	26
	CuZn-alloys (brass)		-	90	27
	Elektrolytic copper		-	100	28
	Duroplastics		-	90	29
	Graphite		-	-	30
S	Ebonite		-	-	-
	High temp. resisting alloys .	Fe-base, tempered	-	200	31
	Superalloys	Ni/Co-base, treated	-	280	32
	Superalloys	Ni/Co-base, tempered	-	250	33
	Superalloys	Ni/Co-base, treated	-	350	34
	Titanium, cast		-	320	35
	Titanium		400	-	36
Titanium alloys	Alpha & beta alloy, treated	1050	-	37	
H	Hardened steel	Hardened	-	55 HRC	38
	Hardened steel	Hardened	-	60 HRC	39
	Chill casting	Cast	400	-	40
	Cast iron	Hardened	-	55 HRC	41

MACHINING DATA FOR INDEXABLE INSERT THREADING TOOLS

Main ISO-group	IN 2005 (ft/min)	Feed (in/tooth) - Cutting Diameter											
		Ø 0.078	Ø 0.125	Ø 0.156	Ø 0.250	Ø 0.312	Ø 0.390	Ø 0.484	Ø 0.562	Ø 0.625	Ø 0.781	Ø 0.984	Ø 1.181
P	330-1085	0.001	0.002	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.006	0.007	0.008
	265-690	0.001	0.002	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.006	0.007	0.008
	215-600	0.001	0.002	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.006	0.007	0.008
	360-590	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.006	0.007
	315-525	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.006	0.007
	300-525	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	0.004
	215-660	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	0.004
	230-690	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	0.004
	315-525	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	0.004
	430-600	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	0.004
	245-330	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	0.004
M	360-600	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	0.004
	230-510	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	0.004
	280-330	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.004	0.004
K	230-495	0.001	0.002	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.006	0.007	0.008
	360-500	0.001	0.002	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.006	0.007	0.008
	400-525	0.001	0.002	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.006	0.007	0.008
	245-525	0.001	0.002	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.006	0.007	0.008
	400-525	0.001	0.002	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.006	0.007	0.008
	360-500	0.001	0.002	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.006	0.007	0.008
N	525-985	0.001	0.002	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.006	0.007	0.008
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	330-1315	0.002	0.002	0.003	0.004	0.004	0.004	0.005	0.005	0.006	0.007	0.009	0.010
	-	-	-	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-	-	-	-	-
	65-265	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	65-265	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002
H	180-215	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002
	150-180	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002
	300-345	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002
	180-215	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002

NPT

NOMINAL THREAD SIZE	PITCH	TOOLHOLDER	NPT INSERT
1"	11.5	22Y3Q-0902280R01	LYER23115NT...
1 1/4"	11.5	22Y3Q-0902280R01	LYER23115NT...
1 1/4"	11.5	22Y3R-1302781R01	LYER32115NT...
1 1/2"	11.5	22Y3Q-0902280R01	LYER23115NT...
1 1/2"	11.5	22Y3R-1302781R01	LYER32115NT...
2"	11.5	22Y3Q-0902280R01	LYER23115NT...
2"	11.5	22Y3R-1302781R01	LYER32115NT...
2"	11.5	22Y3S-1802781R01	LYER37115NT...

NPT - SHELL MILL

NOMINAL NPT THREAD SIZE	PITCH	SHELL MILL BODY	NPT INSERT
2"-24"	8	22Y3T-25020D1R01	LYER 38115NT...

BSP

NOMINAL BSP THREAD SIZE	PITCH	TOOLHOLDER	BSP INSERT
1" - 1 1/2"	11	22Y3Q-0902280R01	LYER23110BW...
2"	11	22Y3R-1302781R01	LYER23110BW...
2 1/2" - 3"	11	22Y3S-1802781R01	LYER37110BW...

BSP - SHELL MILL

NOMINAL BSP THREAD SIZE	PITCH	SHELL MILL BODY	BSP INSERT
2" - 6"	11	22Y3T-25020D1R01	LYER 38110BW...

BSPT

NOMINAL BSPT THREAD SIZE	PITCH	TOOLHOLDER	BSPT INSERT
1"	11	22Y3Q-0902280R01	LYER23110BT...
1 1/4" & 1 1/2"	11	22Y3Q-0902280R01	LYER23110BT...
1 1/4" & 1 1/2"	11	22Y3R-1302781R01	LYER32110BT...
2"	11	22Y3Q-0902280R01	LYER23110BT...
2"	11	22Y3R-1302781R01	LYER32110BT...
2"	11	22Y3S-1802781R01	LYER37110BT...
3"-6"	11	22Y3S-1802781R01	LYER37110BT...

BSPT - SHELL MILL

NOMINAL BSPT THREAD SIZE	PITCH	SHELL MILL BODY	BSPT INSERT
2" - 6"	11	22Y3T-25020D1R01	LYER 38110BT...