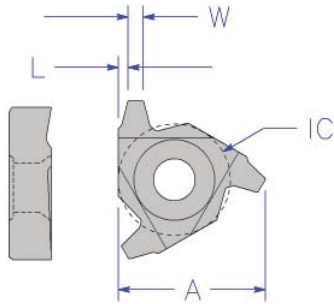


* Not all options are applicable to all thread forms. If you have any questions please feel free to give us a call at 800-624-7714 or email us at sales@carbolineusa.com

Laydown

Threading Grade Descriptions			
Grade	Description	Uses	Stock
200	Uncoated tough submicron - wear resistant	Non-ferrous, stainless steel alloys, aluminum & composites at slower speeds	Item specific
210	TiN coated tough submicron - wear resistant	Non-ferrous, stainless steel alloys, aluminum & composites at medium speeds	Standard
221	AlTiN coated tough submicron chip resistant	Ductile iron, stainless steel, nickel-based & high-temp alloys at high speeds	Item specific
231	TiAlN coated tough submicron chip resistant	Non-ferrous, stainless steel, nickel-based & high-temp alloys at medium speeds	Standard
232	TiAlN coated tough submicron - chip, wear & heat resistant	Non-ferrous, stainless steel, nickel-based & high-temp alloys at medium speeds	Item specific
613	TiN coated premium substrate for threading	4140 and similar steels at slow to medium speeds	Standard
623	AlTiN coated premium substrate for threading	All steels at high speeds - maximum heat protection	Item specific
633	TiAlN coated premium substrate for threading	All steels at high speeds - medium heat protection	Item specific

LAYDOWN ACME THREADING



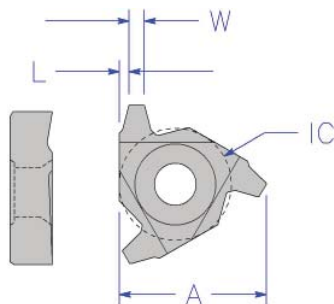
Laydown

DESCRIPTION	EDP	PITCH	WIDTH	IC	A	L
16ER 16P ACME	35002	16	.0206	.375	.491	.036
16EL 16P ACME	37502	16	.0206	.375	.491	.036
16ER 14P ACME	35012	14	.0239	.375	.491	.036
16EL 14P ACME	37512	14	.0239	.375	.491	.036
16ER 12P ACME	35022	12	.0283	.375	.491	.036
16EL 12P ACME	37522	12	.0283	.375	.491	.036
16ER 10P ACME	35032	10	.0319	.375	.491	.036
16EL 10P ACME	37532	10	.0319	.375	.491	.036
16ER 8P ACME	35042	8	.0411	.375	.491	.036
16EL 8P ACME	37542	8	.0411	.375	.491	.036
22ER 6P ACME	35052	6	.0566	.500	.657	.043
22EL 6P ACME	37552	6	.0566	.500	.657	.043
22ER 5P ACME	35062	5	.0689	.500	.657	.043
22EL 5P ACME	37562	5	.0689	.500	.657	.043
27ER 4P ACME	35072	4	.0875	.625	.833	.050
27EL 4P ACME	37572	4	.0875	.625	.833	.050
16NR 16P ACME	35101	16	.0206	.375	.491	.036
16NL 16P ACME	37601	16	.0206	.375	.491	.036
16NR 14P ACME	35111	14	.0239	.375	.491	.036
16NL 14P ACME	37611	14	.0239	.375	.491	.036
16NR 12P ACME	35121	12	.0283	.375	.491	.036
16NL 12P ACME	37621	12	.0283	.375	.491	.036
16NR 10P ACME	35131	10	.0319	.375	.491	.036
16NL 10P ACME	37631	10	.0319	.375	.491	.036
16NR 8P ACME	35141	8	.0411	.375	.491	.036
16NL 8P ACME	37641	8	.0411	.375	.491	.036
22NR 6P ACME	35151	6	.0566	.500	.657	.043
22NL 6P ACME	37651	6	.0566	.500	.657	.043
22NR 5P ACME	35161	5	.0689	.500	.657	.043
22NL 5P ACME	37661	5	.0689	.500	.657	.043
27NR 4P ACME	35171	4	.0875	.625	.833	.050
27NL 4P ACME	37671	4	.0875	.625	.833	.050

Laydown holders and bars on pages 110-114.



LAYDOWN STUB ACME THREADING

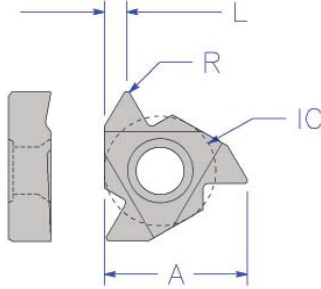


DESCRIPTION	EDP	PITCH	WIDTH	IC	A	L
16ER 16P STUB	35202	16	.0238	.375	.491	.036
16EL 16P STUB	37702	16	.0238	.375	.491	.036
16ER 14P STUB	35212	14	.0276	.375	.491	.036
16EL 14P STUB	37712	14	.0276	.375	.491	.036
16ER 12P STUB	35222	12	.0326	.375	.491	.036
16EL 12P STUB	37722	12	.0326	.375	.491	.036
16ER 10P STUB	35232	10	.0370	.375	.491	.036
16EL 10P STUB	37732	10	.0370	.375	.491	.036
16ER 8P STUB	35242	8	.0476	.375	.491	.036
16EL 8P STUB	37742	8	.0476	.375	.491	.036
22ER 6P STUB	35252	6	.0652	.500	.657	.043
22EL 6P STUB	37752	6	.0652	.500	.657	.043
22ER 5P STUB	35262	5	.0793	.500	.657	.043
22EL 5P STUB	37762	5	.0793	.500	.657	.043
27ER 4P STUB	35272	4	.1004	.625	.833	.050
27EL 4P STUB	37772	4	.1004	.625	.833	.050
16NR 16P STUB	35301	16	.0238	.375	.491	.036
16NL 16P STUB	37801	16	.0238	.375	.491	.036
16NR 14P STUB	35311	14	.0276	.375	.491	.036
16NL 14P STUB	37811	14	.0276	.375	.491	.036
16NR 12P STUB	35321	12	.0326	.375	.491	.036
16NL 12P STUB	37821	12	.0326	.375	.491	.036
16NR 10P STUB	35331	10	.0370	.375	.491	.036
16NL 10P STUB	37831	10	.0370	.375	.491	.036
16NR 8P STUB	35341	8	.0476	.375	.491	.036
16NL 8P STUB	37841	8	.0476	.375	.491	.036
22NR 6P STUB	35351	6	.0652	.500	.657	.043
22NL 6P STUB	37851	6	.0652	.500	.657	.043
22NR 5P STUB	35361	5	.0793	.500	.657	.043
22NL 5P STUB	37861	5	.0793	.500	.657	.043
27NR 4P STUB	35371	4	.1004	.625	.833	.050
27NL 4P STUB	37871	4	.1004	.625	.833	.050

Laydown holders and bars on pages 110-114.

Laydown

LAYDOWN 60° THREADING

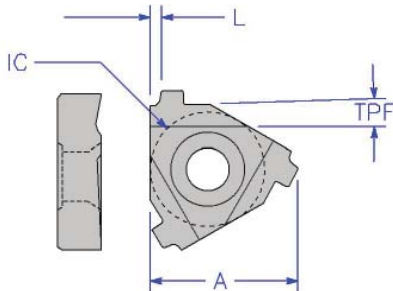


Laydown

DESCRIPTION	EDP	PITCH	R	IC	A	L
16ER A60	35402	16-48	.003	.375	.517	.040
16EL A60	37902	16-48	.003	.375	.517	.040
16ER AG60	35412	8-48	.003	.375	.492	.060
16EL AG60	37912	8-48	.003	.375	.492	.060
16ER G60	35422	8-14	.007	.375	.485	.070
16EL G60	37922	8-14	.007	.375	.485	.070
22ER N60	35432	5-7	.015	.500	.641	.100
22EL N60	37932	5-7	.015	.500	.641	.100
27ER K60	35442	4.5-4	.028	.625	.817	.110
27EL K60	37942	4.5-4	.028	.625	.817	.110
16NR A60	35501	16-48	.003	.375	.517	.040
16NL A60	38001	16-48	.003	.375	.517	.040
16NR AG60	35511	8-48	.003	.375	.492	.060
16NL AG60	38011	8-48	.003	.375	.492	.060
16NR G60	35521	8-14	.007	.375	.485	.070
16NL G60	38021	8-14	.007	.375	.485	.070
22NR N60	35531	5-7	.010	.500	.641	.100
22NL N60	38031	5-7	.010	.500	.641	.100
27NR K60	35541	4-4.5	.015	.625	.815	.110
27NL K60	38041	4-4.5	.015	.625	.815	.110

Laydown holders and bars on pages 110-114.

LAYDOWN API BUTTRESS

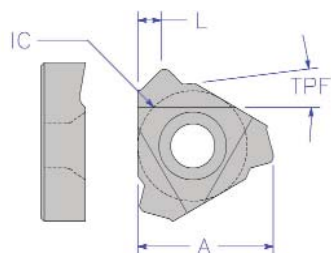


DESCRIPTION	EDP	PITCH	TPF	IC	A	L
16ER 8B75	59482	8	0.75	.375	.458	.069
22ER 8B75	35602	8	0.75	.500	.649	.069
22ER 5B75	58012	5	0.75	.500	.645	.048
22ER 5B1	69842	5	1	.500	.645	.048
16NR 8B75	59491	8	0.75	.375	.458	.069
22NR 8B75	35611	8	0.75	.500	.649	.069
22NR 5B75	59471	5	0.75	.500	.644	.040
22NR 5B1	69881	5	1	.500	.644	.040

Laydown holders and bars on pages 110-114.



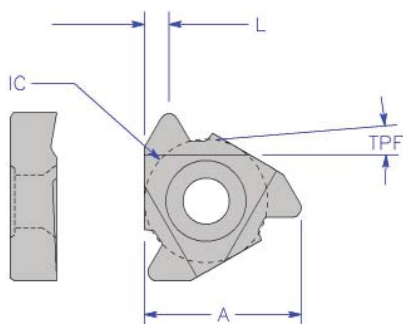
LAYDOWN API HUGHES THREADING



DESCRIPTION	EDP	PITCH	TPF	IC	A	L
27ER H902	54432	3.5	2	.625	.775	.134
27ER H903	65822	3.5	3	.625	.775	.134
27ER H90S	59572	3	1.25	.625	.765	.114
27NR H902	54431	3.5	2	.625	.775	.134
27NR H903	65821	3.5	3	.625	.775	.134
27NR H90S	59571	3	1.25	.625	.765	.114

Laydown holders and bars on pages 110-114.

LAYDOWN API ROTARY THREADING

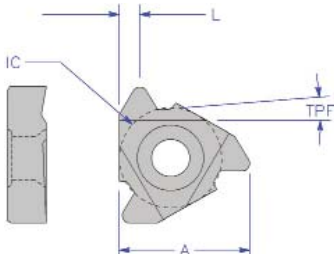


DESCRIPTION	EDP	PITCH	TPF	IC	A	L
22ER 425	35702	4	2	.500	.635	.110
22ER 428	35712	4	2	.500	.635	.110
22ER 435	35722	4	3	.500	.635	.110
22ER 438	35732	4	3	.500	.635	.110
22ER 530	35742	5	3	.500	.635	.100
22ER PAC	35752	4	1.5	.500	.624	.100
22NR 425	35761	4	2	.500	.635	.110
22NR 428	35771	4	2	.500	.635	.110
22NR 435	35781	4	3	.500	.635	.110
22NR 438	35791	4	3	.500	.635	.110
22NR 530	35801	5	3	.500	.635	.100
22NR PAC	35811	4	1.5	.500	.624	.100

Laydown holders and bars on pages 110-114.

Laydown

LAYDOWN API ROTARY THREADING

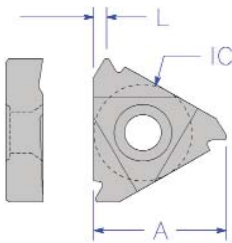


DESCRIPTION	EDP	PITCH	TPF	IC	A	L
27ER 425	66132	4	2	.625	.775	.126
27ER 428	66112	4	2	.625	.775	.126
27ER 435	66142	4	3	.625	.775	.126
27ER 438	66122	4	3	.625	.775	.126
27ER 530	66152	5	3	.625	.775	.126
27ER PAC	74312	4	1.5	.625	.809	.100
27NR 425	66131	4	2	.625	.775	.126
27NR 428	66111	4	2	.625	.775	.126
27NR 435	66141	4	3	.625	.775	.126
27NR 438	66121	4	3	.625	.775	.126
27NR 530	66151	5	3	.625	.775	.126
27NR PAC	74311	4	1.5	.625	.809	.100

Laydown holders and bars on pages 110-114.

Laydown

LAYDOWN API ROUND THREADING

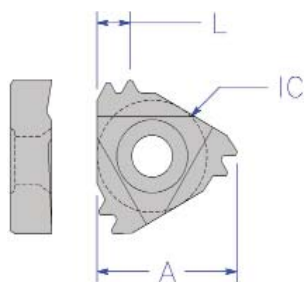


DESCRIPTION	EDP	PITCH	TPF	IC	A	L
16ER 8RD	69862	8	0.75	.375	.487	.060
16ER 10RD	74942	10	0.75	.375	.487	.060
16NR 8RD	74931	8	0.75	.375	.487	.060
16NR 10RD	61811	10	0.75	.375	.487	.060
22ER 8RD	65402	8	0.75	.500	.676	.065
22ER 10RD	65412	10	0.75	.500	.676	.065
22NR 8RD	60921	8	0.75	.500	.676	.065
22NR 10RD	65421	10	0.75	.500	.676	.065
27ER 8RD	84482	8	0.75	.625	.843	.060
27ER 10RD	84492	10	0.75	.625	.843	.060
27NR 8RD	61351	8	0.75	.625	.843	.060
27NR 10RD	66911	10	0.75	.625	.843	.060

Laydown holders and bars on pages 110-114.



LAYDOWN API ROUND THREADING

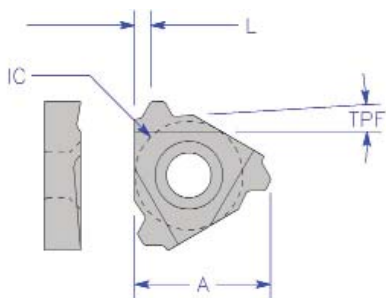


DESCRIPTION	EDP	PITCH	TPF	IC	A	L
22ER 2T 8RD	36702	8	0.75	.500	.623	.180
22NR 2T 8RD	36711	8	0.75	.500	.623	.180
27ER 2T 8RD	77832	8	0.75	.625	.816	.170
27ER 3T 8RD	76582	8	0.75	.625	.740	.300
27NR 2T 8RD	77841	8	0.75	.625	.816	.170
27NR 3T 8RD	66821	8	0.75	.625	.740	.300
22ER 2T 10RD	36722	10	0.75	.500	.648	.135
22NR 2T 10RD	36731	10	0.75	.500	.648	.135
27ER 2T 10RD	72722	10	0.75	.625	.836	.135
27ER 3T 10RD	84502	10	0.75	.625	.740	.300
27NR 2T 10RD	84451	10	0.75	.625	.836	.135
27NR 3T 10RD	84511	10	0.75	.625	.740	.300

Laydown holders and bars on pages 110-114.

Laydown

LAYDOWN V055 THREADING

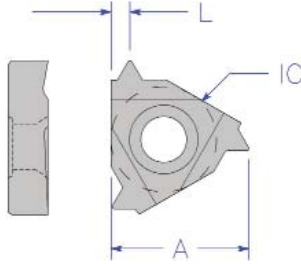


DESCRIPTION	EDP	PITCH	TPF	IC	A	L
16ER V0.055	63832	6	1.5	.375	.472	.055
22ER V0.055	34502	6	1.5	.500	.660	.055
16NR V0.055	46691	6	1.5	.375	.472	.055
22NR V0.055	34501	6	1.5	.500	.660	.055

Laydown holders and bars on pages 110-114.



LAYDOWN ISO THREADING



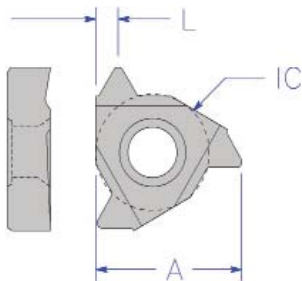
Laydown

DESCRIPTION	EDP	PITCH	IC	A	L
16ER .75 ISO	38102	0.75	0.375	.521	.031
16ER 1.0 ISO	38112	1	0.375	.521	.031
16ER 1.5 ISO	38122	1.5	0.375	.521	.031
16ER 2.0 ISO	38132	2	0.375	.496	.057
16ER 2.5 ISO	38142	2.5	0.375	.496	.057
16ER 3.0 ISO	38152	3	0.375	.496	.057
22ER 3.5 ISO	38162	3.5	0.500	.644	.096
22ER 4.0 ISO	38172	4	0.500	.644	.096
22ER 5.0 ISO	38182	5	0.500	.644	.096
27ER 5.5 ISO	38192	5.5	0.625	.817	.111
27ER 6.0 ISO	38202	6	0.625	.817	.111
16NR .75 ISO	38251	0.75	0.375	.521	.031
16NR 1.0 ISO	38261	1	0.375	.521	.031
16NR 1.5 ISO	38271	1.5	0.375	.521	.031
16NR 2.0 ISO	38281	2	0.375	.496	.057
16NR 2.5 ISO	38291	2.5	0.375	.496	.057
16NR 3.0 ISO	38301	3	0.375	.496	.057
22NR 3.5 ISO	38311	3.5	0.500	.644	.096
22NR 4.0 ISO	38321	4	0.500	.644	.096
22NR 5.0 ISO	38331	5	0.500	.644	.096
27NR 5.5 ISO	38341	5.5	0.625	.817	.111
27NR 6.0 ISO	38351	6	0.625	.817	.111

Laydown holders and bars on pages 110-114.



LAYDOWN UN THREADING

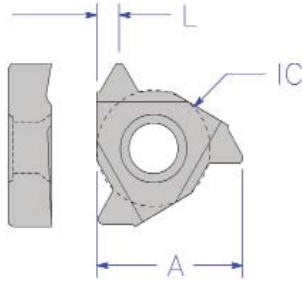


DESCRIPTION	EDP	PITCH	IC	A	L
16ER 32UN	18002	32	.375	.494	.060
16EL 32UN	18012	32	.375	.494	.060
16ER 28UN	18022	28	.375	.494	.060
16EL 28UN	18032	28	.375	.494	.060
16ER 24UN	18042	24	.375	.494	.060
16EL 24UN	18052	24	.375	.494	.060
16ER 20UN	18062	20	.375	.494	.060
16EL 20UN	18072	20	.375	.494	.060
16ER 18UN	18082	18	.375	.494	.060
16EL 18UN	18092	18	.375	.494	.060
16ER 16UN	18102	16	.375	.494	.060
16EL 16UN	18112	16	.375	.494	.060
16ER 14UN	18122	14	.375	.494	.060
16EL 14UN	18132	14	.375	.494	.060
16ER 13UN	18142	13	.375	.494	.060
16EL 13UN	18152	13	.375	.494	.060
16ER 12UN	18162	12	.375	.494	.060
16EL 12UN	18172	12	.375	.494	.060
16ER 11UN	18182	11	.375	.494	.060
16EL 11UN	18192	11	.375	.494	.060
16ER 10UN	18202	10	.375	.494	.060
16EL 10UN	18212	10	.375	.494	.060
16ER 9UN	18222	9	.375	.494	.060
16EL 9UN	18232	9	.375	.494	.060
16ER 8UN	18242	8	.375	.494	.060
16EL 8UN	18252	8	.375	.494	.060

Laydown holders and bars on pages 110-114.

Laydown

LAYDOWN UN THREADING CONTINUED



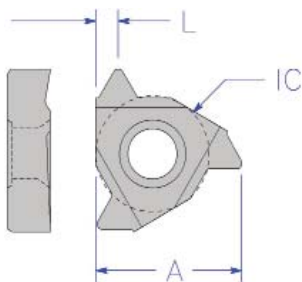
Laydown

DESCRIPTION	EDP	PITCH	IC	A	L
16NR 32UN	18401	32	.375	.494	.060
16NL 32UN	18411	32	.375	.494	.060
16NR 28UN	18421	28	.375	.494	.060
16NL 28UN	18431	28	.375	.494	.060
16NR 24UN	18441	24	.375	.494	.060
16NL 24UN	18451	24	.375	.494	.060
16NR 20UN	18461	20	.375	.494	.060
16NL 20UN	18471	20	.375	.494	.060
16NR 18UN	18481	18	.375	.494	.060
16NL 18UN	18491	18	.375	.494	.060
16NR 16UN	18501	16	.375	.494	.060
16NL 16UN	18511	16	.375	.494	.060
16NR 14UN	18521	14	.375	.494	.060
16NL 14UN	18531	14	.375	.494	.060
16NR 13UN	18541	13	.375	.494	.060
16NL 13UN	18551	13	.375	.494	.060
16NR 12UN	18561	12	.375	.494	.060
16NL 12UN	18571	12	.375	.494	.060
16NR 11UN	18581	11	.375	.494	.060
16NL 11UN	18591	11	.375	.494	.060
16NR 10UN	18601	10	.375	.494	.060
16NL 10UN	18611	10	.375	.494	.060
16NR 9UN	18621	9	.375	.494	.060
16NL 9UN	18631	9	.375	.494	.060
16NR 8UN	18641	8	.375	.494	.060
16NL 8UN	18651	8	.375	.494	.060

Laydown holders and bars on pages 110-114.



LAYDOWN UN THREADING CONTINUED

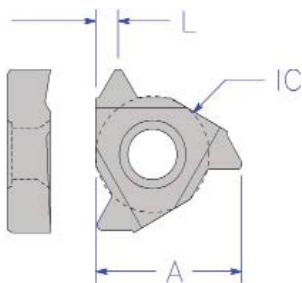


DESCRIPTION	EDP	PITCH	IC	A	L
22ER 7UN	18262	7	.500	.650	.090
22EL 7UN	18272	7	.500	.650	.090
22ER 6UN	18282	6	.500	.650	.090
22EL 6UN	18292	6	.500	.650	.090
22ER 5UN	18302	5	.500	.646	.098
22EL 5UN	18312	5	.500	.646	.098
27ER 4.5UN	18322	4.5	.625	.802	.126
27EL 4.5UN	18332	4.5	.625	.802	.126
27ER 4UN	18342	4	.625	.802	.126
27EL 4UN	18352	4	.625	.802	.126

Laydown holders and bars on pages 110-114.

Laydown

LAYDOWN UN THREADING CONTINUED

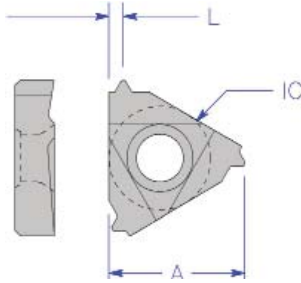


DESCRIPTION	EDP	PITCH	IC	A	L
22NR 7UN	18661	7	.500	.650	.090
22NL 7UN	18671	7	.500	.650	.090
22NR 6UN	18681	6	.500	.650	.090
22NL 6UN	18691	6	.500	.650	.090
22NR 5UN	18701	5	.500	.646	.098
22NL 5UN	18711	5	.500	.646	.098
27NR 4.5UN	18721	4.5	.625	.802	.126
27NL 4.5UN	18731	4.5	.625	.802	.126
27NR 4UN	18741	4	.625	.802	.126
27NL 4UN	18751	4	.625	.802	.126

Laydown holders and bars on pages 110-114.



LAYDOWN UNJ THREADING



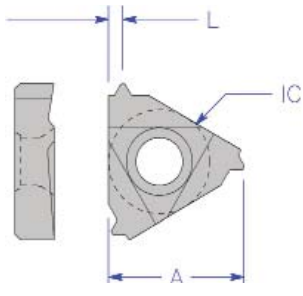
Laydown

DESCRIPTION	EDP	PITCH	IC	A	L
16ER 32UNJ	18802	32	.375	.494	.060
16EL 32UNJ	18812	32	.375	.494	.060
16ER 28UNJ	18822	28	.375	.494	.060
16EL 28UNJ	18832	28	.375	.494	.060
16ER 24UNJ	18842	24	.375	.494	.060
16EL 24UNJ	18852	24	.375	.494	.060
16ER 20UNJ	18862	20	.375	.494	.060
16EL 20UNJ	18872	20	.375	.494	.060
16ER 18UNJ	18882	18	.375	.494	.060
16EL 18UNJ	18892	18	.375	.494	.060
16ER 16UNJ	18902	16	.375	.494	.060
16EL 16UNJ	18912	16	.375	.494	.060
16ER 14UNJ	18922	14	.375	.494	.060
16EL 14UNJ	18932	14	.375	.494	.060
16ER 12UNJ	18942	12	.375	.494	.060
16EL 12UNJ	18952	12	.375	.494	.060
16ER 10UNJ	18962	10	.375	.494	.060
16EL 10UNJ	18972	10	.375	.494	.060

Laydown holders and bars on pages 110-114.



LAYDOWN UNJ THREADING CONTINUED

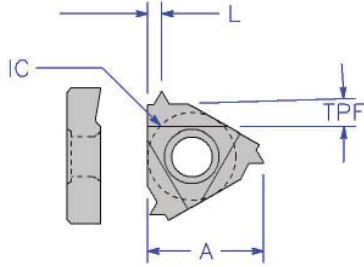


DESCRIPTION	EDP	PITCH	IC	A	L
16NR 32UNJ	19001	32	.375	.494	.060
16NL 32UNJ	19011	32	.375	.494	.060
16NR 28UNJ	19021	28	.375	.494	.060
16NL 28UNJ	19031	28	.375	.494	.060
16NR 24UNJ	19041	24	.375	.494	.060
16NL 24UNJ	19051	24	.375	.494	.060
16NR 20UNJ	19061	20	.375	.494	.060
16NL 20UNJ	19071	20	.375	.494	.060
16NR 18UNJ	19081	18	.375	.494	.060
16NL 18UNJ	19091	18	.375	.494	.060
16NR 16UNJ	19101	16	.375	.494	.060
16NL 16UNJ	19111	16	.375	.494	.060
16NR 14UNJ	19121	14	.375	.494	.060
16NL 14UNJ	19131	14	.375	.494	.060
16NR 12UNJ	19141	12	.375	.494	.060
16NL 12UNJ	19151	12	.375	.494	.060
16NR 10UNJ	19161	10	.375	.494	.060
16NL 10UNJ	19171	10	.375	.494	.060

Laydown holders and bars on pages 110-114.

Laydown

LAYDOWN NPT THREADING

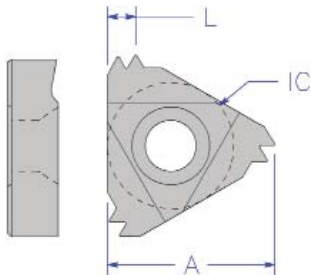


Laydown

DESCRIPTION	EDP	PITCH	TPF	IC	A	L
16ER 18NPT	19202	18	.750	.375	.523	.031
16EL 18NPT	19212	18	.750	.375	.523	.031
16ER 14NPT	19222	14	.750	.375	.494	.060
16EL 14NPT	19232	14	.750	.375	.494	.060
16ER 11.5NPT	19242	11.5	.750	.375	.494	.060
16EL 11.5NPT	19252	11.5	.750	.375	.494	.060
16ER 8NPT	19262	8	.750	.375	.487	.068
16EL 8NPT	19272	8	.750	.375	.487	.068
16NR 18NPT	19281	18	.750	.375	.523	.031
16NL 18NPT	19291	18	.750	.375	.523	.031
16NR 14NPT	19301	14	.750	.375	.494	.060
16NL 14NPT	19311	14	.750	.375	.494	.060
16NR 11.5NPT	19321	11.5	.750	.375	.494	.060
16NL 11.5NPT	19331	11.5	.750	.375	.494	.060
16NR 8NPT	19341	8	.750	.375	.487	.068
16NL 8NPT	19351	8	.750	.375	.487	.068

Laydown holders and bars on pages 110-114.

LAYDOWN NPT MULTI-TOOTH THREADING



DESCRIPTION	EDP	PITCH	TPF	IC	A	L
22ER 18NPT 2T	19402	18	.750	.500	.681	.080
22ER 14NPT 2T	19412	14	.750	.500	.656	.112
27ER 11.5NPT 2T	19452	11.5	.750	.625	.827	.139
27ER 11.5NPT 3T	19462	11.5	.750	.625	.781	.222
27ER 8NPT 2T	19472	8	.750	.625	.788	.189
22NR 18NPT 2T	19481	18	.750	.500	.681	.080
22NR 14NPT 2T	19491	14	.750	.500	.656	.112
27NR 11.5NPT 2T	19531	11.5	.750	.625	.827	.139
27NR 11.5NPT 3T	19541	11.5	.750	.625	.781	.222
27NR 8NPT 2T	19551	8	.750	.625	.788	.189

Laydown holders and bars on pages 110-114.