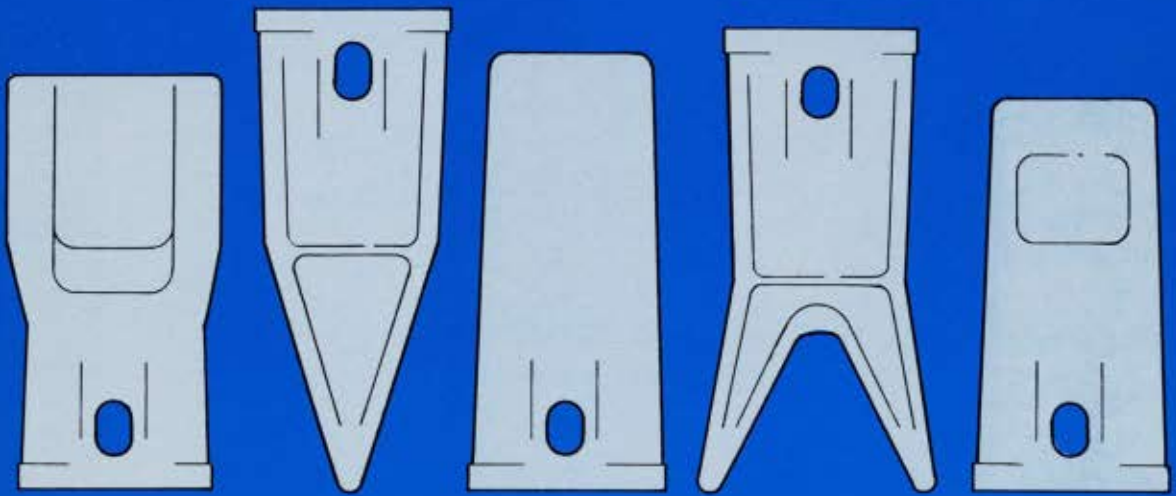




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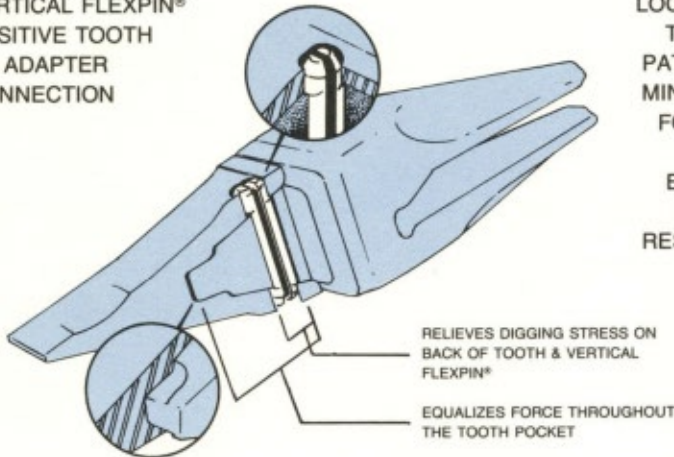


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U.S. PATENT NUMBER 4516340
CANADIAN PATENT NUMBER 1237742
OTHER PATENTS PENDING

DOUBLE LOCKING
VERTICAL FLEXPIN®
POSITIVE TOOTH
TO ADAPTER
CONNECTION



THE VP SYSTEM FEATURES A DOUBLE
LOCKING VERTICAL FLEXPIN® TOOTH
TO ADAPTER CONNECTION. THIS
PATENTED SYSTEM USED ON LARGE
MINING SHOVELS IS NOW AVAILABLE
FOR LOADERS AND EXCAVATORS.

EASY REMOVAL & INSTALLATION
SHORTER REPLACEMENT TIME
RESULTING IN SHORTER DOWN TIME

TOOTH STABILIZERS & ADAPTER PADS
PREVENT HORIZONTAL MOVEMENT

The VP System is a patented two-part tooth connection featuring a double locking vertical Flexpin for a positive lock of the tooth to the adapter. Top and bottom stabilizing pads inside the tooth wedge lock with mating surfaces in the adapter to prevent horizontal movement. This interlocking action takes the digging stress away from the back of the tooth and vertical Flexpin and equalizes force throughout the tooth pocket.

The VP System is recommended for use on shovel, excavator and loader buckets where the teeth are spaced too close to conveniently install or remove conventional horizontal sidepin systems.

For additional information or fitments not in this catalog, contact your authorized H & L dealer or call 1-800-HL-TOOTH. (In California (213) 721-5146)

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Around the world H & L is recognized as a leader in forged ground engaging products.

TOOTH APPLICATION GUIDE

SHARP PENETRATION TOOTH
FOR SEVERE DIGGING IN HEAVY
ROCK, FROST & ABRASIVE MATERIAL



LONG PENETRATION TOOTH
FOR DIGGING IN MODERATE
ABRASIVE MATERIAL & LIGHT
ROCK



TGR TOOTH
FOR SEVERE DIGGING IN ROCK
& FROST



TWIN TGR TOOTH
FOR SEVERE DIGGING IN ROCK
& FROST. USED AS BUCKET
CORNER TEETH TO REDUCE
BUCKET WEAR



ABRASION TOOTH
FOR DIGGING IN SEVERE
ABRASIVE MATERIAL



TOOTH SIZE COMPARISON MATRIX

H & L VP SYSTEM	H & L SIDE PIN	CATERPILLAR **	ESCO CONICAL	ESCO HELI-LOC	HENSLEY
155	3C* 23	—	—	17 19	X-156
175	23 24	CG-1	18	19	X-156, X-160 X-162
195	25	CG-2	25	21	X-220 X-225
205	20	CG-3	30	21	X-220 X-225
315	31	CG-4	35	27	X-300, X-310 X-330
325	32	CG-5	40 45	37	X-400
335	33	CG-6	50 55	47 67	X-475
41	—	—	—	—	—

* 3C IS A CRIMP ON POINT

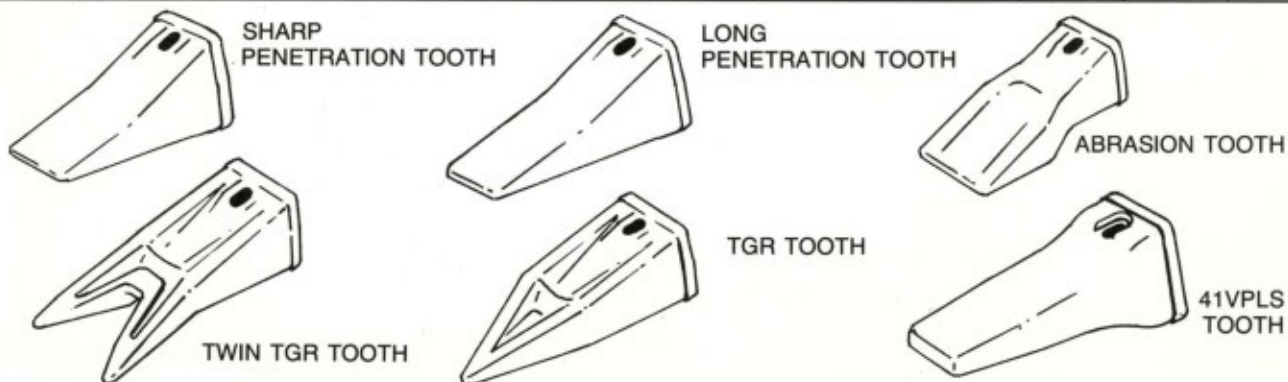
** CATERPILLAR TEETH NOTED ARE IN GROUPS, SEE
H & L CATERPILLAR CATALOG NO. HL-1002-L FOR NUMBERS



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TOOTH SELECTION CHART

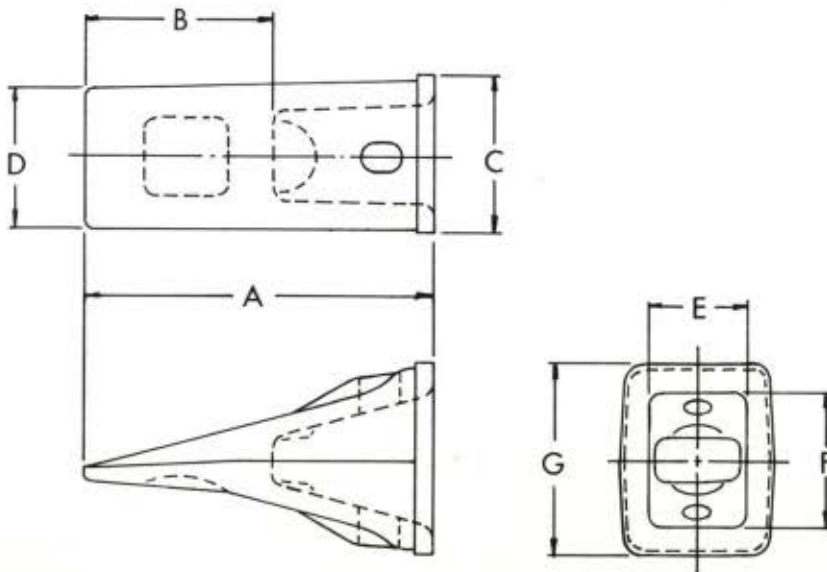
	STYLE	A	B	C	D	E	F	G	WT	FLEXPIN
155 SERIES NOT CURRENTLY AVAILABLE	SHARP PENETRATION	5.25	2.75	1.94	1.62	1.48	1.66	2.19	1.9	155
		133	70	49	41	38	42	56		
	LONG PENETRATION	6.25	3.75	1.94	1.50	1.48	1.66	2.19	2.2	
		159	95	49	38	38	42	56		
	TGR	6.50	4.00	1.94	.12	1.48	1.66	2.19	2.0	
		165	102	49	3	38	42	56		
TWIN TGR	6.25	3.75	1.94	1.62	1.48	1.66	2.19	2.3		
	159	95	49	41	38	42	56			
175 SERIES NOT CURRENTLY AVAILABLE	SHARP PENETRATION	5.75	3.25	2.50	1.75	1.75	1.84	2.60	3.0	175
		146	83	64	44	44	47	66		
	LONG PENETRATION	6.75	4.25	2.50	1.62	1.75	1.84	2.60	3.5	
		171	108	64	41	44	47	66		
	TGR	7.00	4.50	2.50	.16	1.75	1.84	2.60	3.2	
		178	114	64	4	44	47	66		
TWIN TGR	6.75	4.25	2.50	1.62	1.75	1.84	2.60	3.6		
	171	108	64	41	44	47	66			
195 SERIES	SHARP PENETRATION	7.00	3.84	3.12	2.75	2.02	2.62	3.81	7.4	195
		178	98	79	70	51	67	97		
	LONG PENETRATION	8.00	4.84	3.12	2.75	2.02	2.62	3.81	8.5	
		203	123	79	70	51	67	97		
	TGR	8.38	5.26	3.12	.16	2.02	2.62	3.81	8.2	
		213	134	79	4	51	67	97		
TWIN TGR	8.00	4.84	3.12	3.50	2.02	2.62	3.81	8.9		
	203	123	79	70	51	67	97			
205 SERIES	SHARP PENETRATION	7.85	4.34	3.50	3.06	2.50	2.80	4.00	9.5	205
		199	110	89	78	64	71	102		
	LONG PENETRATION	8.88	5.34	3.50	3.06	2.50	2.80	4.00	10.5	
		226	136	89	78	64	71	102		
	ABRASION	8.50	5.00	3.50	3.48	2.50	2.80	4.00	12.0	
		216	127	89	88	64	71	102		
TGR	9.38	5.89	3.50	.16	2.50	2.80	4.00	11.1		
	238	150	89	4	64	71	102			
TWIN TGR	9.00	5.50	3.50	3.87	2.50	2.80	4.00	11.8		
	229	140	89	98	64	71	102			



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TOOTH SELECTION CHART

	STYLE	A	B	C	D	E	F	G	WT	FLEXPIN
315 SERIES	SHARP PENETRATION	9.00	4.90	4.00	3.62	2.91	3.30	4.44	14.5	315
		229	124	102	92	74	84	113		
	LONG PENETRATION	10.00	5.90	4.00	3.62	2.91	3.30	4.44	15.3	
		254	150	102	92	74	84	113		
	ABRASION	9.50	5.40	4.00	4.12	2.91	3.30	4.44	16.5	
		241	137	102	105	74	84	113		
TGR	11.00	6.90	4.00	.25	2.91	3.30	4.44	16.8		
	279	175	102	6	74	84	113			
TWIN TGR	10.50	6.40	4.00	4.82	2.91	3.30	4.44	17.5		
	267	163	102	122	74	84	113			
325 SERIES	SHARP PENETRATION	10.52	5.65	5.12	4.50	3.75	3.94	5.25	25.0	325
		267	144	130	114	95	100	133		
	LONG PENETRATION	11.50	6.65	5.12	4.50	3.75	3.94	5.25	26.0	
		292	169	130	114	95	100	133		
	ABRASION	11.50	6.65	5.12	5.12	3.75	3.94	5.25	31.5	
		292	169	130	130	95	100	133		
TGR	12.50	7.65	5.12	.38	3.75	3.94	5.25	24.8		
	318	194	130	10	95	100	133			
TWIN TGR	12.00	7.15	5.12	5.88	3.75	3.94	5.25	26.4		
	305	182	130	149	95	100	133			
335 SERIES	SHARP PENETRATION	11.00	5.52	6.12	5.50	4.50	4.25	5.69	35.0	335
		279	140	155	140	114	108	145		
	LONG PENETRATION	13.00	7.52	6.12	5.38	4.50	4.25	5.69	39.0	
		330	191	155	137	114	108	145		
	ABRASION	13.00	7.52	6.12	6.12	4.50	4.25	5.69	52.0	
		330	191	155	155	114	108	145		
TGR	13.69	8.21	6.12	.38	4.50	4.25	5.69	36.0		
	348	208	155	10	114	108	145			
TWIN TGR	13.19	7.62	6.12	6.75	4.50	4.25	5.69	38.0		
	335	194	155	171	114	108	145			
41	41VPLS	17.00	9.31	7.12	5.75	5.35	6.15	8.12	88.0	41H
		432	236	181	146	136	156	206		

TEETH WITHIN EACH SERIES ARE INTERCHANGEABLE

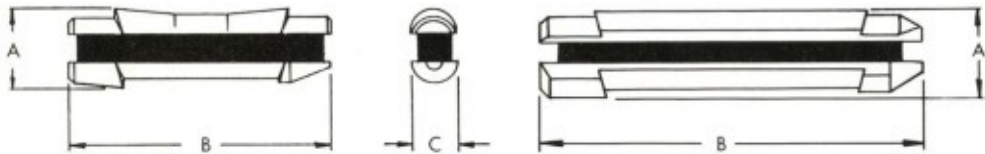




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FLEXPIN DIMENSIONS

FLEXPIN	A	B	C	STYLE	FLEXPIN	A	B	C	STYLE
155	.81	2.38	.38	1	315	1.33	4.12	.75	1
	21	60	10			34	105	19	
175	.81	2.62	.38	1	325	1.40	4.88	.84	1
	21	67	10			36	124	21	
195	1.02	3.38	.56	1	335	1.50	5.40	.90	1
	26	86	14			38	137	23	
205	1.08	3.88	.54	1	41H	1.67	7.50	1.14	2
	27	99	14			42	191	29	

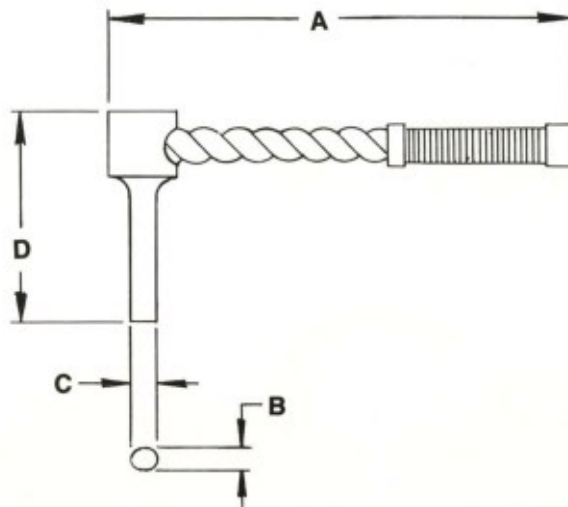


STYLE 1

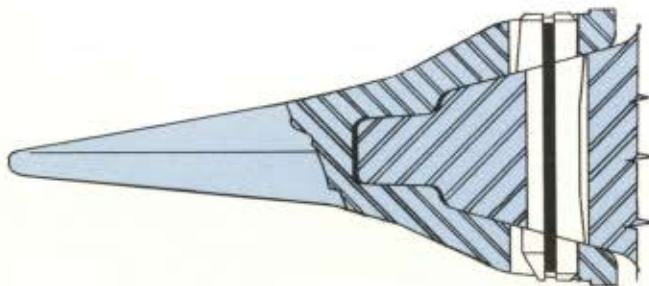
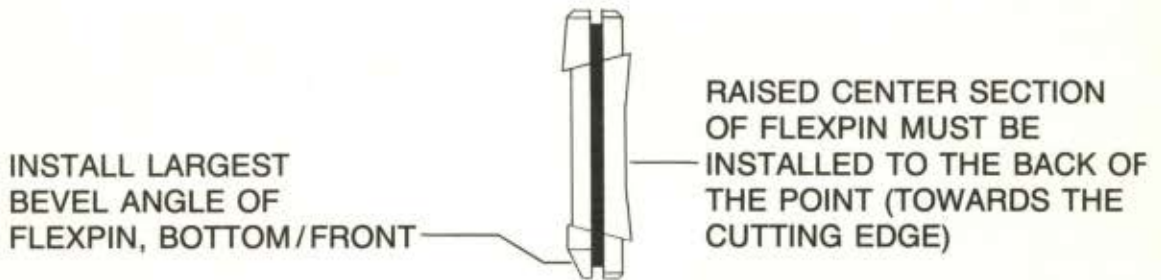
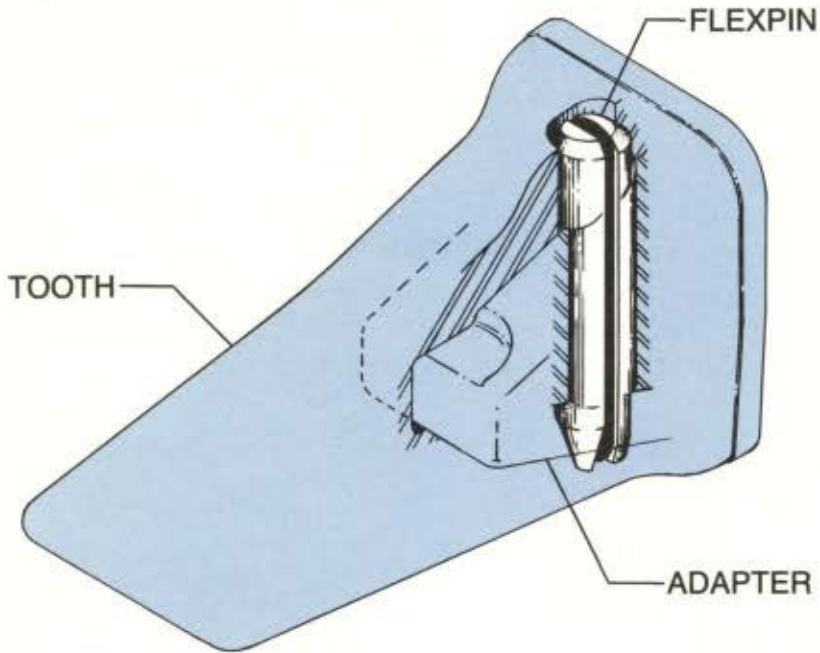
STYLE 2

FLEXPIN REMOVER TOOLS

FLEXPIN	PART NUMBER	A	B	C	D	FLEXPIN	PART NUMBER	A	B	C	D
155	X-2774	10.00	.38	.62	5.00	315	X-2718	14.00	.69	.95	7.00
		254	10	16	127			356	18	24	178
175	X-2774	10.00	.38	.62	5.00	325	X-2762	14.00	.82	.95	9.00
		254	10	16	127			356	21	24	229
195	X-2721	10.00	.50	.54	6.00	335	X-2763	14.00	.88	1.05	9.00
		254	13	14	152			356	22	27	229
205	X-2761	10.00	.50	.69	6.00	41H	X-2654-A	20.00	1.00	1.22	10.1
		254	13	18	152			508	25	31	257



INCHES
MILLIMETERS



TYPICAL CROSS SECTION OF VP ASSEMBLY



TOOTH COMPANY

H&L WARRANTY

H & L products are warranted against defects in material and workmanship for a period of 30 days, provided the parts have not been subjected to misuse, worn out, hardfacing, neglect, accident, or not installed according to instructions and specifications. All items manufactured are wearable and expendable. H & L assumes no responsibility for consequential or incidental damages regardless of cause. No labor charges will be allowed for changing any H & L parts.

Material may not be returned without permission. No Dealer, Agency, Salesman or any other party has authority either orally or in writing to add or modify the terms of the warranty.

Contact H & L Customer Service for additional information.

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