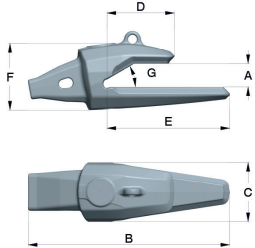


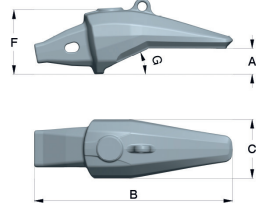


## R10 Specifications

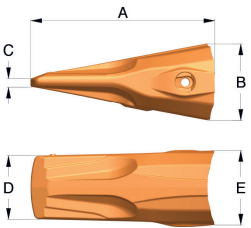
## Teeth, Adapters, Accessories



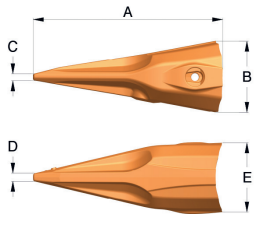
**BE** 



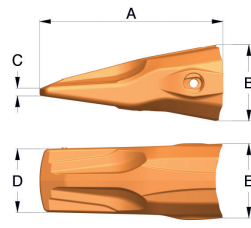
**SL**  



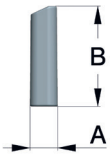
**GPE** 



**VE** 



**GPL** 















**LP**  



**LT**  

Typical machine weight - Excavator 12-14 MT  
Maximum breakout force in HD/XHD (ISO) 88 kN

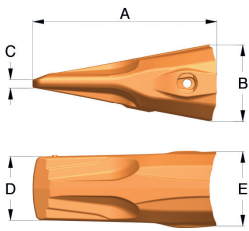
Typical machine weight - Loader 12-14 MT  
Maximum breakout force in HD/XHD (ISO) 158 kN

Type	Part. no			A inch	B inch	C inch	D inch	E inch	F inch	G bevel	Weight lb
BE	R10BE25			1,06	11,06	3,27	3,74	6,73	3,54	30°	12,1
SL	R10SL20			0,79 - 1,18	10,94	3,27	N/A	N/A	3,46	25°	13,7
GPE	R10GPE			8,19	3,39	0,39	2,83	3,31			7
VE	R10VE			8,98	3,39	0,31	0,39	3,31			5,9
GPL	R10GPL			8,19	3,39	0,35	2,83	3,31			7,7
LP	R10LP			0,75	2,72						0,2
LT	R10LT			14,09	2,44						0,9

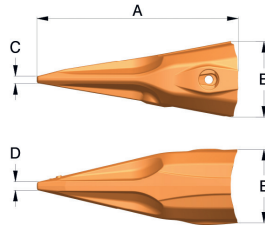


## R14 Specifications

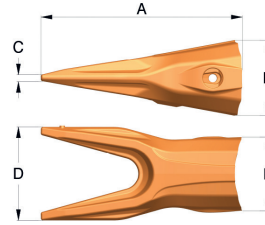
### Teeth



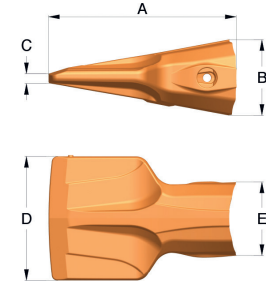
**GPE** 



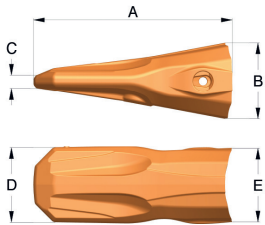
**VE** 



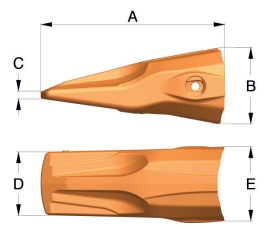
**WE** 



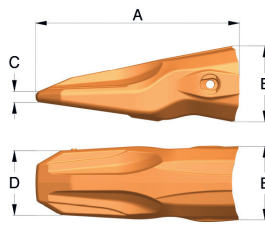
**FE** 



**AE** 











**GPL** 



**AL** 

Typical machine weight - Excavator 14-17 MT  
Maximum breakout force in HD/XHD (ISO) 112 kN

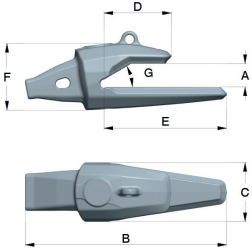
Typical machine weight - Loader 14-17 MT  
Maximum breakout force in HD/XHD (ISO) 202 kN

Type	Part. no			A inch	B inch	C inch	D inch	E inch	F inch	G bevel	Weight lb
GPE	R14GPE			9,45	3,94	0,43	3,27	3,82			10,4
VE	R14VE			10,43	3,94	0,35	0,39	3,82			9,5
WE	R14WE			10,43	3,94	0,35	4,84	3,82			11,2
FE	R14FE			9,45	3,94	0,51	6,14	3,82			14,11
AE	R14AE			10,31	3,94	0,71	3,86	3,82			13,7
GPL	R14GPL			9,45	3,94	0,39	3,27	3,82			12,1
AL	R14AL			10,59	3,94	0,59	3,35	3,82			16,1

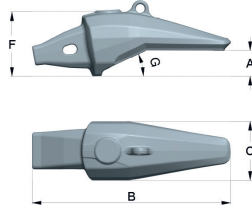


## R14 Specifications

### Adapters, Accessories



**BE** 












**SL** 



**LP** 



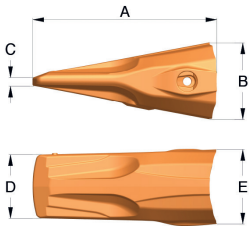
**LT** 

Type	Part. no			A inch	B inch	C inch	D inch	E inch	Weight lb
GPE	R18GPE			10,51	4,37	0,47	3,62	4,25	15
VE	R18VE			11,57	4,37	0,43	0,43	4,25	12,8
WE	R18WE			11,57	4,37	0,43	5,39	4,25	15,4
FE	R18FE			10,75	4,37	0,55	7,16	4,25	20
AE	R18AE			11,42	4,37	0,79	4,29	4,25	18,7
GPL	R18GPL			10,51	4,37	0,43	3,62	4,25	16,7
AL	R18AL			11,73	4,37	0,67	3,7	4,25	22

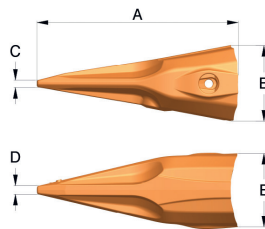


## R18 Specifications

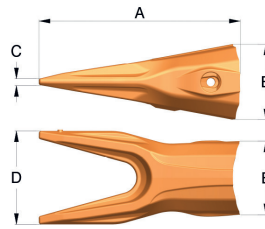
### Teeth



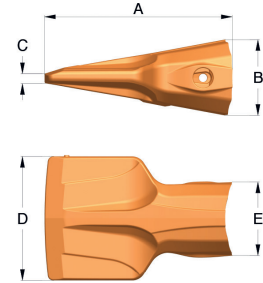
**GPE** 



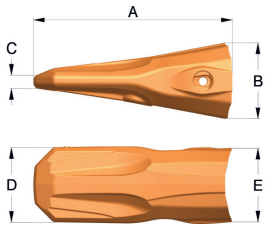
**VE** 



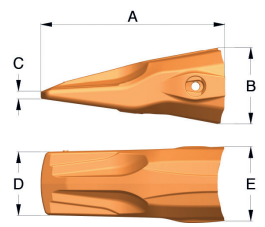
**WE** 



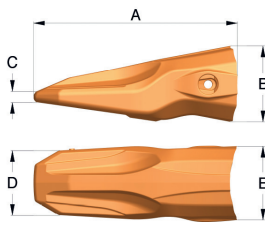
**FE** 



**AE** 



**GPL** 












**AL** 

Typical machine weight - Excavator  
Maximum breakout force in HD/XHD (ISO)

17-25 MT  
147 kN

Typical machine weight - Loader  
Maximum breakout force in HD/XHD (ISO)

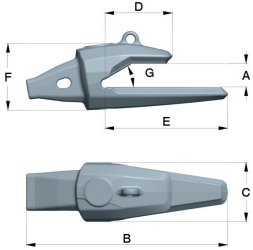
17-25 MT  
265 kN

Type	Part. no			A inch	B inch	C inch	D inch	E inch	Weight lb
GPE	R18GPE			10,51	4,37	0,47	3,62	4,25	15
VE	R18VE			11,57	4,37	0,43	0,43	4,25	12,8
WE	R18WE			11,57	4,37	0,43	5,39	4,25	15,4
FE	R18FE			10,75	4,37	0,55	7,16	4,25	20
AE	R18AE			11,42	4,37	0,79	4,29	4,25	18,7
GPL	R18GPL			10,51	4,37	0,43	3,62	4,25	16,7
AL	R18AL			11,73	4,37	0,67	3,7	4,25	22

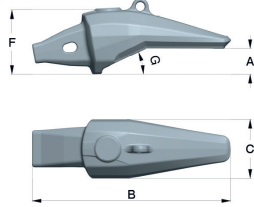


## R18 Specifications

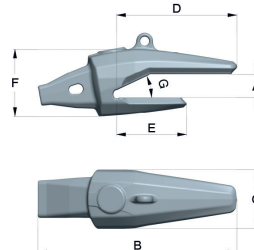
### Adapters, Accessories



**BE** 



**SL** 














**TL** 



**LP** 



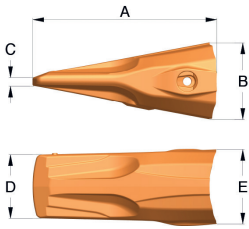
**LT** 

Type	Part. no			A inch	B inch	C inch	D inch	E inch	F inch	G bevel	Weight lb
BE	R18BE40			1,65	14,21	4,17	4,72	8,66	4,69	30°	26,2
BE	R18BE45			1,85	14,25	4,17	4,72	8,66	4,69	30°	26,7
SL	R18SL30			1,18 - 1,57	14,06	4,17	N/A	N/A	4,49	25°	28,2
TL	R18TL40			1,65	14,02	4,17	8,46	4,92	4,76	25°	28,2
LP	R18LP			0,98	3,54						0,4
LT	R18LT			16,06	2,56						1,3

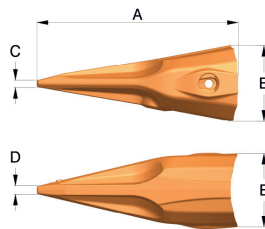


## R23 Specifications

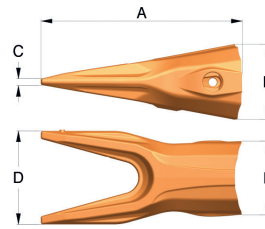
### Teeth



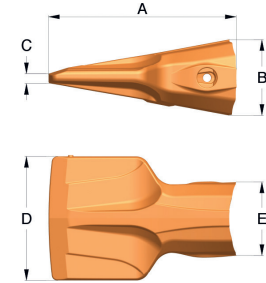
**GPE** 



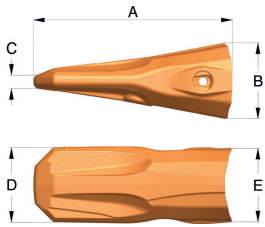
**VE** 



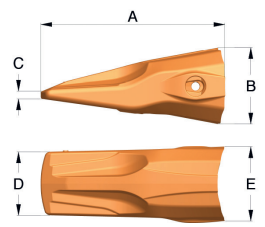
**WE** 



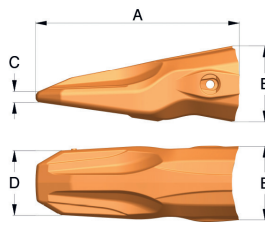
**FE** 



**AE** 












**GPL** 



**AL** 

Typical machine weight - Excavator 25-35 MT  
 Maximum breakout force in HD/XHD (ISO) 184 kN

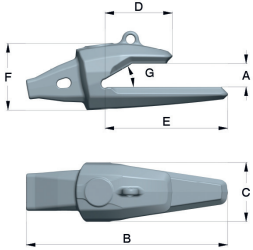
Typical machine weight - Loader 25-35 MT  
 Maximum breakout force in HD/XHD (ISO) 331 kN

Type	Part. no			A inch	B inch	C inch	D inch	E inch	Weight lb
GPE	R23GPE			11,85	4,92	0,55	4,09	4,8	21,1
VE	R23VE			13,07	4,92	0,47	0,51	4,8	18,5
WE	R23WE			13,07	4,92	0,47	6,1	4,8	21,8
FE	R23FE			12,17	4,92	0,63	8,07	4,8	28,9
AE	R23AE			12,91	4,92	0,87	4,84	4,8	27,3
GPL	R23GPL			11,85	4,92	0,51	4,09	4,8	23,8
AL	R23AL			13,27	4,92	0,75	4,21	4,8	31,7

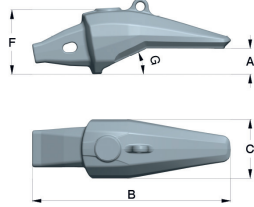


## R23 Specifications

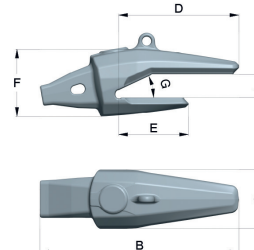
### Adapters, Accessories



**BE** 



**SL** 














**TL** 



**LP** 



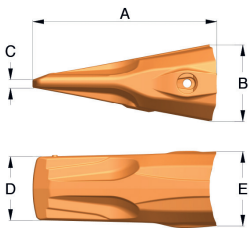
**LT** 

Type	Part. no			A inch	B inch	C inch	D inch	E inch	F inch	G bevel	Weight lb
BE	R23BE40			1,65	16,06	4,72	5,39	9,8	5,12	30°	38,5
BE	R23BE50			2,05	16,06	4,72	5,39	9,8	5,12	30°	37,9
SL	R23SL40			1,57 - 1,97	15,91	4,72	N/A	N/A	5	25°	40,3
TL	R23TL40			1,65	15,87	4,72	9,61	5,51	5,12	25°	40,3
LP	R23LP			1,1	4,02						0,7
LT	R23LT			17,13	2,72						2

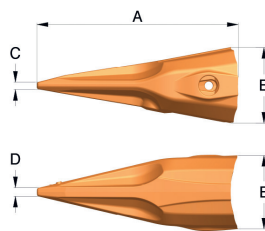


## R29 Specification

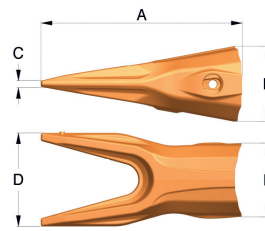
### Teeth



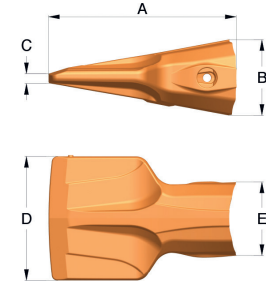
**GPE** 



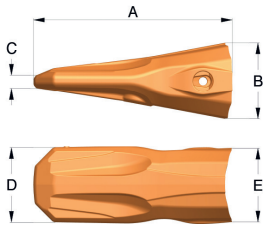
**VE** 



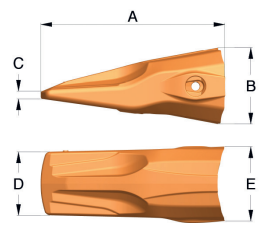
**WE** 



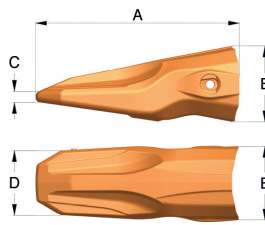
**FE** 



**AE** 



**GPL** 












**AL** 

Typical machine weight - Excavator  
Maximum breakout force in HD/XHD (ISO)

35-45 MT  
233 kN

Typical machine weight - Loader  
Maximum breakout force in HD/XHD (ISO)

35-45 MT  
419 kN

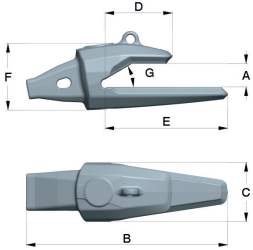
Type	Part. no			A inch	B inch	C inch	D inch	E inch	Weight lb
GPE	R29GPE			13,03	5,43	0,59	4,53	5,28	27,8
VE	R29VE			14,37	5,43	0,51	0,55	5,28	25,1
WE	R29WE			14,37	5,43	0,51	6,69	5,28	29,7
FE	R29FE			13,39	5,43	0,71	8,9	5,28	38,3
AE	R29AE			14,21	5,43	0,94	5,35	5,28	35,7
GPL	R29GPL			13,03	5,43	0,55	4,53	5,28	31,9
AL	R29AL			14,61	5,43	0,83	4,61	5,28	42,3



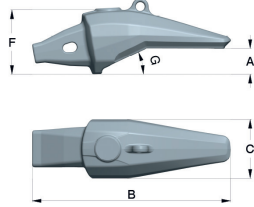


## R29 Specifications

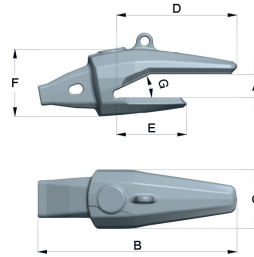
### Adapters, Accessories



**BE** 



**SL** 







**TL** 



**LP** 



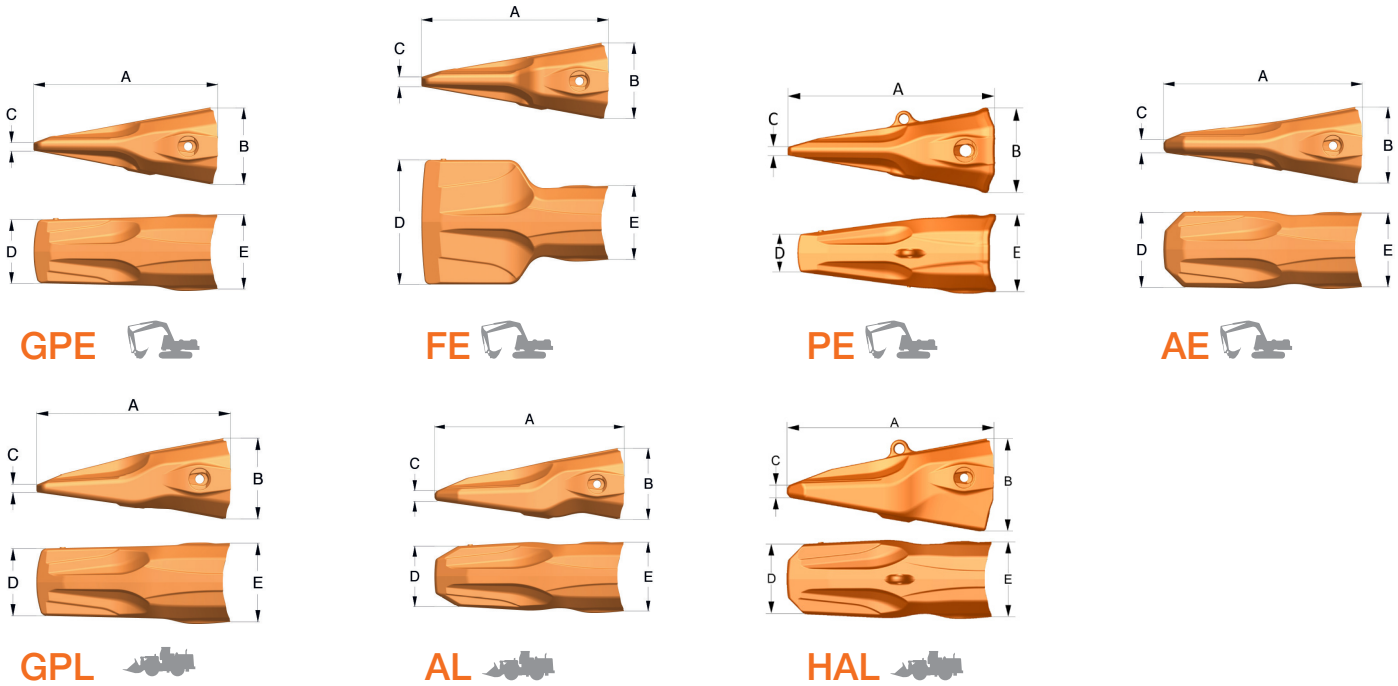
**LT** 

Type	Part. no			A inch	B inch	C inch	D inch	E inch	F inch	G bevel	Weight lb
BE	R29BE50			2,05	17,68	5,2	5,91	10,79	5,83	30°	52,2
BE	R29BE60			2,44	17,68	5,2	5,83	10,79	5,83	30°	52
SL	R29SL50			1,97 - 2,56	17,48	5,2	N/A	N/A	5,67	25°	46,3
TL	R29TL50			2,05	17,44	5,2	10,55	6,14	5,91	25°	54,2
LP	R29LP			1,22	4,41						0,9
LT	R29LT			18,11	2,76						2,2



# R35 Specifications

## Teeth












Typical machine weight - Excavator  
Maximum breakout force in HD/XHD (ISO)

40-50 MT  
296 kN

Typical machine weight - Loader  
Maximum breakout force in HD/XHD (ISO)

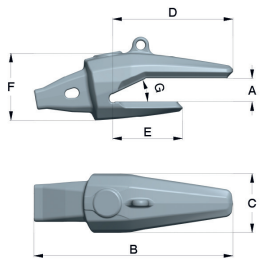
45-55 MT  
510 kN

Type	Part. no			A inch	B inch	C inch	D inch	E inch	F inch	G bevel	Weight lb
GPE	R35GPE			14,72	6,14	0,71	5,12	5,94			41,1
FE	R35FE			15,16	6,14	0,83	10,04	5,94			55,2
PE	R35PE			16,14	6,14	0,83	3,54	5,94			46,6
AE	R35AE			16,02	6,14	1,06	6,02	5,94			52,4
GPL	R35GPL			14,76	6,14	0,63	5,12	5,94			46
AL	R35AL			16,5	6,18	0,91	5,24	5,94			61,2
HAL	R35HAL			16,5	7,32	1,06	6,18	5,94			79,9

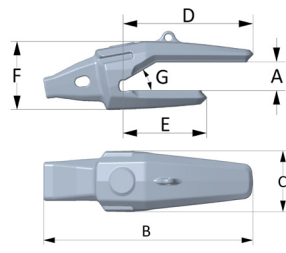


## R35 Specifications

### Adapters, Accessories



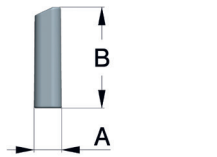
**TL** 



**UA** 



















**WC** 



**LP** 



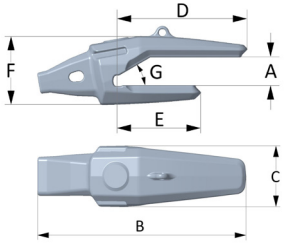
**LT** 

Type	Part. no			A inch	B inch	C inch	D inch	E inch	F inch	G bevel	Weight lb
TL	R35TL65			2,64	19,72	5,87	11,93	6,85	6,69	30°	75,5
UA	R35UA60			2,44	19,68	5,87	12,05	7,8	6,42	30°	72,4
UA	R35UA65			2,64	19,68	5,87	11,97	7,8	6,42	30°	72,4
UA	R35UA70			2,83	19,68	5,87	11,85	7,56	6,42	30°	71,3
WC	R35WC			6,77	3,07	5,00					9,7
LP	R35LP			1,34	5						1,3
LT	R35LT			19,09	2,95						2,4



## R50 Specifications

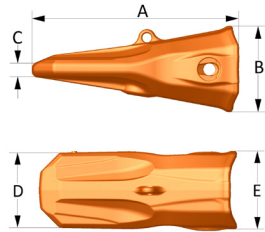
## Teeth, Adapters, Accessories



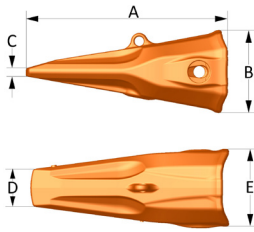
**UA**   



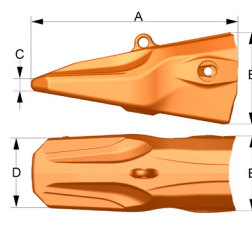
**WC**   



**AE**  



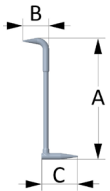
**PE**  



**HAL**  















**LP**   



**LT**   

Typical machine weight - Excavator 50-80 MT  
Maximum breakout force in HD/XHD (ISO) 400 kN

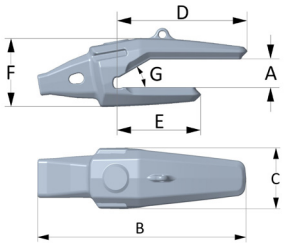
Typical machine weight - Loader 80-100 MT  
Maximum breakout force in HD/XHD (ISO) 720 kN

Type	Part. no				A inch	B inch	C inch	D inch	E inch	F inch	G bevel	Weight lb
UA	R50UA70				2,84	22,95	6,73	14,25	9,17	7,48	30°	113,5
UA	R50UA75				3,03	22,95	6,73	14,13	9,05	7,48	30°	112,9
UA	R50UA80				3,23	22,95	6,73	14,02	8,94	7,48	30°	11,15
WC	R50WC				7,79	3,47	5,67					12,1
AE	R50AE				17,64	7,32	1,26	6,73	7,01			73,5
PE	R50PE				17,87	7,32	0,79	3,42	7,01			62,5
HAL	R50HAL				18,15	8,82	1,22	6,3	7,01			116,8
LP	R50LP				1,58	5,75						2,2
LT	R50LT				16,61	3,58	4,92					2,4



## R70 Specifications

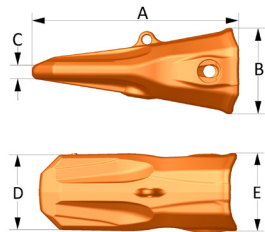
## Teeth, Adapters, Accessories



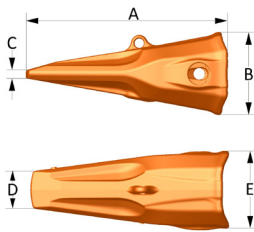
**UA** 



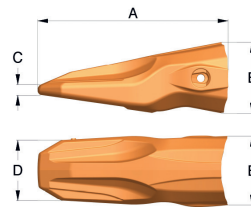
**WC** 



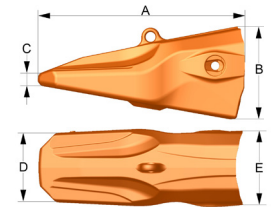
**AE** 



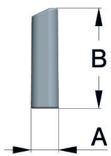
**PE** 



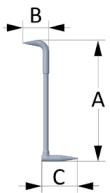
**AL** 



**HAL** 



**LP** 






















**LT** 

Typical machine weight - Excavator 80-120 MT  
Maximum breakout force in HD/XHD (ISO) 576 kN

Typical machine weight - Face shovel 80-120 MT  
Maximum breakout force in HD/XHD (ISO) 720 kN

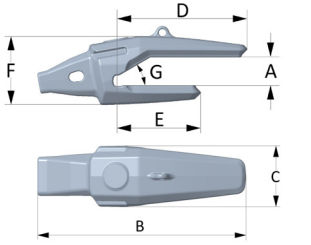
Typical machine weight - Loader 100-150 MT  
Maximum breakout force in HD/XHD (ISO) 1037 kN

Type	Part. no				A inch	B inch	C inch	D inch	E inch	F inch	G bevel	Weight lb
UA	R70UA75				3,03	27,84	7,84	16,1	10,35	8,46	30°	200,9
UA	R70UA90				3,62	27,84	7,84	16,1	10,35	8,82	30°	198,7
WC	R70WC				9,01	3,98	7,01					20,3
AE	R70AE				19,88	8,66	1,38	7,8	8,27			110,7
PE	R70PE				20,08	8,66	1,26	4,57	8,27			100,8
AL	R70AL				20,2	8,66	1,38	6,93	8,27			135,3
HAL	R70HAL				20,2	10,16	1,38	7,36	8,27			171,6
LP	R70LP				1,81	6,65						3,1
LT	R70LT				16,61	3,58	4,92					2,4

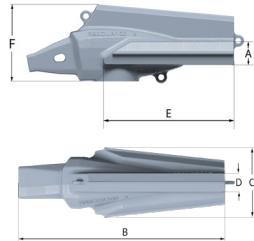


## R90 Specifications

## Teeth, Adapters, Accessories



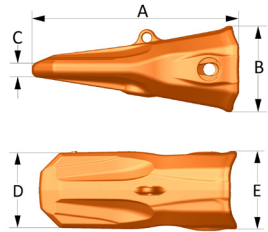
**UA** 



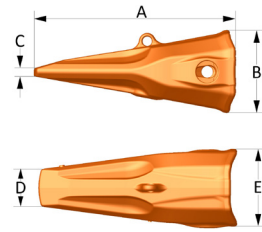
**CUA** 



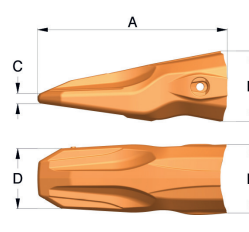
**WC** 



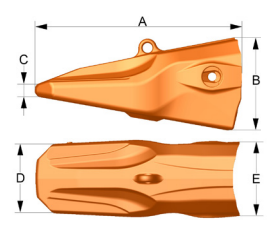
**AE** 



**PE** 



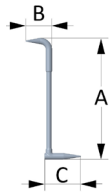
**AL** 



**HAL** 



**LP** 






























**LT** 

Typical machine weight - Excavator 120-200 MT  
Maximum breakout force in HD/XHD (ISO) 720 kN

Typical machine weight - Face shovel 120-200 MT  
Maximum breakout force in HD/XHD (ISO) 900 kN

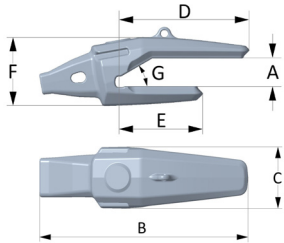
Typical machine weight - Loader 200-250 MT  
Maximum breakout force in HD/XHD (ISO) 1296 kN

Type	Part. no				A inch	B inch	C inch	D inch	E inch	F inch	G bevel	Weight lb
UA	R90UA100				4,02	30,87	8,7	17,87	12,7	10,83	30°	294,8
CUA	R90CUA100				4,02	35,21	11,81	22,23	22,23			506
WC	R90WC				9,72	4,41	7,76					26,4
AE	R90AE				21,58	9,37	1,5	8,66	9,06			149,6
PE	R90PE				21,77	9,37	1,38	5,16	9,06			136,4
AL	R90AL				21,97	9,37	1,38	7,72	9,06			178,2
HAL	R90HAL				21,97	11,1	1,5	8,19	9,06			231
LP	R90LP				2	7,4						4,4
LT	R90LT				16,61	3,58	6,5					2,64

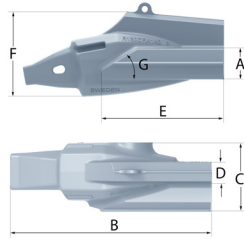


# R110 Specifications

## Teeth, Adapters, Accessories



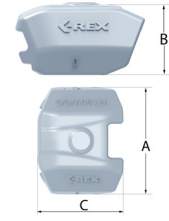
**UA** 



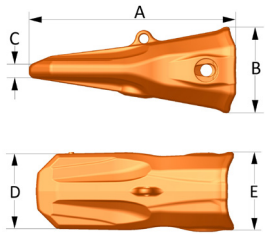
**CLA CRA** 



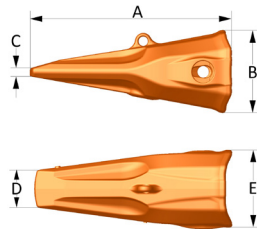
**WC** 



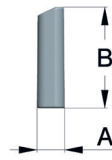
**WCC** 



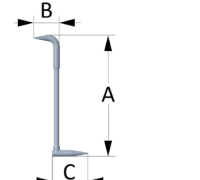
**AE** 



**PE** 























**LP** 



**LT** 

Typical machine weight - Excavator 200–250 MT  
Maximum breakout force in HD/XHD (ISO) 880 kN

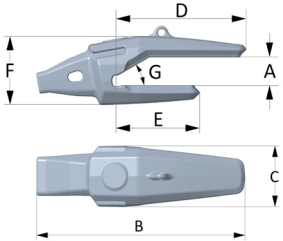
Typical machine weight - Face shovel 200–250 MT  
Maximum breakout force in HD/XHD (ISO) 1100 kN

Type	Part. no			A inch	B inch	C inch	D inch	E inch	F inch	G bevel	Weight lb
UA	R110UA120			4,8	33,98	9,57	19,41	12,4	11,3	30°	345,4
CLA	R110CLA120					Under development					
CRA	R110CRA120					Under development					
WC	R110WC			10,71	4,8	8,54					34,1
WCC	R110WCC					Under development					
AE	R110AE			23,74	10,32	1,65	9,53	9,96			199,1
PE	R110PE			23,94	10,32	1,54	5,67	9,96			5,5
LP	R110LP			2,2	8,15						2,6
LT	R110LT			16,81	3,58	6,5					

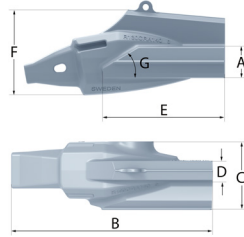


## R130 Specifications

## Teeth, Adapters, Accessories



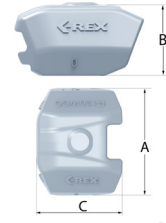
**UA**  



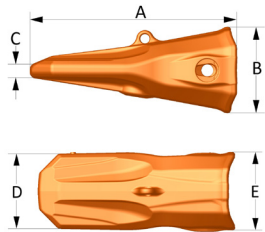
**CLA CRA**  



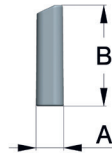
**WC**  



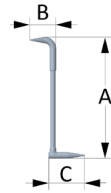
**WCC**  



**AE**  





















**LP**  



**LT**  

Typical machine weight - Excavator 250–350 MT  
Maximum breakout force in HD/XHD (ISO) 1050 kN

Typical machine weight - Face shovel 250–390 MT  
Maximum breakout force in HD/XHD (ISO) 1300 kN

Type	Part. no			A inch	B inch	C inch	D inch	E inch	F inch	G bevel	Weight lb
UA	R130UA140			5,59	36,26	10,16	21,81	14,65	12,87	30°	443,3
CLA	R130CLA140			5,51	37,28	12,6	3,54	22,84	15,75	30°	814
CRA	R130CRA140			5,51	37,28	12,6	3,54	1,69	15,75	30°	814
WC	R130WC			11,65	5,08	9,49					39,8
WCC	R130WCC			11,65	5,08	9,33					37,8
AE	R130AE			25,83	11,65	1,93	10,63	11,14			275
LP	R130LP			2,36	9,17						6,8
LT	R130LT			16,81	3,58	6,5					2,6





## Excavator Teeth and adapters

### ADAPTER

BE	SL	UA	CUA/CLA/CRA
A 1 1/2 bottom leg adapter. Designed for both general and tough excavation in different types of ground.	Top mounted single leg adapter designed for use in general conditions whenever a smooth surface is required.	A 1 1/2 top leg adapter. Designed for both excavators and loaders. Can be used with or without a wear cap.	Corner adapters. Designed for both excavators and loaders. Can be used with or without a wear cap.

### WEAR CAP

### LOCK

WC/WCC	LP	LR
Mechanical wear cap protects the adapter topside in high abrasion and impact applications.	Reusable locking pin of forged steel also usable in hot slag applications.	Locking ring integrated in the tooth. Secures the locking function and simplifies teeth exchange.

### TOOTH

GPE	VE	WE	FE
Standard tooth with slim design for optimal penetration and durability in general purpose applications.	The tooth for maximum penetration. Makes light work of hard surface layers and frozen ground.	Used primarily in a corner position in combination with VE, this tooth provides the penetration demanded by hard surfaces.	An extra-wide tooth for excavating and cleaning – penetration and straight-edge performance from a single solution.

### TOOTH

### TOOTH

### TOOL

AE	PE	LT
Abrasion tooth for highly abrasive soils and rocks such as granite, basalt and sandstone. The design provides maximal wear material with maintained good penetration.	Penetration tooth with added body mass and narrow tip combines penetration with impact and abrasion resistance.	Tool for turning the locking ring in locked and unlocked position.



## Loader teeth and adapters

### ADAPTER

SL	TL	UA	CUA/CLA/CRA
Top mounted single leg adapter designed for use in general conditions whenever a smooth surface is required.	A 1 1/2 top leg adapter. Designed for both general and tough loading in different types of ground conditions.	A 1 1/2 top leg adapter. Designed for both excavators and loaders. Can be used with or without a wear cap.	Corner adapters. Designed for both excavators and loaders. Can be used with or without a wear cap.

### WEAR CAP

### LOCK

WC/WCC	LP	LR
Mechanical wear cap protects the adapter topside in high abrasion and impact applications.	Reusable locking pin of forged steel also usable in hot slag applications.	Locking ring integrated in the tooth. Secures the locking function and simplifies teeth exchange.

### TOOTH

GPL	AL	HAL
In both general and highly abrasive environments. This all-round tooth is popular for its excellent penetration.	Abrasion tooth with a high level of penetration. Recommended in blasted rock application.	Outstanding wear resistance combined with a high level of penetration. This tooth provides extra protection for the lower part of the adapter and is ideal where ground conditions are highly abrasive.

### TOOL

#### LT

Tool for turning the locking ring in locked and unlocked position.



## Application table

Application table Based on DIN 18300 ground classification

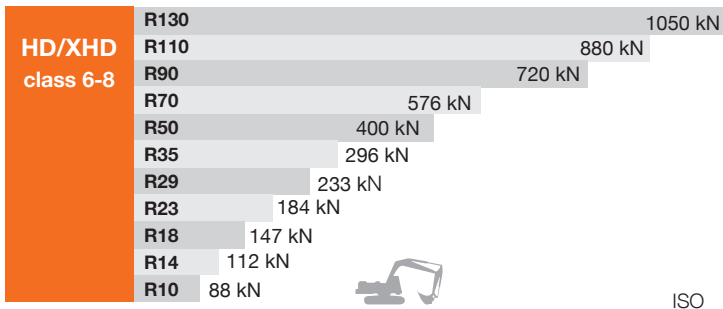
Ground classification	Description of ground conditions	Working conditions	Application
Class 1 Top soil without stones	Top layer of soil.	Very little wear. Very little penetration resistance. No impact resistance.	GP
Class 2 Wet ground	Sludge, mud, peat.	Little wear. Very little penetration resistance. No impact resistance.	GP
Class 3 Light ground	Sand, fine gravel, sandy soil. Stone size up to approx. 2,4 inch.	Moderate wear. Little penetration resistance. No impact resistance.	GP
Class 4 Moderately heavy ground	Very stony ground, gravel, stones. Stone size above 2,4 inch.	Considerable wear. Some penetration resistance. Moderate impact resistance.	GP / HD
Class 5 Dense, moderately heavy ground	Till, rigid clay, sand-clay mix, moraine, marl.	Considerable wear. Moderate penetration resistance. Little impact, some break through resistance.	HD
Class 6 Dense, heavy ground	Hard marl and clay, hard sandy ground, hard stony soil. Stone size up to approx. 7,9 inch.	Considerable wear. Considerable penetration resistance. Considerable impact and break through resistance.	HD
Class 7 Lighter rock	Loose rock, crumbled rock, slate. Very hard ground with stones, approx. 7,9 inch or bigger.	Usually considerable wear. Considerable penetration resistance. Considerable impact and break through resistance.	XHD
Class 8 Heavy rock	Blasted rock, size over 3,5 ft <sup>3</sup> .	Very significant wear. Considerable penetration resistance. Very significant impact and break through resistance.	XHD

*For further information on welding, assembly and maintenance, see welding and assembly instructions.*

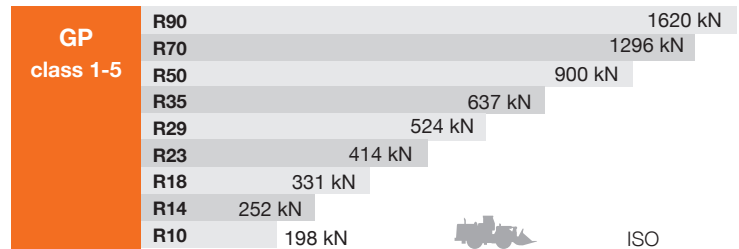
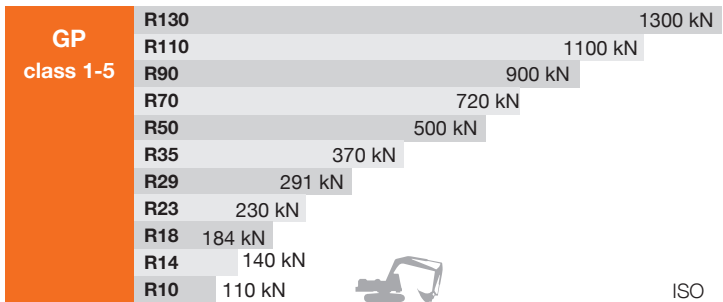
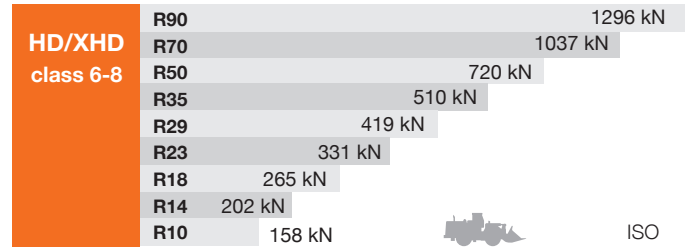


## Selection guide

### Breakout force diagram – Backhoe



### Breakout force diagram – Loader



### Breakout force diagram – Face shovel

