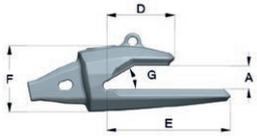




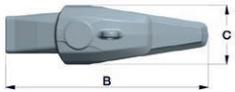
R10 SPECIFICATIONS Teeth, Adapters, Accessories



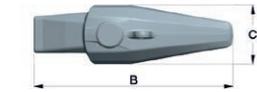
BE 



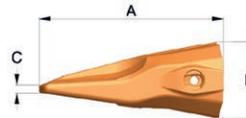
SL  



GPE 



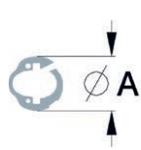
VE 



GPL 



LP  



LR  



LT  

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

12-14 MT
88 kN

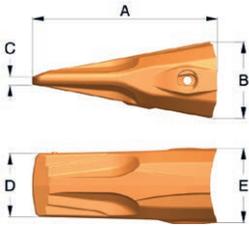
Typical machine weight - Loader
Maximum breakout force in HD/XHD

12-14 MT
158 kN

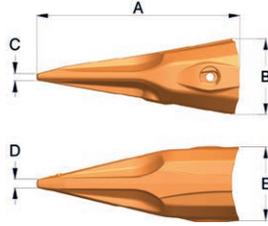
Type	Part. no			A mm	B mm	C mm	D mm	E mm	F mm	G bevel	Weight kg
BE	R10BE25			27	281	83	95	171	90	30°	5.5
SL	R10SL20			20 (20-30)	278	83	N/A	N/A	88	25°	6.2
GPE	R10GPE			208	86	10	72	84			3.2
VE	R10VE			228	86	8	10	84			2.7
GPL	R10GPL			208	86	9	72	84			3.5
LP	R10LP			19	69						0.1
LR	R10LR			29							-
LT	R10LT			358	62						0.4



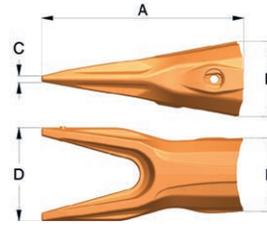
R14 SPECIFICATIONS Teeth



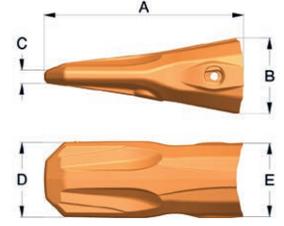
GPE 



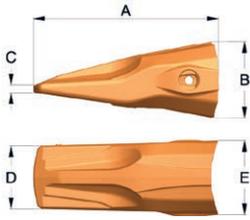
VE 



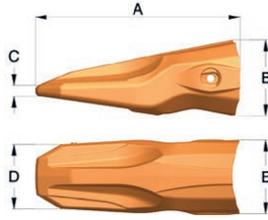
WE 



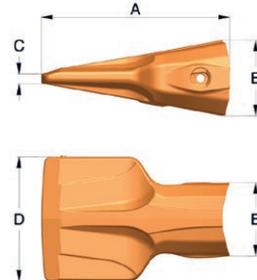
AE 



GPL 



AL 



FE 

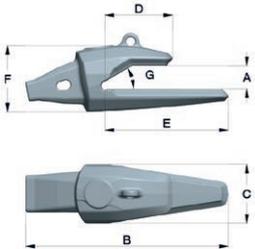
Typical machine weight - Excavator 14-17 MT
Maximum breakout force in HD/XHD 112 kN

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

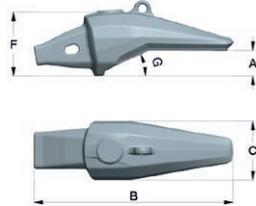
Type	Part. no			A mm	B mm	C mm	D mm	E mm	F mm	G bevel	Weight kg
GPE	R14GPE			240	100	11	83	97			4.7
VE	R14VE			265	100	9	10	97			4.3
WE	R14WE			265	100	9	123	97			5.1
FE	R14FE			240	100	13	156	97			6.4
AE	R14AE			262	100	18	98	97			6.2
GPL	R14GPL			240	100	10	83	97			5.5
AL	R14AL			269	100	15	85	97			7.3



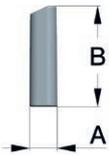
R14 SPECIFICATIONS Adapters, Accessories



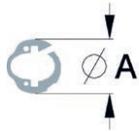
BE 



SL  



LP  



LR  

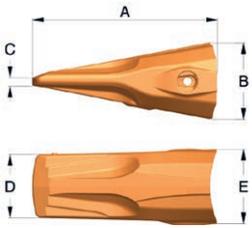


LT  

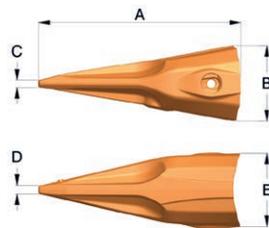
Type	Part. no			A mm	B mm	C mm	D mm	E mm	F mm	G bevel	Weight kg
BE	R14BE30			32	325	96	110	198	103	30°	8.7
BE	R14BE40			42	325	96	110	198	103	30°	8.7
SL	R14SL30			30 (30-40)	322	96	N/A	N/A	101	25°	9.5
LP	R14LP			22	80						0.2
LR	R14LR			32							-
LT	R14LT			383	65						0.6



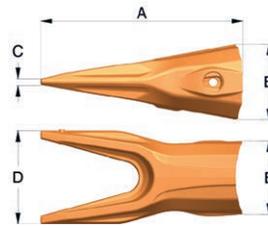
R18 SPECIFICATIONS Teeth



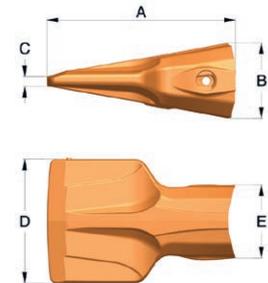
GPE 



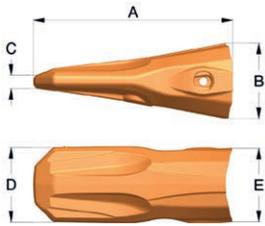
VE 



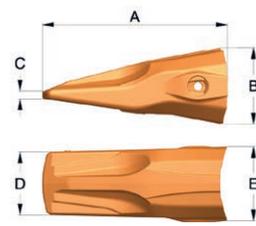
WE 



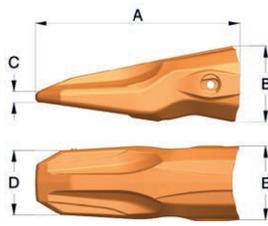
FE 



AE 



GPL 



AL 

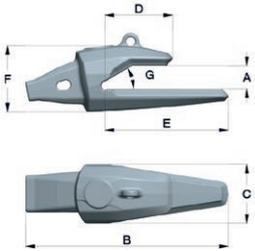
Typical machine weight - Excavator 17-25 MT
Maximum breakout force in HD/XHD 147 kN

Typical machine weight - Loader 17-25 MT
Maximum breakout force in HD/XHD 265 kN

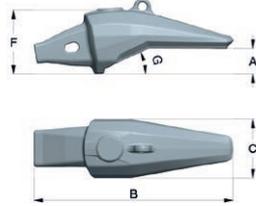
Type	Part. no			A mm	B mm	C mm	D mm	E mm	Weight kg
GPE	R18GPE			267	111	12	92	108	6.8
VE	R18VE			294	111	11	11	108	5.8
WE	R18WE			294	111	11	137	108	7.0
FE	R18FE			273	111	14	182	108	9.1
AE	R18AE			290	111	20	109	108	8.5
GPL	R18GPL			267	111	11	92	108	7.6
AL	R18AL			298	111	17	94	108	10.0



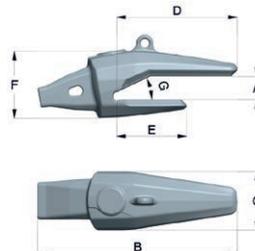
R18 SPECIFICATIONS Adapters, Accessories



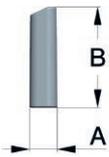
BE 



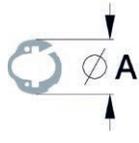
SL  



TL 



LP  



LR  

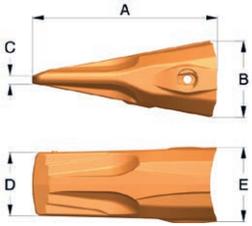


LT  

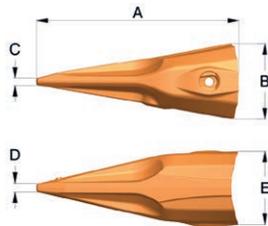
Type	Part. no			A mm	B mm	C mm	D mm	E mm	F mm	G bevel°	Weight kg
BE	R18BE40			42	361	106	120	220	119	30°	11.9
BE	R18BE45			47	362	106	119	221	119	30°	12.1
SL	R18SL30			30 (30-40)	357	106	N/A	N/A	114	25°	12.8
TL	R18TL40			42	356	106	215	125	121	25°	12.8
LP	R18LP			25	90						0.2
LR	R18LR			35							-
LT	R18LT			408	65						0.6



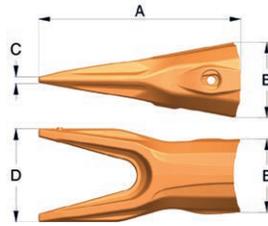
R23 SPECIFICATIONS Teeth



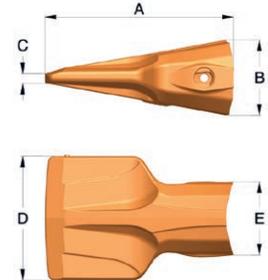
GPE 



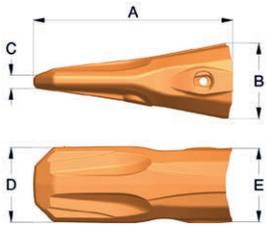
VE 



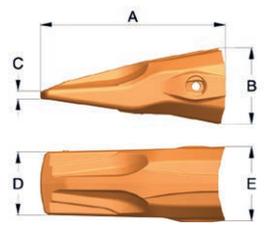
WE 



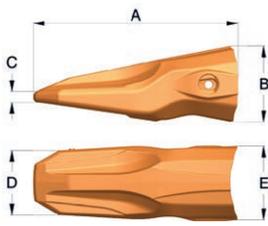
FE 



AE 



GPL 



AL 

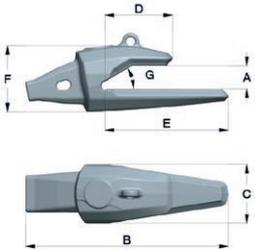
Typical machine weight - Excavator 25-35 MT
Maximum breakout force in HD/XHD 184 kN

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

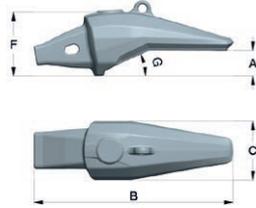
Type	Part. no	 	A mm	B mm	C mm	D mm	E mm	Weight kg
GPE	R23GPE		301	125	14	104	122	9.6
VE	R23VE		332	125	12	13	122	8.4
WE	R23WE		332	125	12	155	122	9.9
FE	R23FE		309	125	16	205	122	13.1
AE	R23AE		328	125	22	123	122	12.4
GPL	R23GPL		301	125	13	104	122	10.8
AL	R23AL		337	125	19	107	122	14.4



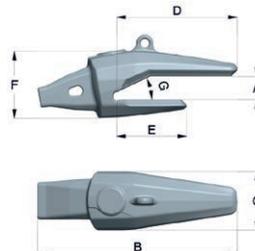
R23 SPECIFICATIONS Adapters, Accessories



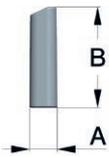
BE 



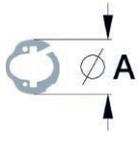
SL 



TL 



LP 



LR 

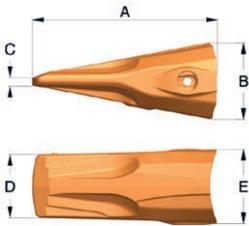


LT 

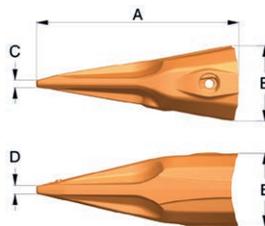
Type	Part. no			A mm	B mm	C mm	D mm	E mm	F mm	G bevel	Weight kg
BE	R23BE40			42	408	120	137	249	130	30°	17.5
BE	R23BE50			52	408	120	137	249	130	30°	17.3
SL	R23SL40			40 (40-50)	404	120	N/A	N/A	127	25°	18.3
TL	R23TL40			42	403	120	244	140	130	25°	18.3
LP	R23LP			28	102						0.3
LR	R23LR			40							-
LT	R23LT			435	69						0.9



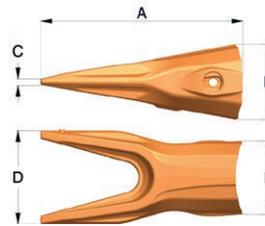
R29 SPECIFICATIONS Teeth



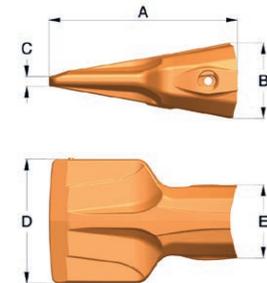
GPE 



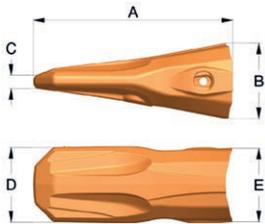
VE 



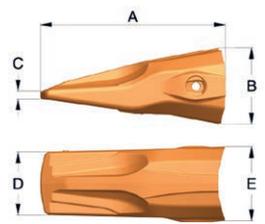
WE 



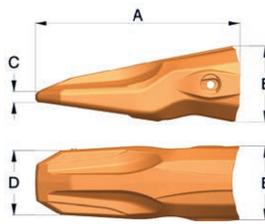
FE 



AE 



GPL 



AL 

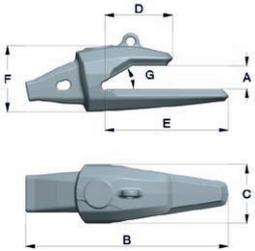
Typical machine weight - Excavator 35-45 MT
Maximum breakout force in HD/XHD 233 kN

Typical machine weight - Loader 35-45 MT
Maximum breakout force in HD/XHD 419 kN

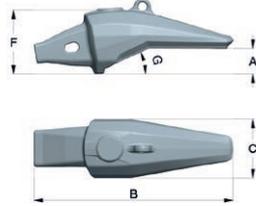
Type	Part. no	 	A mm	B mm	C mm	D mm	E mm	Weight kg
GPE	R29GPE		331	138	15	115	134	12.6
VE	R29VE		340	138	15	15	134	10.9
WE	R29WE		365	138	13	170	134	13.5
FE	R29FE		340	138	18	226	134	17.4
AE	R29AE		361	138	24	136	134	16.2
GPL	R29GPL		331	138	14	115	134	14.5
AL	R29AL		371	138	21	117	134	19.2



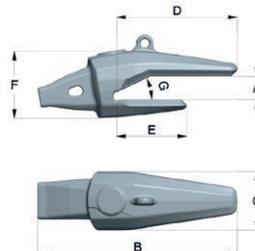
R29 SPECIFICATIONS Adapters, Accessories



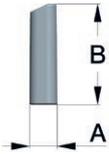
BE 



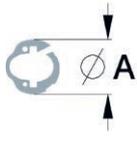
SL  



TL 



LP  



LR  

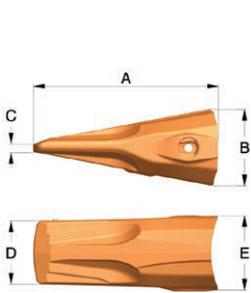


LT  

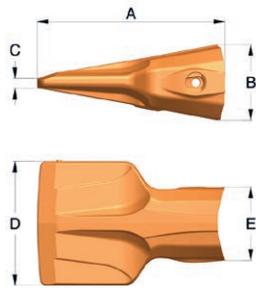
Type	Part. no	 	A mm	B mm	C mm	D mm	E mm	F mm	G bevel	Weight kg
BE	R29BE50		52	449	132	150	274	148	30°	23.7
BE	R29BE60		62	449	132	148	274	148	30°	23.6
SL	R29SL50	 	50 (50-65)	444	132	N/A	N/A	144	25°	21.0
TL	R29TL50	 	52	443	132	268	156	150	25°	24.6
LP	R29LP	 	31	112						0.4
LR	R29LR	 	43							-
LT	R29LT	 	460	70						1.0



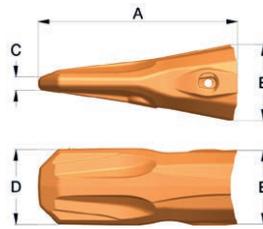
R35 SPECIFICATIONS Teeth



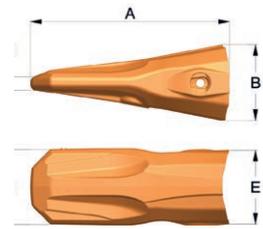
GPE 



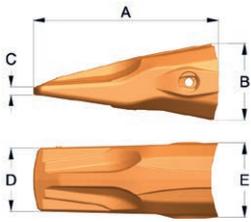
FE 



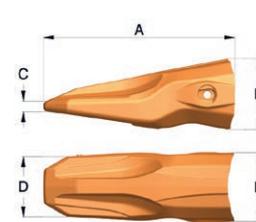
AE 



GPL 



AL 



HAL 

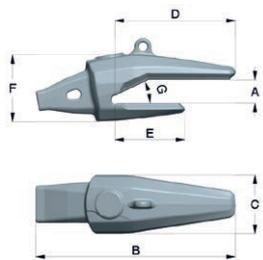
Typical machine weight - Excavator 40-50 MT
Maximum breakout force in HD/XHD 296 kN

Typical machine weight - Loader 45-55 MT
Maximum breakout force in HD/XHD 510 kN

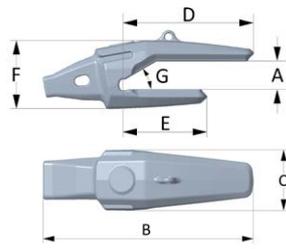
Type	Part. no			A mm	B mm	C mm	D mm	E mm	F mm	G bevel	Weight kg
GPE	R35GPE			374	156	18	130	151			18.7
FE	R35FE			385	156	21	255	151			25.1
AE	R35AE			407	156	27	153	151			23.8
GPL	R35GPL			375	156	16	130	151			20.9
AL	R35AL			419	156	23	133	151			27.8
HAL	R35HAL			419	186	27	157	151			36.3



R35 SPECIFICATIONS Adapters, Accessories



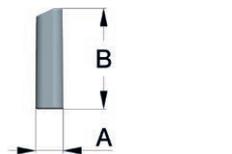
TL



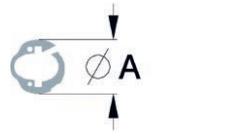
UA



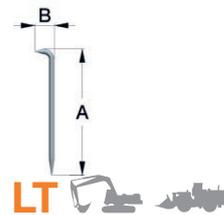
WC



LP



LR



LT

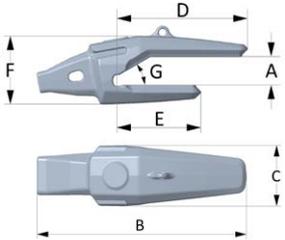
Type	Part. no			A mm	B mm	C mm	D mm	E mm	F mm	G bevel	Weight kg
TL	R35TL65			67	501	149	303	174	170	30°	34.3
UA	R35UA60			62	500	149	306	198	163	30°	32.9
UA	R35UA65			67	500	149	304	198	163	30°	32.5
UA	R35UA70			72	500	149	301	192	163	30°	32.4
WC	R35WC			163	73	126					3.2
LP	R35LP			34	127						0.6
LR	R35LR			49							-
LT	R35LT			485	75						1.1

Combi Wear Parts AB
 Box 205, SE-681 24 Kristinehamn, Sweden
 Tel: +46 550 410 550
 combiwearparts.com





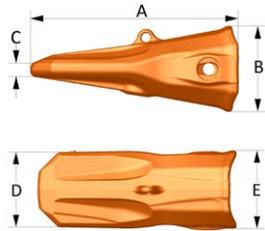
R50 SPECIFICATIONS Teeth, Adapters, Accessories



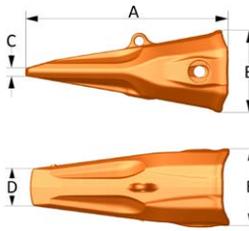
UA



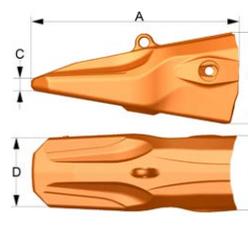
WC



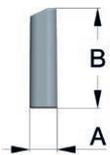
AE



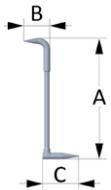
PE



HAL



LP



LT

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

50-80 MT
400 kN

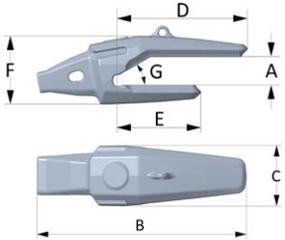
Typical machine weight - Loader
Maximum breakout force in HD/XHD

80-100 MT
720 kN

Type	Part. no			A mm	B mm	C mm	D mm	E mm	F mm	G bevel	Weight kg
UA	R50UA70			72	583	171	362	233	190	30°	51,6
UA	R50UA75			77	583	171	359	230	190	30°	51,3
UA	R50UA80			82	583	171	356	227	190	30°	50,7
WC	R50WC			184	82	142					3,9
AE	R50AE			448	186	32	171	178			33,4
PE	R50PE			454	186	20	87	178			28,4
HAL	R50HAL			461	224	31	160	178			53,1
LP	R50LP			40	146						1,0
LT	R50LT			422	91	125					1,1



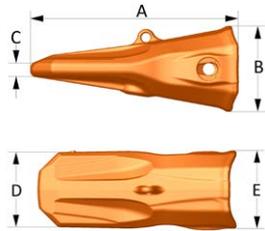
R70 SPECIFICATIONS Teeth, Adapters, Accessories



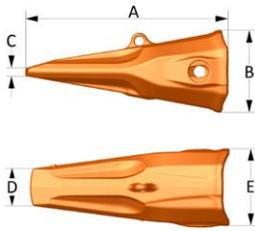
UA



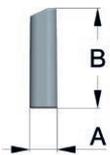
WC



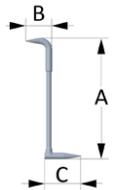
AE



PE



LP



LT

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

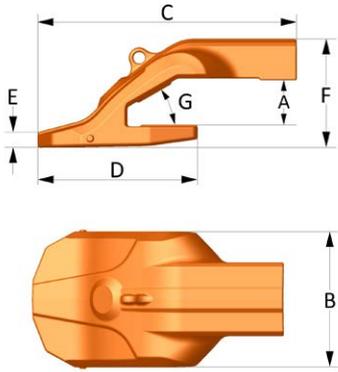
Typical machine weight - Face shovel 80-120 MT
Maximum breakout force in HD/XHD 720 kN

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

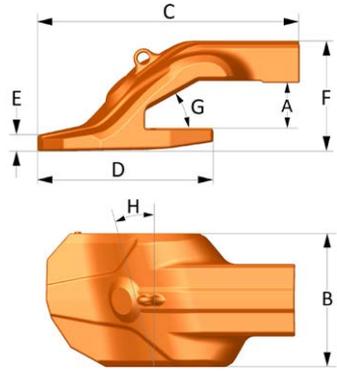
Type	Part. no			A mm	B mm	C mm	D mm	E mm	F mm	G bevel	Weight kg
UA	R70UA75			77	707	199	409	263	215	30°	91,3
UA	R70UA90			92	707	199	409	263	224	30°	90,3
WC	R70WC			217	97	177					7,3
AE	R70AE			505	220	35	198	210			50,3
PE	R70PE			510	220	32	116	210			45,8
LP	R70LP			46	169						1,4
LT	R70LT			422	91	125					1,1



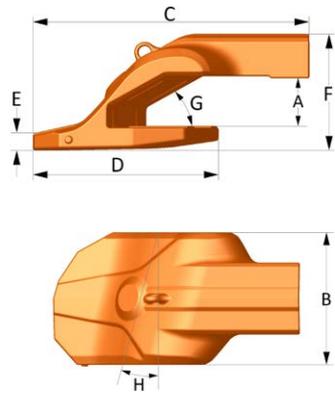
MECHANICAL SHROUDS SPECIFICATIONS 70 mm, 75 mm



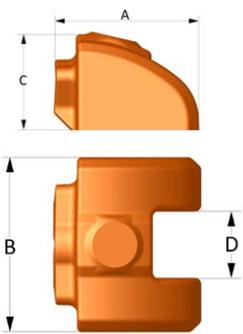
MSCE 



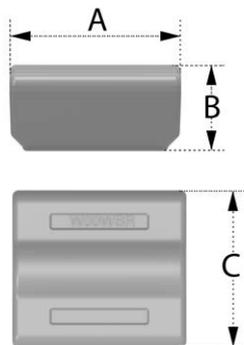
MSLE 



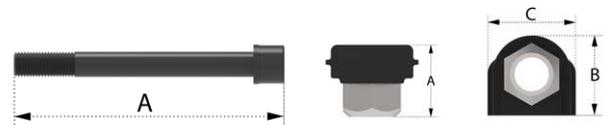
MSRE 



MSP 



WSR 

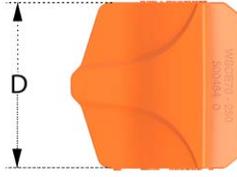
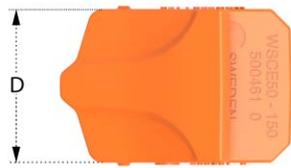
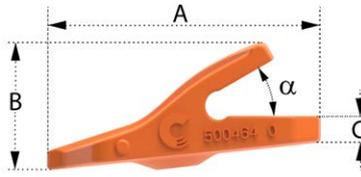
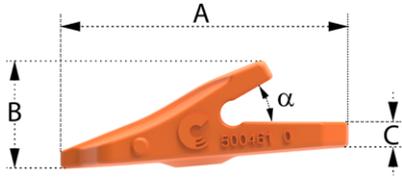


SL, Washer, Bolt 

Type	Part. no			Weight kg	A mm	B mm	C mm	D mm	E mm	F mm	G °	H °
MSCE70	500401			40,0	72	240	445	275	28	189	30	0
MSLE70	500402			39,0	72	240	445	275	29	189	30	15
MSRE70	500403			39,0	72	240	445	275	29	189	30	15
MSCE75	500404			40,0	77	240	425	275	28	189	30	0
MSLE75	500405			39,0	77	240	425	275	29	189	30	15
MSRE75	500406			39,0	77	240	425	275	29	189	30	15
MSP75	500423			4,2	108	130	72	49				
WSR75	500417			2,2	95	53	90					
SL	500302			0,3	48	54	58					
Washer	500355											
Bolt	500354			0,9	254							

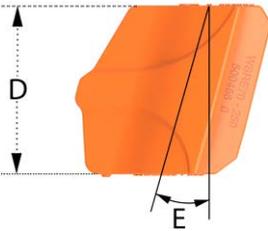
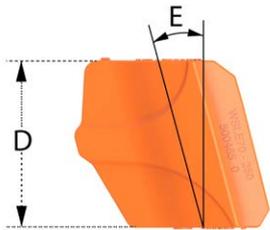
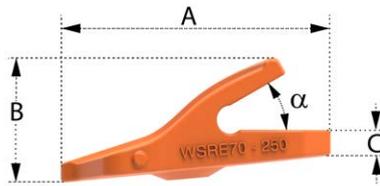
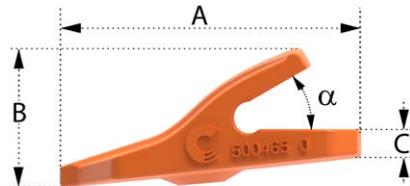


WELD-ON LIP SHROUDS SPECIFICATIONS



WSCE50 

WSCE70 



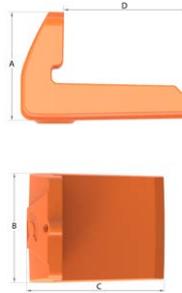
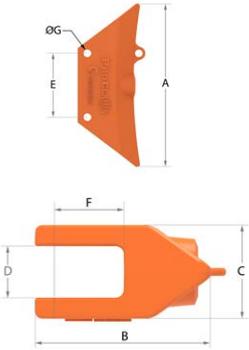
WSLE70 

WSRE70 

Type	Part. no			Lip thickness mm	Weight kg	A mm	B mm	C mm	D mm	E °	α °
WSCE50	500461			40-50	8	225	85	20	150	0	30
WSCE70	500464			60-70	18,5	255	120	25	250	0	30
WSLE70	500465			60-70	18,9	255	120	25	250	15	30
WSRE70	500466			60-70	18,9	255	120	25	250	15	30



SHROUDS SPECIFICATIONS



SSM SIDE SHROUD  

WHS HEEL SHROUD  



PIN AND RING  

Type	Part. no			Plate thickness mm	Weight kg	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm
SSM *1	700602			50.0	28.6	500	189	98	52	190	64	23	53
SSM *2	700601			63.5	40.2	564	215	115	65	220	75	27	53
SSM *2	700603			60.0	41.2	564	215	115	63	220	75	27	53
Pin	700321			50.0									
Pin	700320			60.0/63.5									
Ring	700360			50.0									
Ring	700361			60.0/63.5									
WHS	700651				15.2	130	180	210	160				
WHS	700652				20.0	150	180	240	180				
WHS	700653				37.0	199	250	300	236				

*1 used together with 700321 and 700360

*2 used together with 700320 and 700361



EXCAVATOR TEETH AND ADAPTERS

ADAPTER

BE

A 1 1/2 bottom leg adapter. Designed for both general and tough excavation in different types of ground.

SL

Top mounted single leg adapter designed for use in general conditions whenever a smooth surface is required.

UA

A 1 1/2 top leg adapter. Designed for both excavators and loaders. Can be used with or without a wear cap.

WEAR CAP

WC

Mechanical wear cap protects the adapter topside in high abrasion and impact applications.

LOCK

LP

Reusable locking pin of forged steel also usable in hot slag applications.

LR

Locking ring integrated in the tooth. Secures the locking function and simplifies teeth exchange.

TOOTH

GPE

Standard tooth with slim design for optimal penetration and durability in general purpose applications.

VE

The tooth for maximum penetration. Makes light work of hard surface layers and frozen ground.

WE

Used primarily in a corner position in combination with VE, this tooth provides the penetration demanded by hard surfaces.

FE

An extra-wide tooth for excavating and cleaning – penetration and straight-edge performance from a single solution.

TOOTH

AE

Abrasion tooth for highly abrasive soils and rocks such as granite, basalt and sandstone. The design provides maximal wear material with maintained good penetration.

TOOTH

PE

Penetration tooth with added body mass and narrow tip combines penetration with impact and abrasion resistance.

TOOL

LT

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



LOADER TEETH AND ADAPTERS

ADAPTER

SL

Top mounted single leg adapter designed for use in general conditions whenever a smooth surface is required.

TL

A 1 1/2 top leg adapter. Designed for both general and tough loading in different types of ground conditions.

UA

A 1 1/2 top leg adapter. Designed for both excavators and loaders. Can be used with or without a wear cap.

WEAR CAP

WC

Mechanical wear cap protects the adapter topside in high abrasion and impact applications.

LOCK

LP

Reusable locking pin of forged steel also usable in hot slag applications.

LR

Locking ring integrated in the tooth. Secures the locking function and simplifies teeth exchange.

TOOTH

GPL

In both general and highly abrasive environments. This all-round tooth is popular for its excellent penetration.

AL

Abrasion tooth with a high level of penetration. Recommended in blasted rock application.

HAL

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.



SHROUDS EXCAVATOR

LIP SHROUD

MSC	MSL	MSR	MSP
Mechanical lip shroud Center for straight edges and for use in combination with MSL & MSR on spade nose buckets. Provides full lip protection between adapters in abrasive applications.	Mechanical lip shroud Left* 15° angle for delta and spade nose buckets. * Left from excavating direction.	Mechanical lip shroud Right* 15° angle for delta and spade nose buckets. * Right from excavating direction.	Mechanical shroud protector designed to protect the locking device and the backside of the shrouds.

RAIL	LOCKING PARTS	SIDE SHROUD	PIN AND RING
WSR Welded on shroud rail holds the lip shrouds in secure position.	SHROUD LOCK, BOLT AND WASHER Self tightening lock, bolt and washer for the mechanical shroud.	SSM Mechanical side shroud is used to protect the bucket side plates and fastened with pin and ring.	PIN AND RING Locking pin and ring for the side shroud.

HEEL SHROUD	WELD-ON LIP SHROUD		
WHS Welded on heel shroud provides excellent wear protection of the lower outside corner of all types of buckets.	WSCE Weld-on lip shroud, Center. Fits 40-70mm straight cutting edges.	WSLE Weld-on lip shroud Left*. Fits 60-70mm cutting edges with 15° angle. *Left from excavating direction.	WSRE Weld-on lip shroud Right*. Fits 60-70mm cutting edges with 15° angle. *Right from excavating direction.

TS C-rex-001 EN, Nov 2021



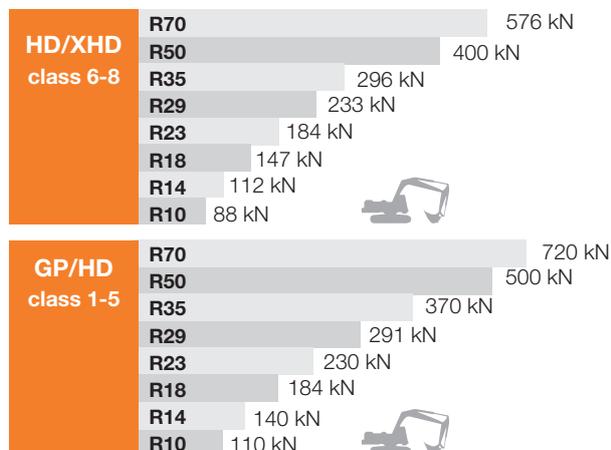
APPLICATION TABLE

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. 60 mm	Moderate wear. Little penetration resistance. No impact resistance.	GP
Class 4 Moderately heavy ground	Very stony ground, gravel, stones. Stone size above 60 mm.	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. 200 mm.	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. 200 mm or bigger.	Usually considerable wear. Considerable penetration resistance. Considerable impact and break through resistance.	XHD
Class 8 Heavy rock	Blasted rock, size over 0,1 m ³ .	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.

Breakout force diagram – Backhoe



Breakout force diagram

