

F #EDITION 2024-1



TURNKEY[®]
GRIZZLY

Bucket Equipment for
Construction

www.turnkeyteeth.com



30 YEARS OF EXPERIENCE

A subsidiary of the international Safe Group, FEURST was created in 1992. FEURST manufactures teeth, adapters and protections in the group's factories and our selected subcontractors. Over 1 million wear parts are produced and sold each year worldwide.



R&D

With its own Design and Methods Office, equipped with the latest 3D design and printing technologies, FEURST is able to adapt to all market demands, including the most demanding ones.



PATENTED TECHNOLOGY

FEURST holds patents on the TURNKEY® Grizzly and TURNKEY® Rhino lines, which cover the locking devices and adapters.



TECHNICAL SUPPORT

Thanks to a very knowledgeable technical and sales team, FEURST is able to offer tailor-made solutions adapted to all applications.



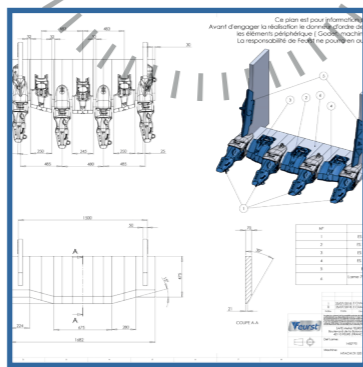
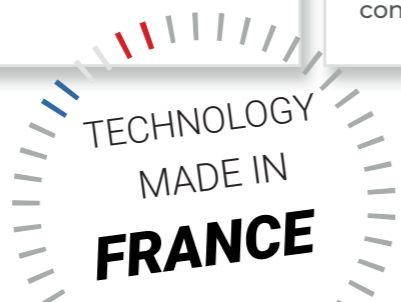
CUSTOMER SUPPORT

Thanks to an optimised supply chain, sales administration, and new online platform, FEURST is able to deliver a high level of performance to any customers.



CSR

95% of FEURST products are made from recycled materials (scrap). And 90% of its own waste is recycled. The Safe Group invests and builds a long-term action plan to reduce its carbon footprint and therefore its energy consumption.



TURNKEY® Grizzly a new line of ground engaging tools using hammerless locking devices with permanent compression for teeth.

The TURNKEY® Grizzly process is :

- A secured pin locking at 180°
- A conical dustproof plug
- Clockwise rotation (Pictogram on teeth)

The horizontal, rotative, and self locking devices, offers to the user a great ease and safe handling during assembly and disassembly.

Until **75 %**
Wear ratio

- **30 %**
Assembly time

55 T
Max. excavators weight

65 T
Max. loaders weight

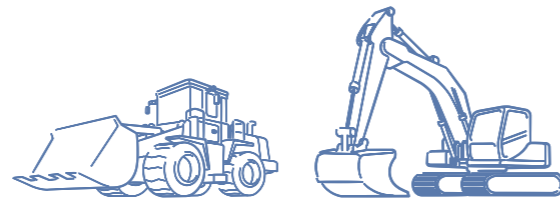


The Technology TURNKEY® Grizzly

FEURST's patented TURNKEY® Grizzly line of teeth & adapters are designed to fulfill the requirements of Construction and Quarry entry-level machines.

Our buckets equipments combine performance, productivity, and durability in the toughest abrasive shock applications.

A new range for loaders and excavators.



Optimum operating cost

All teeth profiles are designed to self-sharpen as they wear and do not need to be reversed.

This reduces machine downtime.

The adapter's geometry is designed to protect the welds from wear, ensuring a secure fitting at all times.

The teeth are locked onto the adapter, minimizing movement and thus wear on the adapter nose.

Optimized soil penetration and bucket loading for easy, precise and comfortable working.

New tooth profile for optimized soil penetration.

Optimum Safety

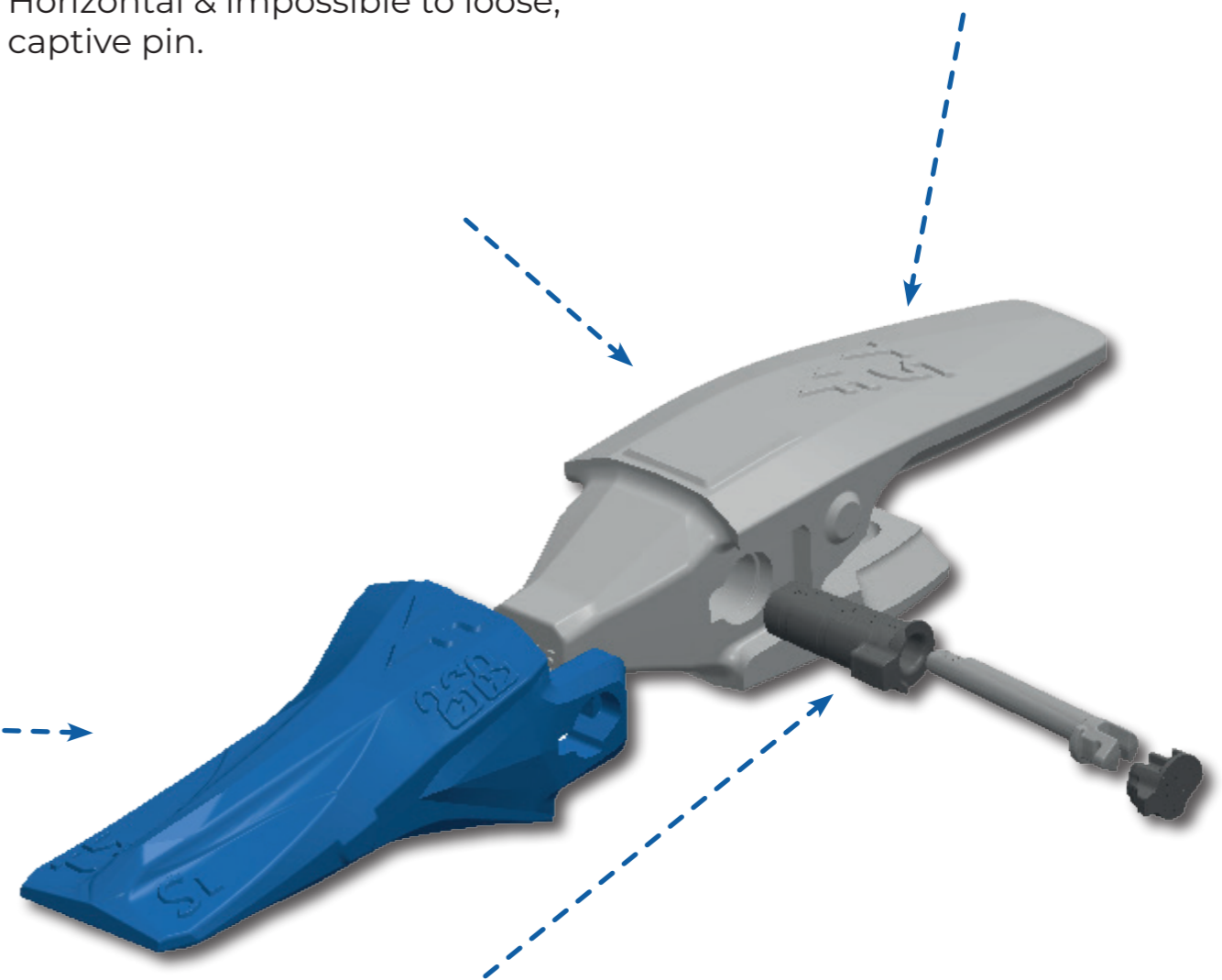
The TURNKEY® Grizzly locking device is a hammerless system, greatly reducing the risk of metal projection and accidents.

The pins are simply pushed in by hand and turned clockwise through 180° using the special socket supplied with the teeth.

Horizontal & impossible to loose, captive pin.

Quicker Teeth Change

Teeth and wear caps are quick and easy to replace on site by a single person.

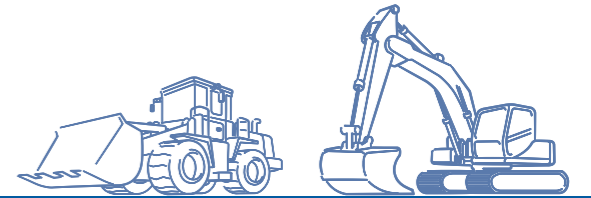


Pin, Plug & Cap

An intuitive locking system facilitates installation and maintenance, and is single-use. The caps secure quick access to pin socket hole.

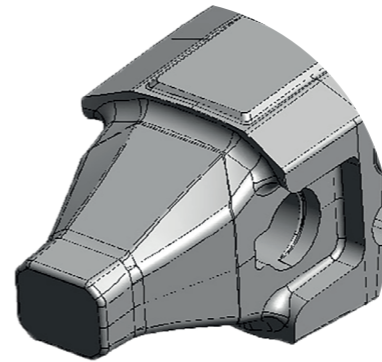


The Solution for Construction



More wear Material

The tooth's ears combined with the nose's geometry perform a load transfer, reducing mechanical constraints on the adapter.



Nose

Complex shapes of the nose, combined with conical seats, stabilization flats and ears, allow optimal tightening with the help of the locking devices.

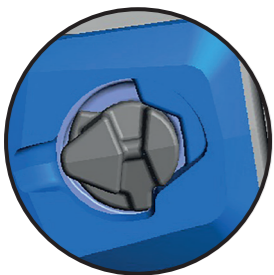


Locking devices

The innovative, rotating, eccentric, and dustproof system that compresses the tooth on the adapter, combined with the performance of the nose, ensures assembly performance, in-service holding, and disassembly under all circumstances.

Single-use locking device.

The cap is an integral part of the locking system.



Features of the new TURNKEY® Grizzly locking devices

100% safe assembly.

Only one way coding conical fitting plug (thanks to its conical shape), and coding fitting pin.

After 180° clockwise rotation, a mechanical stop confirms that the system is locked.

BENEFITS



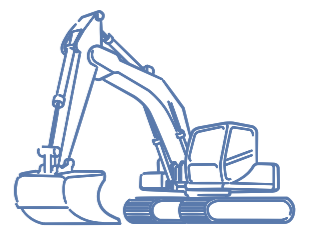
◆ Performance and Safety in service

- Innovative and secure locking devices
- Perfect fitting
- No loss of teeth
- Better soil penetration
- Driver comfort
- Easy assembly and disassembly
- Bucket loading optimization
- Precision / ease of operation



◆ Reduction of operating costs (T.C.O*)

- Zero machine downtime
- Best quality/price ratio
 - Lightweight adapters
 - Increased wear ratio up to 75%
 - Protection of the machine and its components
 - Increased durability
- Several blade thicknesses available / for each size

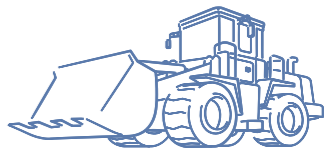


ADAPTERS

TEETH

LOCKING DEVICES

SIZE	Max. Machine Weight	Blade Thickness (mm)	ADAPTERS			TEETH								LOCKING DEVICES				
			Standard	Abrasion	0°	S	PR	PR-R	PE	PE-C	DPE	EL	CP	CL	SB	CPR		
3	Standard 10.5 T - HD 8 T	25	T3 1325-10			T3 BP	T3 NS	T3 S	T3 PR		T3 PE	T3 PE-C	T3 DPE	T3 EL		T3 CL	T3 SB	T3 CPR
		30		T3 1530-16														
4	Standard 15.7 T - HD 12 T	25	T4 1325-10			T4 BP	T4 NS	T4 S	T4 PR		T4 PE	T4 PE-C	T4 DPE	T4 EL		T4 CL	T4 SB	T4 CPR
		30	T4 1330-10	T4 1530-16														
5	Standard 21.7 T - HD 16.3 T	30	T5 1330-10			T5 BP	T5 NS	T5 S	T5 PR		T5 PE	T5 PE-C	T5 DPE	T5 EL		T5 CL	T5 SB	T5 CPR
		35	T5 1335-10	T5 1535-10	T5 1535-0°													
7	Standard 30 T - HD 22.5 T	35	T7 1335-10			T7 BP	T7 NS	T7 S	T7 PR	T7 PR-R	T7 PE	T7 PE-C	T7 DPE	T7 EL		T7 CL	T7 SB	T7 CPR
		40	T7 1340-10	T7 1540-10	T7 1540-0°													
8	Standard 40 T - HD 30 T	40	T8 1340-10				T8 NS	T8 S	T8 PR	T8 PR-R	T8 PE	T8 PE-C	T8 DPE	T8 EL	T8 CP	T8 CL	T8 SB	T8 CPR
		45	T8 1345-10	T8 1545-10	T8 1545-0°													
9	Standard 55 T - HD 40 T	45	T9 1345-10				T9 NS	T9 S	T9 PR	T9 PR-R	T9 PE	T9 PE-C	T9 DPE	T9 EL	T9 CP	T9 CL	T9 SB	T9 CPR
		50	T9 1350-10	T9 1550-10	T9 1350-0°													



ADAPTERS

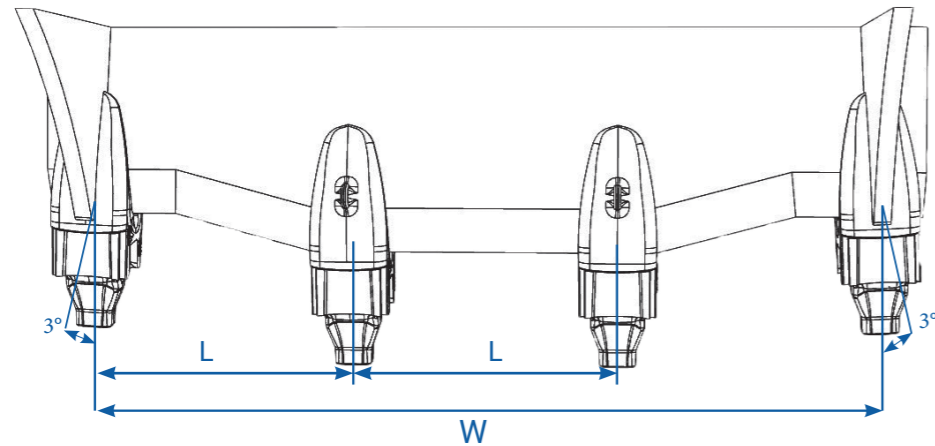
TEETH

LOCKING DEVICES

SIZE	Max. Machine Weight	Blade Thickness (mm)	ADAPTERS			TEETH					LOCKING DEVICES		
			Flush	Abrasion	Weld on nose / NS	S	PR	PE	SA	RA			
3	Standard 11.55 T - HD 8.9 T	25	T3 1025-16	T3 1525-16	T3 NS	T3 S	T3 PR	T3 PE			T3 CL	T3 SB	T3 CPR
		30		T3 1530-16									
4	Standard 16.7 T - HD 12.9 T	30	T4 1030-16	T4 1530-16	T4 NS	T4 S	T4 PR	T4 PE	T4 SA		T4 CL	T4 SB	T4 CPR
		35		T4 1535-16									
5	Standard 25 T - HD 19.5 T	35	T5 1035-16	T5 1535-16	T5 NS	T5 S	T5 PR	T5 PE	T5 SA	T5 RA	T5 CL	T5 SB	T5 CPR
		40		T5 1540-16									
7	Standard 33.8 T - HD 25 T	40	T7 1040-16	T7 1540-16	T7 NS	T7 S	T7 PR	T7 PE	T7 SA	T7 RA	T7 CL	T7 SB	T7 CPR
		45		T7 1545-16									
8	Standard 47 T - HD 33.5 T	45	T8 1045-16	**T8 1545-16	T8 NS	T8 S	T8 PR	T8 PE	T8 SA	T8 RA	T8 CL	T8 SB	T8 CPR
		50		T8 1550-16									
9	Standard 63.6 T - HD 46.9 T	50	T9 1050-16	T9 1550-16	T9 NS	T9 S	T9 PR	T9 PE	T9 SA	T9 RA	T9 CL	T9 SB	T9 CPR

** Under Development

Determination of the number of TURNKEY® adapters for a given width of bucket data



Determination of the number of adapters for a given width:

(For an easier calculation, it is assumed that the corner adapter centerline is aligned with the inside of side plate)

W= Inside lips width (mm)

L mini & L maxi = adapters spacing (See dimensions below)

Minimum number of adapters : $\frac{W}{L_{maxi}} + 1 =$

Maximum number of adapters: $\frac{W}{L_{mini}} + 1 =$

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The choice of the number of adapters is made according to the criteria of applications encountered, knowing that we will put for example :

- In an abrasive environment, a maximum of adapters are recommended
- For better penetration in less abrasive environments, install the minimum number of adapters bucket

Excavator		Size	Adapter Width (mm)	Wheel Loader	
L (mm)				L (mm)	
Mini	Maxi			Mini	Maxi
180	255	T 3	72.5	240	322
220	310	T 4	83	300	400
230	320	T 5	89	315	420
250	350	T 7	106	350	470
285	400	T 8	121	380	505
330	465	T 9	138	440	590

Adapters definition



Flush : Adapter of Flush-type for loaders, flush mount. Very high abrasion resistance.



Standard : Adapter for excavators and loaders. Holds perfectly on the blade. Shape adapted to the tooth; high abrasion resistance.



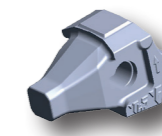
0° : Specific adapter for excavators and loaders for applications where the tooth needs to be aligned with the blade axis (ex : rock handling, no marks on the ground).



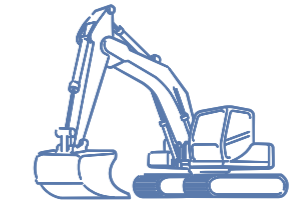
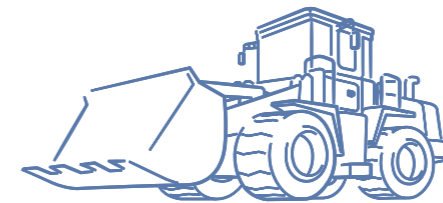
Abrasion : Adapter for heavy duty excavators and loaders. Optimum abrasion resistance.



Clamshells : Flush-type adapter for digging or rehandling clamshells. High abrasion resistance.

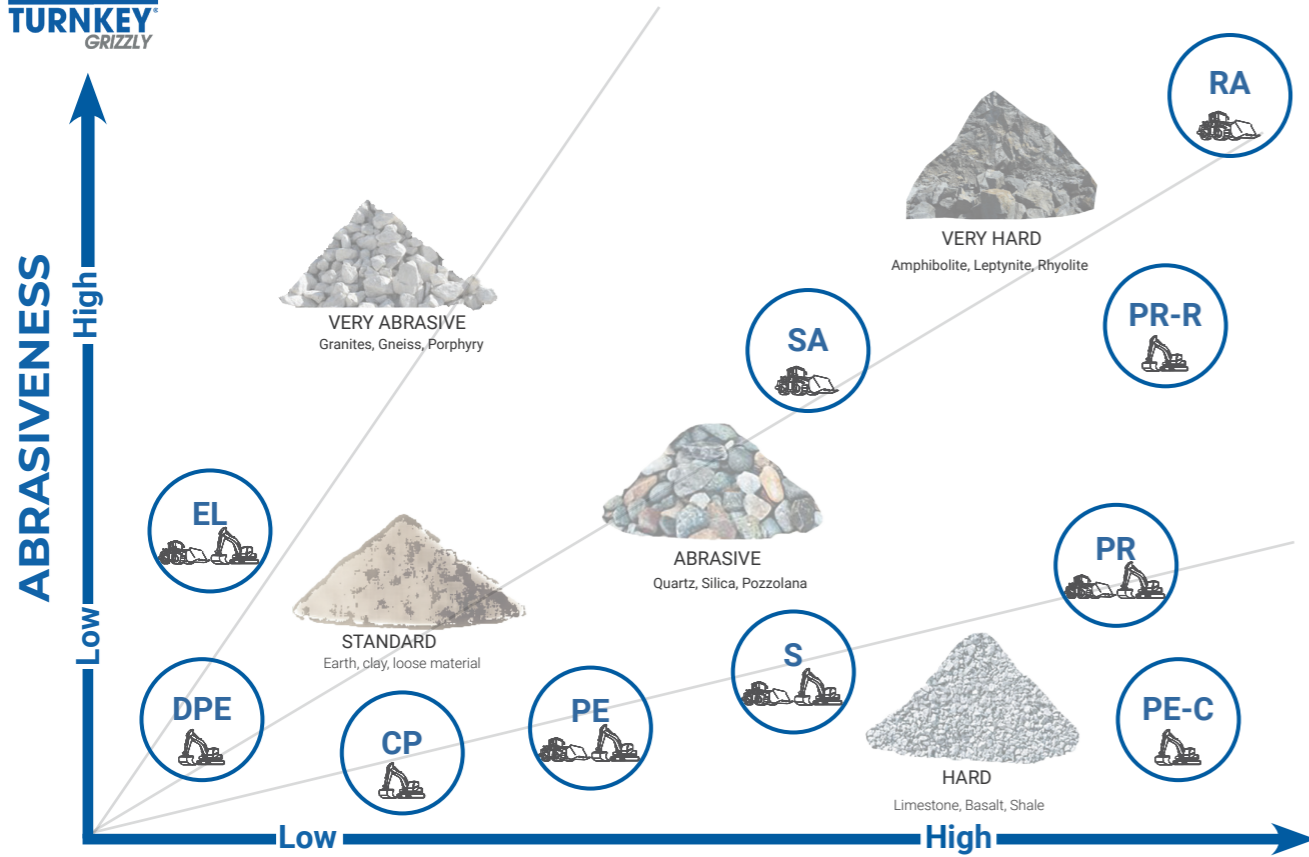


Weld-on nose : Adapter for rock cutting works and for repairing any adapter.

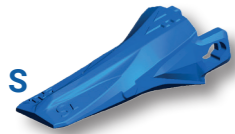




Tooth / Soil



IMPACT / PENETRATION



Standard : Long, flat tooth. Ideal profile for earthworks, good penetration and abrasion resistance.



Rock Chisel : Perfect tooth shape for a strong penetration. Excellent compromise wear material/penetration.



Rock Chisel + : Enough material for a correct abrasion resistance perfect shape enabling better penetration.



Twin Pick : Double vector tooth used on bucket corners to protect the sides from wear.



Pick : Long and sharp tooth ensuring an excellent penetration.



Pick Short : Short tooth, accurate shape to be used as rock cutting tooth.



Extra-Large (Flare) : Flat profile for pick-up and construction work.



Super Abrasion : Excellent abrasion resistance with penetration-maintaining heel profile.



Reinforced Abrasion : Loader tooth for highly abrasive use, large heel.



Coal Penetration : Pointed and penetrating tooth, used to scalp layers of materials in less abrasive environments (such as coal).

Equipment recommendations between machine weight and its breakout force (B.O.F= Break Out Force) expressed in Tons (T)

Taille	T3		T4		T5		T7		T8		T9		
	Standard	HD	Standard	HD	Standard	HD	Standard	HD	Standard	HD	Standard	HD	
Excavator	Max. Weight	10.5T	8T	15.7T	12T	21.7T	16.3T	30T	22.5T	40T	30T	55T	40T
	Max. B.O.F.	8T	6.5T	11T	8.8T	15T	12T	19T	15.5T	25T	20T	32T	25.6T
Wheel Loader	Max. Weight	11.55T	8.9T	16.7T	12.9T	25T	19.5T	33.8T	25T	47T	33.5T	63.6T	46.9T
	Max. B.O.F.	11.5T	8.9T	16.7T	12.9T	25T	19.5T	32.6T	25T	39.9T	32.3T	49.2T	39.9T

1 Tonne = 9.8067 Kn

Recommendation valid for a standard excavator bucket equipped with 5 teeth or equipped with 8 teeth for loaders.

In case of extremely severe use, oversize by one size.

Applications and working conditions must be taken into consideration, consult your FEURST dealer.

Data provided for recommendation purposes only, under no circumstances can FEURST's liability be engaged.

Bucket Selection Based on Application

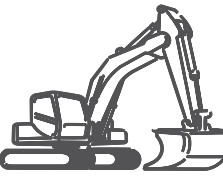
Standard Bucket : Suitable for digging and loading of soft to medium hard, compact and non-abrasive materials such as earth/rock, sand/gravel, coal, chalk, and non-abrasive ores.

HD Bucket : Suitable for digging and loading of mixed earth and rock soils with a high proportion of rock or other abrasive materials.


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Machine-specific recommendations



SIZE	Poids Machine / Machine Weight	Epaisseur de lame / Blade Thickness	VOLVO	HITACHI	Caterpillar	LIEBHERR	KOMATSU
T3	S :10.5T HD: 8T	25mm / 30mm	EC 80 EC 88	ZX 85	308 310	-	PC 88 PC 118
T4	S:15.7T HD:12T	30mm / 35mm	EC 130 EC 140	ZX 110 ZX 130	312 314	R 900	PC 138
T5	S :21.7T HD:16.3T	35mm / 40mm	EC 160 EC 200	ZX 160 ZX180	317 320	R 902 R 904	PC 160 PC 180
T7	S :30T HD: 22.5T	35mm / 40mm / 45mm	EC 210 EC 240	ZX 210 ZX 240	322 325	R 914 R 924	PC 210 PC 240
T8	S :40T HD:30T	45mm / 50mm	EC 280 EC 300	ZX 290 ZX 300	330	R 932	PC 280 PC 300
T9	S :55T HD:40T	45mm / 50mm	EC 330 EC 360	ZX 330 ZX 350	335 336	R 934	PC 350



SIZE	Poids Machine / Machine Weight	Epaisseur de lame / Blade Thickness	VOLVO	HITACHI	Caterpillar	LIEBHERR	KOMATSU
T3	S :11.5T HD: 8.9T	25mm / 30mm	L 70	-	-	-	WA 200
T4	S:16.7T HD:12.9T	30mm / 35mm	L 120	ZW 140 ZW 180	950	L 542	WA 250 WA 320
T5	S :25T HD:19.5T	35mm / 40mm	L 150	ZW 220	962 966	L 556	WA 430
T7	S :33.8T HD: 25T	40mm / 45mm	L 180	ZW 310	972	L 566	WA 480
T8	S :47T HD:33.5T	45mm / 50mm	L 220	ZW 370	980	L 576	WA 500
T9	S :63.6T HD:46.9T	50mm	L 260	ZW 550	986	L 586	WA 600

Teeth Dimensions

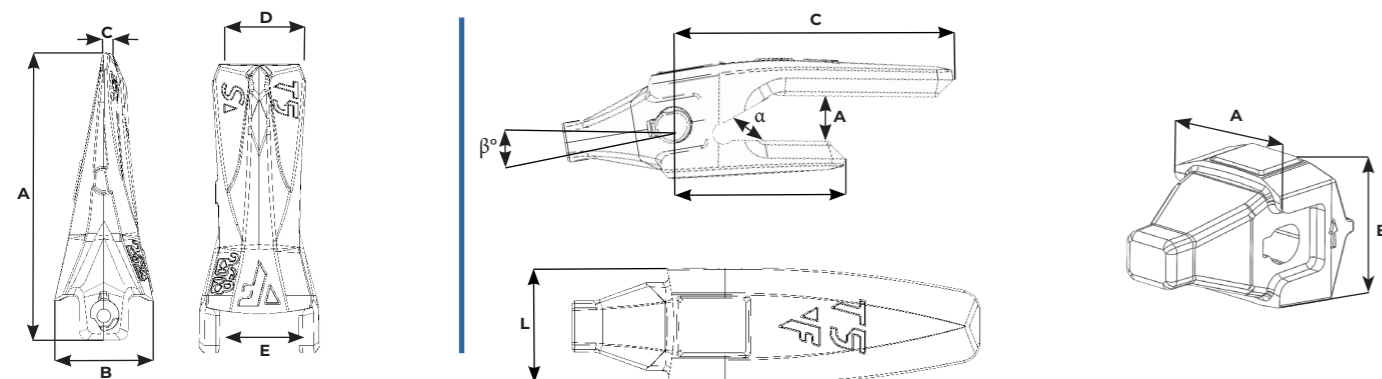
SIZE	TYPE	PART NO.	WEIGHT [kg]	DIMENSIONS [mm]				
				A	B	C	D	E
3	S	T3 S	2.07	186	71	9	57	55
3	PR	T3 PR	2.25	-	-	-	-	-
3	PE	T3 PE	1.7	-	-	-	-	-
3	PE-C	T3 PE-C	2.5	-	-	-	-	-
3	DPE	T3 DPE	2.1	-	-	-	-	-
3	EL	T3 EL	2.4	-	-	-	-	-
4	S	T4 S	3.28	221	78	12	69	63
4	PR	T4 PR	3.4	-	-	-	-	-
4	PE	T4 PE	2.61	-	-	-	-	-
4	PE-C	T4 PE-C	3.5	-	-	-	-	-
4	DPE	T4 DPE	3.3	-	-	-	-	-
4	EL	T4 EL	4.1	-	-	-	-	-
4	SA	T4 SA	4.9	-	-	-	-	-
5	S	T5 S	4.06	255	88	9	70	70
5	PR	T5 PR	5.1	266	88	13	35	70
5	PE	T5 PE	3.95	289	88	8	9	70
5	PE-C	T5 PE-C	3.56	237	88	7	11	70
5	DPE	T5 DPE	4.49	287	88	4	114	70
5	EL	T5 EL	6.21	265	88	9	136	70
5	SA	T5 SA	7.26	290	88	8	39	70
5	RA	T5 RA	7.72	265	95	10	53	70
7	S	T7 S	6.86	280	105	10	84	81
7	PR	T7 PR	6.86	302	105	12	43	81
7	PR-R	T7 PR-R	8.7	314	105	15	114	81
7	PE	T7 PE	5.82	316	105	8	13	81
7	PE-C	T7 PE-C	5.24	255	105	8	13	81
7	DPE	T7 DPE	6.74	312	105	6	138	81
7	EL	T7 EL	9.72	299	105	15	178	81
7	SA	T7 SA	11.43	327	105	10	42	81
7	RA	T7 RA	12	296	127	17	67	81
8	S	T8 S	10.6	313	125	13	103	92
8	PR	T8 PR	10.55	343	125	13	47	92
8	PR-R	T8 PR-R	12.62	352	125	18	131	92
8	PE	T8 PE	9.1	357	125	9	13	92
8	PE-C	T8 PE-C	7.78	300	125	10	13	92
8	CP	T8 CP	8.23	378	125	7	13	92
8	DPE	T8 DPE	10.13	353	125	7	147	92
8	EL	T8 EL	13.91	331	125	18	182	92
8	SA	T8 SA	15.74	364	125	12	49	92
8	RA	T8 RA	17.9	334	147	18	75	92
9	S	T9 S	14.93	346	144	17	108	103
9	PR	T9 PR	16.10	385	144	14	52	103
9	PR-R	T9 PR-R	18.05	391	144	22	52	103
9	PE	T9 PE	13.05	394	144	10	15	103
9	PE-C	T9 PE-C	11.57	336	144	12	15	103
9	DPE	T9 DPE	14.99	390	144	9	167	103
9	EL	T9 EL	19.65	365	144	21	227	103
9	SA	T9 SA	22.56	410	144	11	56	103
9	RA	T9 RA	24.08	398	166	21	83	103

Adapters Dimensions



SIZE	PART NO.	WEIGHT [kg]	Blade Th. [mm]	DIMENSIONS [mm]						APPLICATIONS
				A	B	C	L	α°	β°	
3	T3 1025 16°	4.5	25						16°	L
3	T3 1325 10°	3.9	25						10°	E
3	T3 1525 16°	3.85	25	25.5	79	145	72.5	30°	16°	E/L
3	T3 1530 16°	4.2	30						16°	E/L
3	T3 BP	4	-						-	E
3	T3 NS	1.6	-	-	-	-	-	-	-	E / L
4	T4 1030 16°	7	30						16°	L
4	T4 1325 10°	6.2	30						10°	E
4	T4 1330 10°	5.37	30						10°	E
4	T4 1530 16°	6.4	30						16°	L
4	T4 1535 16°	6.4	35						16°	L
4	T4 BP	6.7	-						-	E
4	T4 NS	2.7	-						-	E / L
5	T5 1035 16°	8.59	35	35	-	240	89	30°	16°	L
5	T5 1330 10°	7.29	30	31	202	111	89	30°	10°	E
5	T5 1335 10°	6.83	35	36	200	110	89	30°	10°	E
5	T5 1535 10°	6.68	35	36	96	185	89	30°	10°	E
5	T5 1535 0°	6.45	35	36	99	190	89	30°	0°	E / L
5	T5 1535 16°	7.7	35	36	108	188	89	30°	16°	L
5	T5 1540 16°	7.86	40	41	92	192	89	30°	16°	L
5	T5 BP	9.06	-	-	-	196	89	-	-	E
5	T5 NS	3.9	-	89	-	-	89	-	-	E / L
7	T7 1040 16°	12.26	40	41	-	252	106	25°	16°	L
7	T7 1540 16°	12.33	40	41	122	220	106	30°	16°	L
7	T7 1545 16°	12.1	45	41	120	205	106	30°	16°	L
7	T7 1335 10°	11.89	35	41	131	243	106	30°	10°	E
7	T7 1340 10°	11.79	40	41	120	236	106	30°	10°	E
7	T7 1540 10°	11.87	40	41	120	236	106	30°	10°	E
7	T7 1540 0°	11.16	40	41	120	216	106	30°	0°	E / L
7	T7 BP	13.7	-	-	-	-	-	-	-	E
7	T7 NS	6.26	-	153	104	-	104	-	-	E / L

E = Excavator / L = Loader

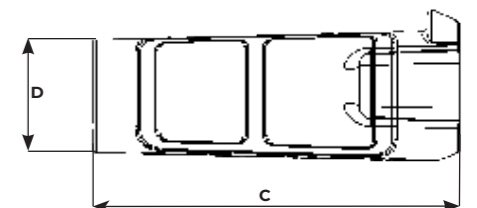
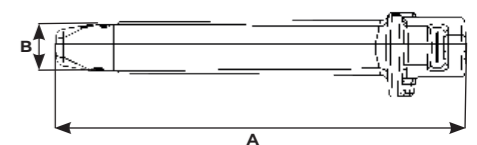


SIZE	PART NO.	WEIGHT [kg]	Blade Th. [mm]	DIMENSIONS [mm]						APPLICATIONS
				A	B	C	L	α°	β°	
8	T8 1045 16°	18.03	45	46	-	292	121	25°	16°	L
8	T8 1545 16°	18	45	46	126	248	121	30°	16°	L
8	T8 1550 16°	18.59	50	51	160	260	121	30°	16°	L
8	T8 1340 10°	17.71	40	46	130	260	121	30°	10°	E
8	T8 1345 10°	17.58	45	46	130	260	121	30°	10°	E
8	T8 1545 10°	17.78	45	46	125	260	121	30°	10°	E
8	T8 1545 0°	16.45	45	46	141	240	121	30°	0°	E / L
8	T8 NS	9.08	-	170	120	-	121	-	-	E / L
9	T9 1050 16°	24.21	50	51	-	315	138	30°	16°	L
9	T9 1550 16°	24.85	50	51	173	283	138	30°	16°	L
9	T9 1345 10°	23.64	45	46	162	284	138	30°	10°	E
9	T9 1350 10°	23.49	50	51	162	284	138	30°	10°	E
9	T9 1550 10°	23.48	50	51	152	293	138	30°	10°	E
9	T9 1550 0°	22.31	50	51	193	275	138	30°	0°	E / L
9	T9 NS	13.62	-	193	140	-	138	-	-	E / L

E = Excavator / L = Loader

Dimensioning of Locking Devices

SIZE	PART NO.	WEIGHT [g]	DIMENSIONS [mm]			
			A	B	C	D
3	T3 CL	49	79	10	-	-
3	T3 SB	10	-	-	52	15
3	T3 CPR	-	-	-	-	-
4	T4 CL	75	91	11	-	-
4	T4 SB	17	-	-	60	18
4	T4 CPR	-	-	-	-	-
5	T5 CL	100	98	12	-	-
5	T5 SB	26	-	-	69	21
5	T5 CPR	-	-	-	-	-
7	T7 CL	145	113	13.5	-	-
7	T7 SB	40	-	-	79	24
7	T7 CPR	4	-	-	-	-
8	T8 CL	195	129	15	-	-
8	T8 SB	52	-	-	90	25
8	T8 CPR	5	-	-	-	-
9	T9 CL	280	145	17	-	-
9	T9 SB	60	-	-	100	28
9	T9 CPR	6	-	-	-	-
OD	SOCKET	-	-	-	-	-

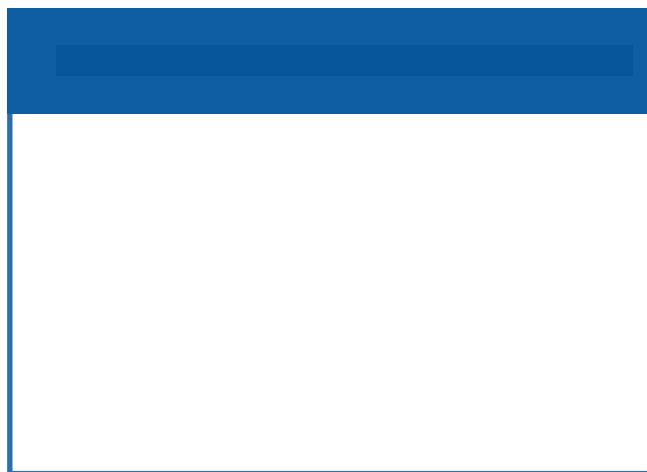


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