



GET

INSTALLATION PROCEDURES

Step by step guide

KVX

More Bite for Your Money



KOMATSU

Driven by your success

INSTALLATION PROCEDURE FOR CUTTING-EDGES

Preparations

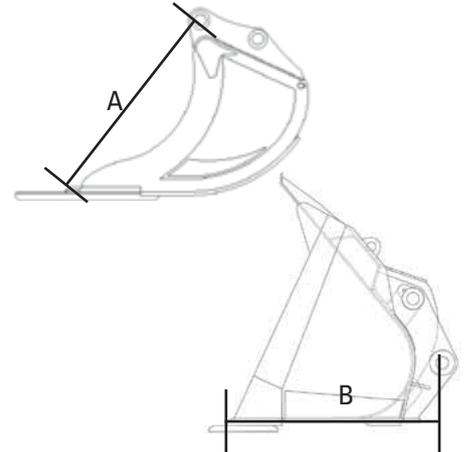
Note measurements A and B as indicated in the figures above for excavator and wheel loader buckets respectively. It is imperative that the bucket tip radius and volume remain unchanged when the new cutting-edge is installed.

Remove old edge by flame cutting clear of the existing weld. Cut and grind welding grooves.

Remove paint, oil and other impurities as well as any remaining manganese steel from the welding zone. Install new edge to measurements A and B and weld according to these instructions.

Any flame cutting of the edge requires the following temperature precautions:

1. Preheat steel thicker than 45 mm to 150°C / 300°F.
2. Condition any cold stored steel to room temperature before flame cutting.



Preheating

For good welds use preheating temperatures in table. Heat the parts evenly with a suitable gas torch, minimum 100 mm into the bucket bottom plate.

Maintain recommended preheating temperature during the complete welding operation, otherwise cracks can develop in the Heat Affected Zone. Let the welded parts cool slowly.

Check preheating temperature by chromatic temperature crayons. At correct temperature the colour will change in 1-2 seconds. Preheating and interpass temperatures in excess of 250°C / 480°F will reduce the abrasive properties and the strength of the steel.

For cutting edges from 80 mm thickness and up, we recommend preheating with electrical blankets. Temperature measuring is best performed with an infrared handheld gun.

Plate thickness	Preheating temperature	
	° C	° F
20 - 35 mm	100 - 150	210 - 300
40 - 45 mm	150 - 200	300 - 390
50 - 100 mm	200 - 250	390 - 480

Welding rods

Use only low hydrogen welding rods (H2O <5ml/100g). Heat welding rods according to manufacturers instructions. Recommended welding consumables (other brands can be used with the same mechanical properties):

MMA	GMAW
ESAB OK 48.15 (AWS: A/SFA 5.1 E 7018-1)	Filarc PZ 6130 HS (AWS: A/SFA 5.20 E 70-5J)
	ESAB Autrod 12.51 (AWS A5.18-93 ER 70S-6)

Welding

Weld single beads alternating on either side of the plate as indicated in Fig. 2.0. Use only straight beads. Grind or gouge the root string prior to welding from the backside. Weld with smooth transitions to the parent material and without any welding defects.

Rod diameter (mm)	Voltage (V)	Ampere (A)	Travel (cm/minute)
3,25	24	140	6 - 10
4	24	200	8 - 14
5	24	270	10 - 20
6	25	360	14 - 28
Wire rod 1,6	31	380	20 - 35
Wire rod 2,6	39	450	22 - 42

Recommended Values:

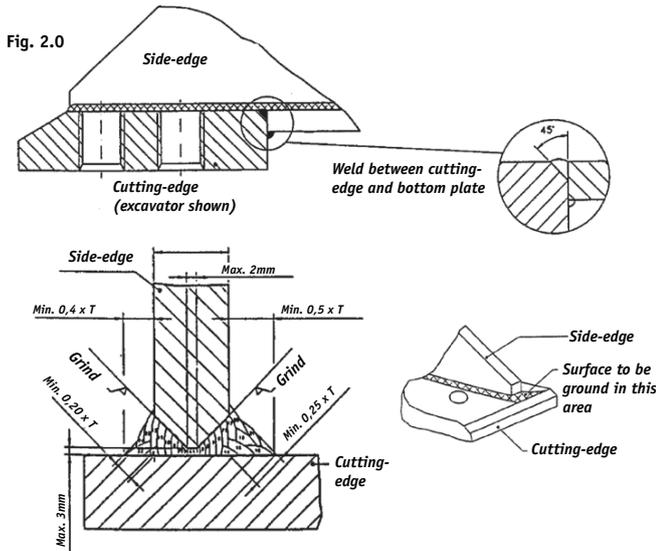
Generally a welding sequence is favoured which minimises the restraining forces between the welded parts. This is ensured by giving the parts the freedom of

movement during the welding operation. At the installation of a cutting-edge to a bucket the base plate must be welded prior to the sides in order to minimise any tension in the welding zones.

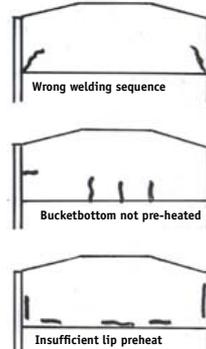
Weld the last bead on each side with a distance of 2 - 3 mm. to the parent material, to anneal its Heat Affected Zone and reduce the risk of cracks.

Grinding

Grind the weld as indicated in Fig. 2.0. and with the grinding marks transverse to the welding direction.



Typical crack patterns resulting from neglecting procedures for preheating and welding sequence.



General notes:

1. All dimensions are min. values
2. Number of beads vary according to plate thickness.
3. All transitions shall be smooth and without defects, grind if necessary.

These instructions provide specific guidance on the welding of K VX plates, but assume that welding is carried out by suitably qualified personnel experienced in the welding of hardened plate materials. K VX bear no responsibility for damage to lip or bucket resultant from inexperienced personnel or poor welding practice/procedures.

INSTALLATION OF TEETH

When these installation procedures are followed, the K VX bolt-on wear parts will stand up to extreme loads without loosening. The procedures are applicable to all types of bolt-on wear parts even though teeth only are specifically mentioned.

All surfaces must be clean and free of debris:

Clean the surfaces with a steel brush and remove any burrs. Check that adjoining surfaces are flat and that threads and cones are undamaged.

Use only K VX recommended grease:

Apply the recommended grease on threads and cones. Use of other grease may cause bolts to become loose

or bolts snapping. Note: The dry film lubricated bolts do not require grease.

Install teeth:

Place the tooth in position on the cutting edge and apply the bolts. To ensure good contact in the cone give the tooth a couple of blows sideways.

Tighten bolts to specified torque:

Apply torque listed in table. Smaller bolts, up to M16, can be tightened by means of any appropriate torque wrench and hand power. Bigger bolts require special K VX spanners. M20 bolts can be tightened by hitting the spanner with a 1,5 kg sledgehammer until it stops. Bolts bigger than M20 must be pre-tightened by means of a 1,5 kg sledgehammer. Hit

the spanner until it stops, which gives a sufficient pre-torque value.

The specified torque can be achieved by turning the bolts the additional angle by means of hand tools, spanner stand or hydraulic tool. Various brands of hydraulic torque tools can be adapted for K VX bolts. Always assess procedures with reference to local safety regulations and guidelines.

Spanner stand:

When using the K VX spanner stand make sure the head of the connecting bolt rests on the spanner and the retaining pin rests on the stand. Follow safety procedures for the torque-up of K VX bolts where safety regulations permit.

Dimension	1-bolt		Angle	2-bolt		Tool
	Angle	Torque		Angle	Torque	
M16	-	-	60°	-	250 Nm	Hand power
M20	-	-	90°	-	500 Nm	Sledgehammer 1-2 kg
M27	-	-	90°	60°	1500 Nm	Sledgehammer 3-4 kg
M36	-	-	150°	60°	3000 Nm	Sledgehammer 8-10 kg or spanner stand
M48	-	-	180°	90°	7500 Nm	Spanner stand or hydraulic tool ¹⁾
M52	150°	12000 Nm	180°	-	-	Spanner stand or hydraulic tool ¹⁾
M60	180°	18000 Nm	180°	120°	15000 Nm	Spanner stand or hydraulic tool ¹⁾
M68	180°	26500 Nm	180°	120°	22500 Nm	Spanner stand or hydraulic tool ¹⁾
M80	180°	41000 Nm	180°	150°	37000 Nm	Hydraulic tool ¹⁾
M90	180°	58000 Nm	180°	150°	52000 Nm	Hydraulic tool ¹⁾

1) Instructions for K VX's own hydraulic tools available separately.





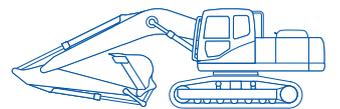
GET

FOR MORE INFORMATION:

Australia - Ph: 1300 566 287 | Web: www.komatsu.com.au

New Zealand - Ph: 0800 566 2878 | Web: www.komatsu.co.nz

New Caledonia - Ph: 24 25 10



KOMATSU

Driven by your success