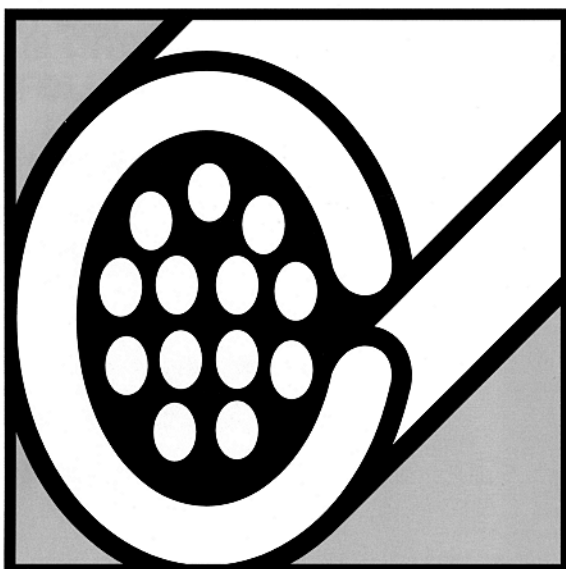
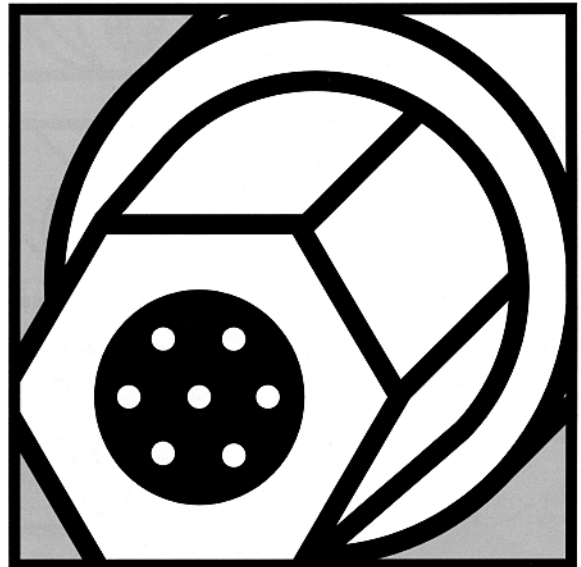
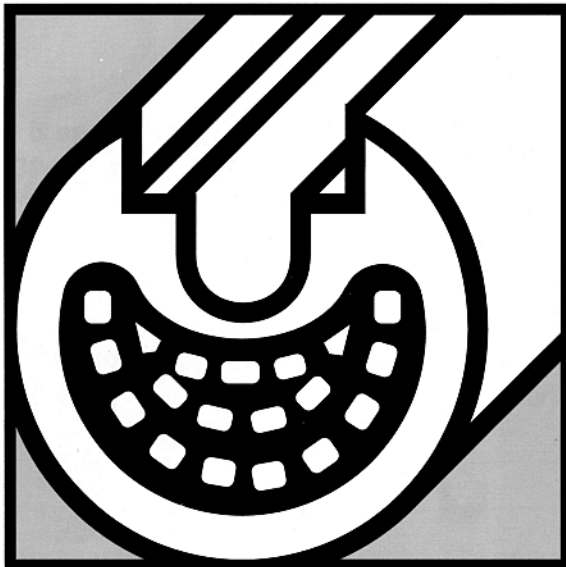


SIMEL

CRIMPING

PUNCHING - COMPRESSION



INSTRUCTIONS FOR USE

CONTENTS

DEEP STEPED INDENTING



Crimping method	page 4
Choice of punches and dies	pages 5-6
Choice of bed	page 6

HEXAGONAL COMPRESSION ON XCT, XCT..C, XCT.. EQ, XG7T



Crimping methods	page 7
Choice of tools	page 10

PUNCHING ON XCT, XCT..EQ, XG7T



Crimping methods	page 8
Choice of tools	page 10

HEXAGONAL OR CIRCULAR COMPRESSION ON "C"



Crimping methods	page 9
Choice of tools	page 11

HEXAGONAL COMPRESSION ON BARE MEDIUM VOLTAGE NETWORK LINE



Crimping methods	page 12 to 15
Choice of tools	page 16

HEXAGONAL COMPRESSION ON LOW VOLTAGE OVERHEAD LINES



Crimping methods	page 17
Choice of tools	page 18

TABLE OF TOLERANCES FOR HEXAGONAL COMPRESSION DIES	page 19
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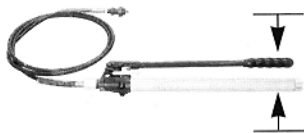
CHECKING AND INSPECTION OF STEPPED PUNCH CRIMP TOOLS	page 20
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SHORT GLOSSARY

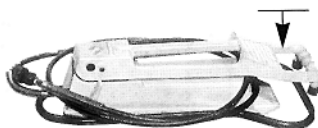
CHOICE OF HYDRAULIC EQUIPMENT

TYPE OF PUMP: _____

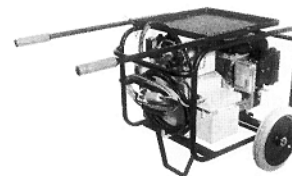
HAND PUMP



FOOT PUMP



MOTOR-PUMP SET



Choice of electric motor (**code GEH**) or ICE (**code GTH**). Specify when ordering.

CHOICE OF HOSE AND COUPLING

HOSE (FITTED WITH END PIECE)



Length: 3 / 6 / 9 or 12 m. Specify when ordering.

1/2 valve B



SCREW FIT

Specify when ordering

1/2 valve A



SCREW FIT

Specify when ordering

CF



OR BALL LOCK

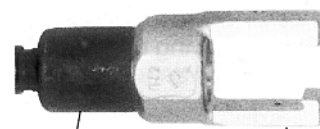
CM



OR BALL LOCK



ACTUATOR + YOKE

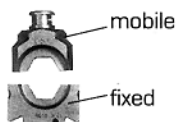


ACTUATOR

YOKE

TOOLS SETS

- Hexagonal or circular reduction for insulated or uninsulated copper conductors on overhead networks.



- Punch crimping of XCT, XCT..EQ, XG7T



- Stepped punch crimping for underground cable networks.

* a stepped punch

mobile



* a closed adjustable die, to suit the connector type used

fixed



WHEN ORDERING, PLEASE INCLUDE THE FOLLOWING DETAILS:

■ **Hydraulic equipment type:**

▷ – foot pump, hand pump, ICE or electric motor-pump set.

■ **Hose:**

▷ – length, type of end piece.

■ **Actuator type:**

▷ – depending on force required,
– the application (overhead, underground, rail network...),
– and type of end piece.

■ **Conductor details and cross-section**

■ **Type of connector to be fitted**

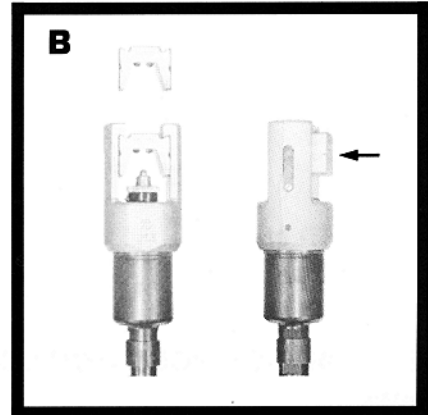
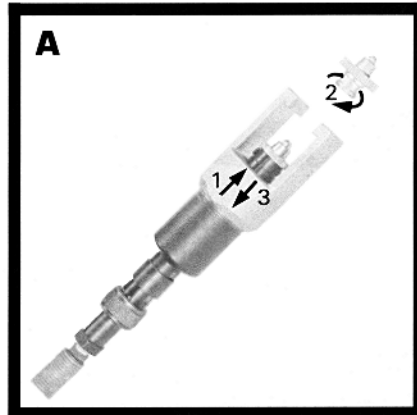
■ **Application:**

▷ – insulated / uninsulated overhead network,
– industrial network using copper or aluminium,
– underground network,
– rail network.

DEEP STEPPED INDENTING

A. inserting the punch

Select the cylinder-cap unit according to the section to be crimped, then attach it to a hydraulic source. Advance the cylinder nose, insert the punch, turning it through a quarter-turn in order to position it.

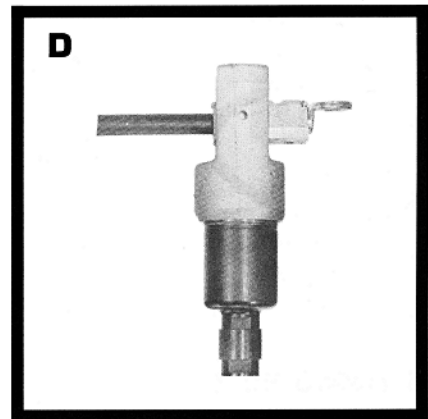
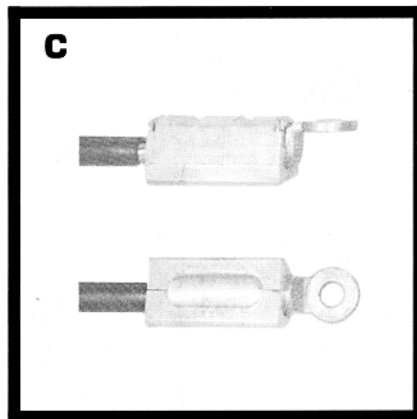


B. inserting the bed

Slide the bed into the head, until the positioning nipple located in the arm of the cap locks it.

C. inserting the connector into the die

Choose the die according to the type of connector and the section to be crimped, after having placed the cable(s) in the connector, position it in the die.



D. inserting the connector and the die in the head and bed

Position the die in the bed using the grooves on it and the positioning balls on the bed.

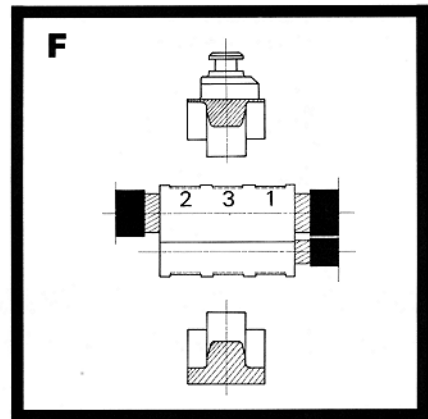
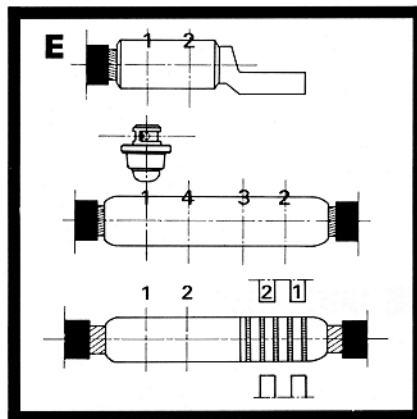
CRIMPING PROCEDURE

IMPORTANT:

- * Before each punch crimping operation check that:
 - the die is closed and correctly positioned ;
- * Connector punch crimps should in line with one another.

E. junction or termination

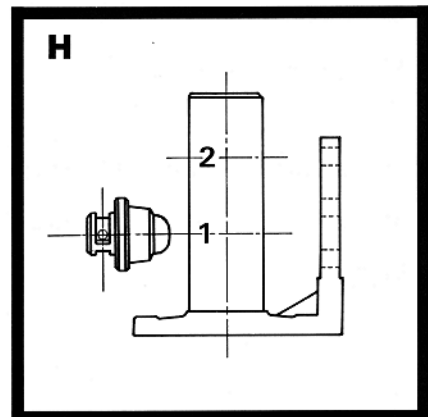
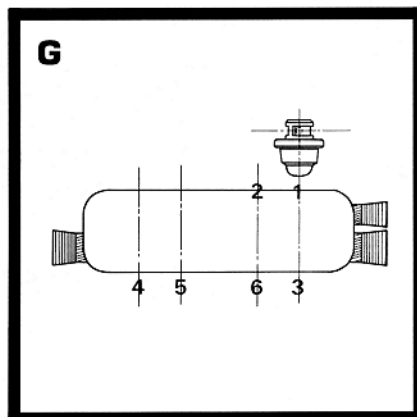
The connector should always be crimped at the cable entry end first.



F. LV branch connection

G. MV branch connection

The branch entry point is always punch crimped first.



H. pothead connections

The lower punch crimp is made first.

CHOICE OF PUNCHES AND DIES

The table opposite shows the correspondances between the punch numbers, the outer diameters of connector and the core cross sections of the cables to be connected.

NB: the number of grooves on the dies always corresponds to the number of crimps to be made.

Always respect the crimping order (see page 4 paras. E to H).

designa-tion		outer dia. of shaft (mm)	cable section (mm ²)
SIMEL	EDF		
18 PE 35	0E	16	16 to 35
18 PE 95	1E	20	50 to 95
18 PE 150	2E	25	120 to 150
18 PE 240	4E	32	185 and 240
28 PE 400	5E	40	300 to 400
48 PE 630	6E	47	500 to 630
48 PE 1000	7E	60	800 to 1000
48 PE 1200	8E	65	1200
48 PE 1600	9E	70	1600

0E to 5E



6E to 9E



dies for junction connectors

18 MBM	designa-tion of die		section mm ²	XG8BM-RJ.A... XN8BM-RJ.A..._...
	SIMEL	EDF		
18 MBMS	18 MBM 35	MJOE	16-25-35	XG87BM-RJ.AU... XN87BM-RJ.AU..._...
	or 18 MBMS 35*	MJOE	16-25-35	
	18 MBM 95	MJ1E	50-70-95	
	or 18 MBMS 95*	MJ1E	50-70-95	
	18 MBM 150	MJ2E	120-150	
	or 18 MBMS 150*	MJ2E	120-150	
	18 MBM 240	MJ4E	185-240	
	or 18 MBMS 240*	MJ4E	185-240	
	28 MBM 400	MJ5E	300-400	
	48 MBM 630	MJ6E	500-630	
	48 MBM 1000	MJ7E	800-1000	
	48 MBM 1200	MJ8E	1200	

* Dies with integral base.

dies for lugs and terminals

18 ME..	designa-tion of die		section mm ²	XCX-XDX (C.AU...) XEX (Q.AU...)	XD8 (CA...) XLX (E.AU...)
	SIMEL	EDF			
18 MES..	18 ME 35	MC0E	16-25-35	XGX	Crimping of copper part: die 13 UE 50 Cu for dia. 12,2 die 13 UE 150 Cu for dia. 21 die 13 UE 240 Cu for dia. 26,2
	or 18 MES 35*	MC0E	16-25-35		
	18 ME 95	MC1E	50-70-95		
	or 18 MES 95*	MC1E	50-70-95		
	18 ME 150	MC2E	120-150		
	or 18 MES 150*	MC2E	120-150		
	18 ME 240	MC4E	185-240		
	or 18 MES 240*	MC4E	185-240		
	28 ME 400	MC5E	300-400		
	48 ME 630	MC6E	500-630		
	48 ME 1000	MC7E	800-1000		
	48 ME 1200	MC8E	1200		
48 ME 1600	MC9E	1600			

* Dies with integral base.

dies for H. termination box

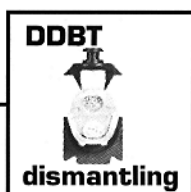
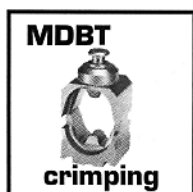
48 MTE	designa-tion of die		section mm ²	AT3.A...
	SIMEL	EDF		
48 MTE	48 MTE 630	MB6E	500-630	
	48 MTE 1000	MB7E	800-1000	
	48 MTE 1200	MB8E	1200	

rounding

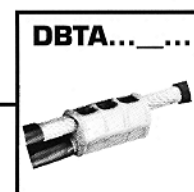


section mm ²	designation of rounding		with V13U..	with V20U	with V20U630	with V40U
	SIMEL	EDF				
50	18 UR 50	1R 50	direct	+ 2S1		
70	18 UR 70	1R 70	direct	+ 2S1		
95	18 UR 95	1R 95	direct	+ 2S1		
120	18 UR 120	1R120	direct	+ 2S1		
150	18 UR 150	1R150	direct	+ 2S1		
185	18 UR 185	4R185	direct	+ 2S1		
240	18 UR 240	4R240	direct	+ 2S1		
300	28 R 300			direct	+ 26S2	+ 4S2
400	28 R 400			direct	+ 26S2	+ 4S2
500	48 R 500				+ 26S630	+ 4S800
630	48 R 630S				+ 26S630	+ 4S800
800	48 R 800					+ 4S1000
1000	48 R 1000					+ 4S1000

special tools for low voltage branch connectors



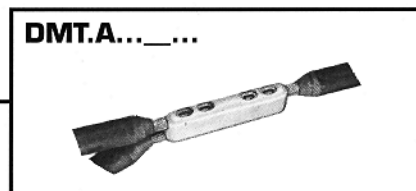
designation of tools		section mm ²	
crimping	dismantling	main	branch
MDBT	DDBT...	70 to 240	50 to 150



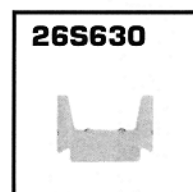
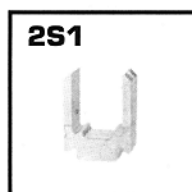
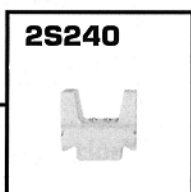
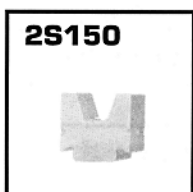
die for medium voltage branch connectors



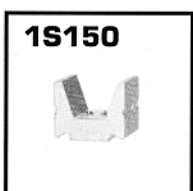
designation of die		section mm ²
SIMEL	EDF	
18 MD 150 or 18 MDS 150*	MDMT2E	95-150
18 MD 240 or 18 MDS 240*	MDMT4E	240



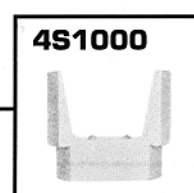
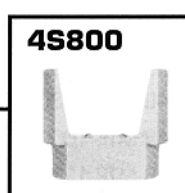
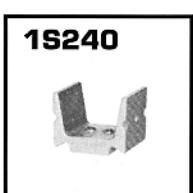
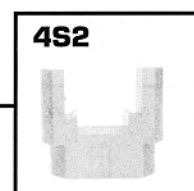
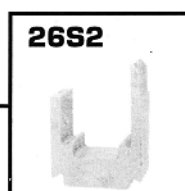
* Dies with integral base.



CHOICE OF BEDS



section mm ²	cylinders V13..-V13UD	cylinder V20U	cylinder V20U630	cylinder V40U
16-25-35	1S150	1S150 with 2S1 or 2S150	—	—
50-70-95	1S150	1S150 with 2S1 or 2S150	—	—
120-150	1S150	1S150 with 2S1 or 2S150	—	—
185-240	1S240	1S240 with 2S1 or 2S240	—	—
300-400	—	direct	26S2	4S2
500-630	—	—	26S630	4S800
800-1000	—	—	—	4S1000
1200	—	—	—	4S1000



HEXAGONAL COMPRESSION ON XCT - XCT - EQ XG7T

A. with mechanical pliers or hydraulic pumps using the tools from these pumps

the tools from these pliers often have 2 different prints (or grooves). Choose the die according to the section to be crimped and the pliers used (see table on page 10). Mount the 1/2 dies in the caps, turning the selected groove so that it is on the right side.

B. with hydraulic pump

select the compression head unit according to the section to be crimped, then attach it to a hydraulic source. Choose the appropriate tools (see table on page 10). Advance the cylinder nose, insert the male die, turning it through a quarter-turn, position the female die in the cap using the position nipple.

C. inserting the bed

bed 2S1 only, used with cylinder V20U.

D. inserting the connector before crimping

choose the type according to the connector and the section to be crimped. After inserting the cable(s) in the connector, position the latter in the die, using the following crimping method.

CRIMPING METHOD

E. tubular tin-coated copper lug XCT and XCT - EQ

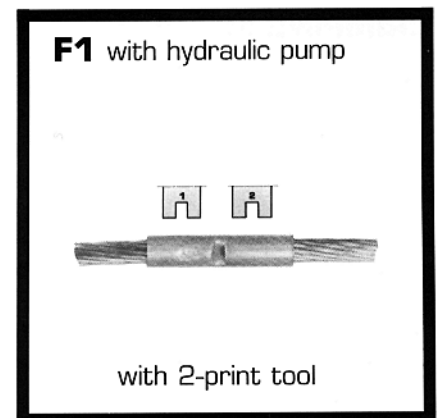
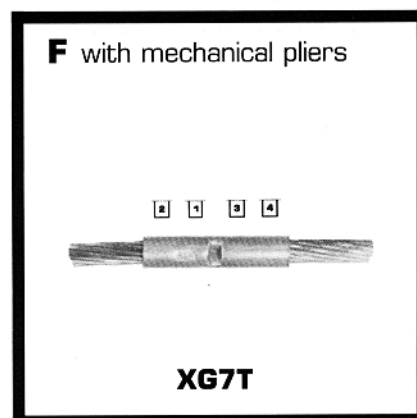
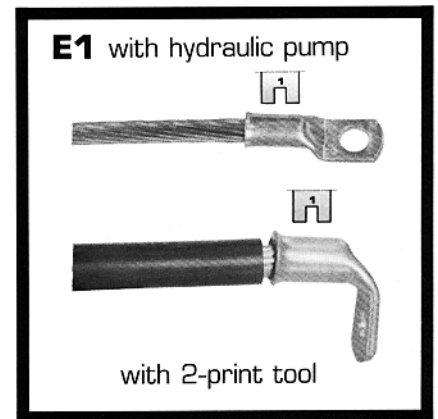
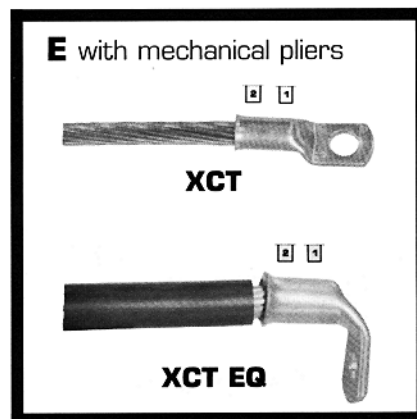
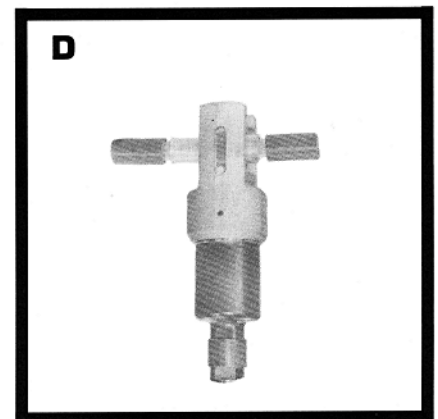
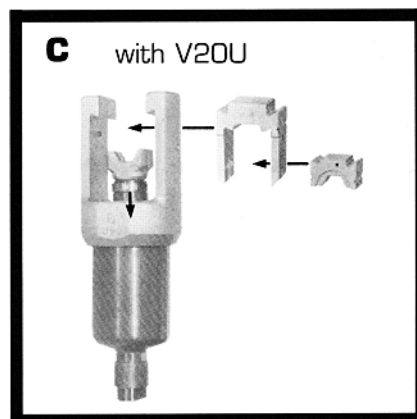
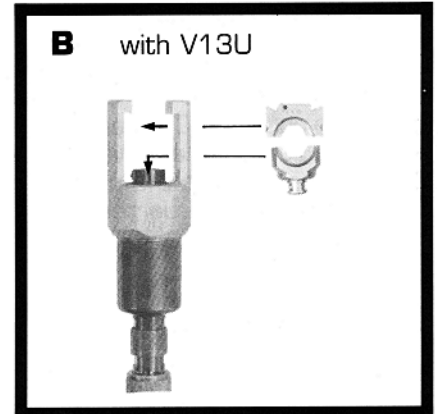
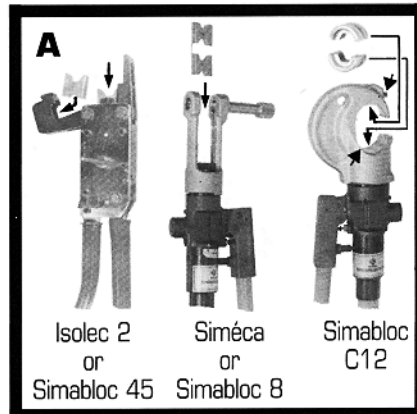
With a pair of pliers, the first necking is always carried out on the forked end of the cable.

E1. Using a hydraulic pump, position the die in the centre of the lug.

F. copper junction sleeve XG7T

Using a pair of pliers, the first punch is carried out by the centre of the sleeve.

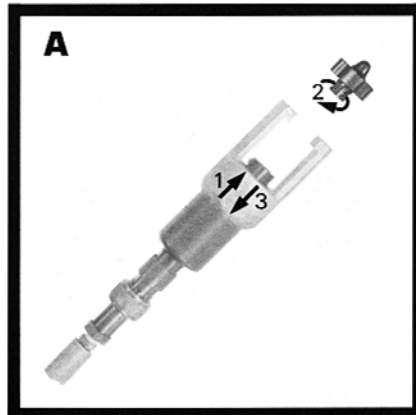
F1. Using a hydraulic pump, position the die in the centre of each side of the sleeve.



PUNCHING ON XCT - XCT - EQ XG7T

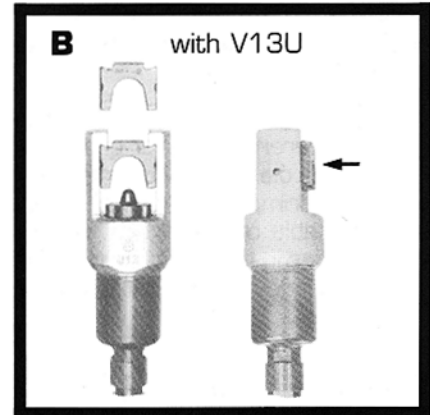
A. inserting the punch

select the compression head unit according to the section to be crimped [see table on page 10], then attach it to a hydraulic source. Advance the cylinder nose, insert the male die, turning it through a quarter-turn in order to position it.



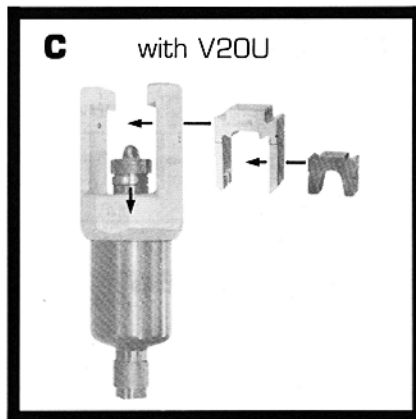
B. inserting the die

select the die according to the connector and the section to be crimped [see table on page 10], slide the die into the cap until it is blocked by the positioning nipple in



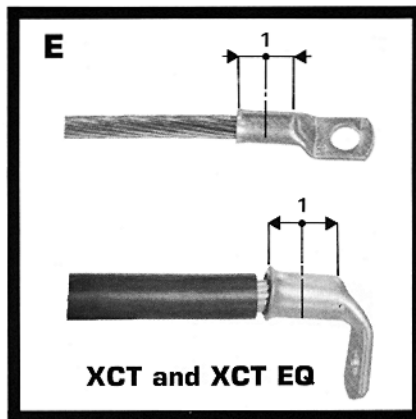
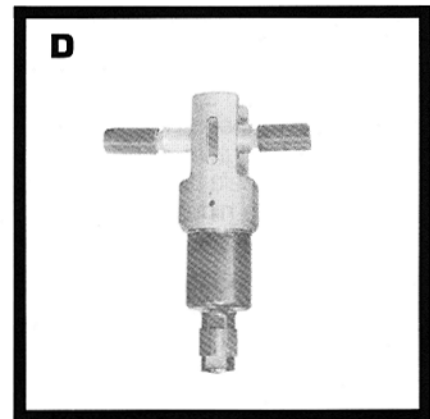
C. inserting the bed

only used with cylinder V20U, proceed as in B.



D. inserting the connector and the die before punching

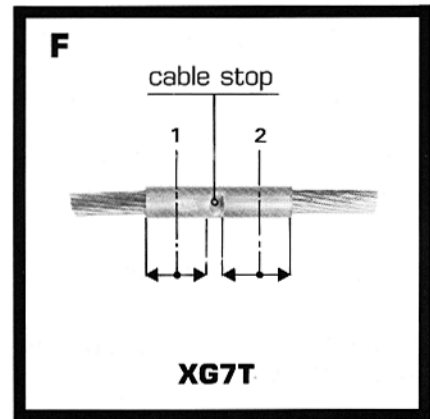
after placing the cable[s] in the connector, position the latter in the die using the following crimping method.



CRIMPING METHOD

E. Tubular tin-coated copper lug XCT and XCT... EQ

only one punch is carried out, taking care to centre it on the connector shaft.



F. Copper junction sleeve XG7T

a single punch is made on either side of the cable stop [embossed in centre], taking care to centre it.

HEXAGONAL OR CIRCULAR COMPRESSION ON C

C branch connector

depending on the section of the connector, 1, 2 or 3 prints are made per hexagonal or circular compression, in 1, 2 or 3 crimps, depending on the crimping tool used [see table on page 11].

G. Using mechanical pliers, select the die according to the section to be crimped and the pliers used [see table on page 11]. The compression is performed in the centre of the connector.

H. Using mechanical pliers, carry out the compression whilst centring the prints from one side.

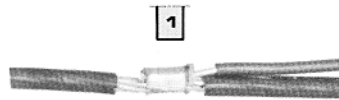
I. Using a hydraulic pump, the tool carries out two prints at the same time. Make sure the crimp is in the middle of the connector.

J. Using a hydraulic pump, crimping of C75 and C95 with a V13U cylinder, single print tool, proceed as in H.

K. Using a hydraulic pump, crimping of C75 and C95 with a V20U cylinder, dual-print tool, crimp in the middle of the connector towards the end, for a second stroke, from the middle to the other end.

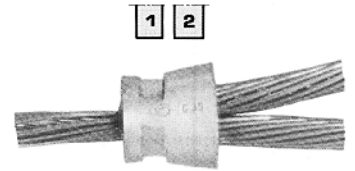
L. Using a hydraulic pump, circular crimping with a single print tool. Crimp the middle, then each end of the connector.

G with mechanical pliers



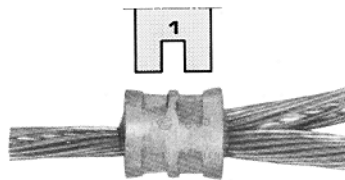
C6 and C10

H with mechanical pliers



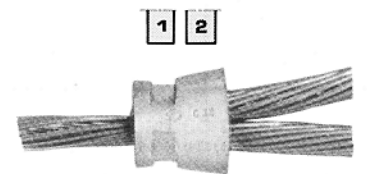
C16 to C50

I with hydraulic pump



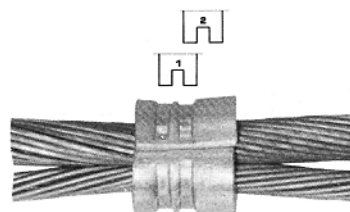
C16 to C50

J with hydraulic pump



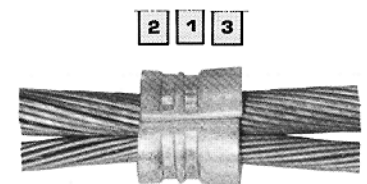
C75 and C95
with tool 13UX 260

K with hydraulic pump



C75 and C95
with tool 20UE 95CWV
C120, C150, C185-C95

L with hydraulic pump



C185

CHOICE OF TOOLS CONNECTORS XCT XCT - EQ - XG7T

A. Mechanical pliers

Section mm ²	HN1	nb. of CPS	UNILEC	nb. of CPS	ISOLEC 2 or SIMABLOC 45	nb. of CPS	SIMECA or SIMABLOC 8	nb. of CPS	ISOLEC 3	nb. of CPS	SIMABLOC C12	nb. of CPS
1,5 - 2,5 - 4	yes	1	groove		4E 120- 4Cu	1 [1]	—		—		—	
6	yes	1	6R+S	1	4E 35- 6Cu	1 [1]	—		—		12 SE 6Cu	1 [2]
10	yes	1	10R+S	1	4E 50-10Cu	1 [1]	—		—		12 SE 10Cu	1 [1]
16	—		16R+S-25S	1	4E 70-16Cu	1 [1]	7E 25-16Cu	1 [1]	—		12 SE 16Cu	1 [1]
25	—		25R-35S	1	4E 95-25Cu	1 [1]	7E 25-16Cu	1 [1]	—		12 SE 25Cu	1 [1]
35	—		35R-50R+S	1	4E 35- 6Cu	2 [1]	7E 95-35Cu	2 [1]	11E 95-35Cu	1 [2]	12 SE 35Cu	1 [2]
50	—		35R-50R+S	1	4E 50-10Cu	2 [1]	7E 150-50Cu	2 [1]	11E 150-50Cu	1 [2]	12 SE 50Cu	1 [2]
70	—		60R-70R	1	4E 70-16Cu	2 [1]	7E 120-70Cu	2 [1]	11E 120-70Cu	1 [2]	12 SE 70Cu	1 [2]
95	—		—		4E 95-25Cu	2 [1]	7E 95-35Cu	2 [1]	11E 95-35Cu	1 [2]	12 SE 95Cu	1 [2]
120	—		—		4E 120- 4Cu	2 [1]	7E 120-70Cu	2 [1]	11E 120-70Cu	1 [2]	12 SE 120Cu	1 [2]
150	—		—		5E 150Cu	1 [1]	7E 150-50Cu	2 [1]	11E 150-50Cu	1 [2]	12 SE 150Cu	1 [2]
185	—		—		—		7E 185Cu	2 [1]	11E 185Cu	2 [1]	12 SE 185Cu	1 [2]
240	—		—		—		7E 240Cu	2 [1]	11E 240Cu	2 [1]	12 SE 240Cu	1 [2]
300	—		—		—		—		11E 300Cu	3 [1]	12 SE 300Cu	2 [2]

— : groove to be used [] number of tool prints

B. Hydraulic pumps

Section mm ²	SOLHYFLEX pump or GEH unit or GTH unit with										
	SIMAFLEX pump with head V13U or head V20U + bed 2S1				head V13U or V20U + bed 2S1				or V40U		
	punching	compression	number of prints	number of crimps	punching	compression	number of prints	number of crimps	compression die	number of prints	number of crimps
	punch + die	die			punch + die	die					
16	17P16+17M16	—			17P16+17M16	—			—		
25	17P50+17M25	—			17P50+17M25	—			—		
35	17P50+17M35	13UE35Cu	(2)	1	17P50+17M35	13UE35Cu	(2)	1	—		
50	17P50+17M50	13UE50Cu	(2)	1	17P50+17M50	13UE50Cu	(2)	1	—		
70	17PC120+17M70	13UE70Cu	(2)	1	17PC120+17M70	13UE70Cu	(2)	1	—		
95	17PC120+17M95	13UE95Cu	(2)	1	17PC120+17M95	13UE95Cu	(2)	1	—		
120	17PC120+17M120	13UE120Cu	(2)	1	17PC120+17M120	13UE120Cu	(2)	1	—		
150	17PC240+17M150	13UE150Cu	(2)	1	17PC240+17M150	13UE150Cu	(2)	1	—		
185	17PC240+17M185	13UE185Cu	(2)	1	17PC240+17M185	13UE185Cu	(2)	1	—		
240	17PC240+17M240	13UE240Cu	(2)	1	17PC240+17M240	13UE240Cu	(2)	1	—		
300	—	13 or 20UE300Cu	(2) [3]	2-1	—	13 or 20UE300Cu	(2) [3]	2-1	—		
400	—	20UE400Cu	(3)	1	—	20UE400Cu	(3)	1	—		
500	—	20UE500Cu	(2)	3	—	20UE500Cu	(2)	3	40UE500Cu	(3)	2
630	—	20UE630Cu	(2)	3	—	20UE630Cu	(2)	3	40UE630Cu	(3)	2
1000	—	—			—	—			40UE1000Cu	(3)	3

CHOICE OF TOOLS "C" CONNECTORS

A. Mechanical pliers

connector reference	ISOLEC 2 or SIMABLOC 45 PLIERS		SIMECA or SIMABLOC 8 PLIERS	
	die with number of prints	nb of crimps	die with number of prints	nb of crimps
C6	4 E 50-10 Cu	1	—	—
C10	4 E 95-25 Cu	1	7 E 25-16 Cu	1
C16	4 E 70-16 Cu	1	7 E 120-70 Cu	2
C25 and C35	4 E 173/5	1	7 E 150-50 Cu	2
C50	—	—	7 E 150-50 Cu	2

— : groove to be used.


B. Hydraulic pumps

connector reference	SIMAFLEX or SOLHYFLEX pumps or GEH or GTH units			
	with head V13U		with head V20U	
	die with number of prints	nb of crimps	die with number of prints	nb of crimps
C16	13 UE 70 Cu	2	13 UE 70 Cu + 2S1	2
C25, C35 and C50	13 UE 150 Cu	2	13 UE 150 Cu + 2S1	2
C75 and C95	13 UX 260	1	13 UX 260 + 2S1	2
C120 and C150	—	—	or 20 UE 95 CWV	2
C185-C95	—	—	20 UE 150 CWV	2
C185	—	—	20 UE 150 CWV	2
			20 UE 185 CWV	1
				3*

* Crimp the middle, then each end of the connector [see page 9 para L].

CHOICE OF CONNECTOR

To branch a 25² conductor on a 50² main cable, the section is 50 + 25 = 75² [see column ①]. It is between 66² and 100² max., corresponding to a C50-C50 in ②. This gives: main 50², branch 25² between 16 and 50². If not possible, take the next bigger total section then check main and branch.

Total section mm ² ①	Référence SIMEL	 main branch	Useful sections mm ² ①			Possible Impossible	Other designations
			mini	maxi	mini		
3	12	C 6	main 1,5	6			
			branch 1,5	6			
13	20	C 10	main 10	10			
			branch 2x1,5	10			
19	32	C 16	main 10	16	16		
			branch 9	16	16		
33	56	C 25	main 25	28	30	30	
			branch 10	28	16	16	
53	70	C 35	main 25	35	50	50	
			branch 25	35	16	16	
66	100	C 50	main 50	50	63	75	2x50
			branch 16	50	30	25	75+25
105	170	C 75	main 75	95	70	95	
			branch 30	75	70	75	
150	190	C 95	main 75	95			
			branch 75	95			
156	240	C120	main 120	120	150	150	
			branch 35	120	6	50	
225	300	C150	main 150	150			
			branch 75	150			
260	300	C185 - C95	main 185				
			branch 75				
210	370	C185	main 115	185	150	185	
			branch 95	185	60	150	

HEXAGONAL COMPRESSION ON BARE MEDIUM VOLTAGE NETWORK LINE

A. inserting dies

1. C cap

Mount the piston in order to clear the pushbutton. Press the pushbutton and insert a half die. Then press the pushbutton on cap C and insert the other half die.

2. single-unit U cap

The tools for this pair of pliers have two different prints (or grooves). Choose the die according to the section to be crimped and the pliers used [see table on page 16]. Mount the half dies in the cap, directing the groove so that it is on the right side.

B. compression head unit

Raise the cylinder nose, insert the male die, turning it through a quarter-turn, position the female die in the cap using the positioning nipple.

C. Mount the half shells in the bed, by pressing the pushbuttons, slide the bed into the cap, lock the upper part with its axle. Ensure that the lower part is mounted in the correct direction - it is held in place by a centring nipple.

D. inserting the connector before compression (U cap)

After inserting the cables into the connector, remove the upper part of the bed, slide the connector into the head, re-insert the bed and lock it. Position the connector according to the following crimping method.

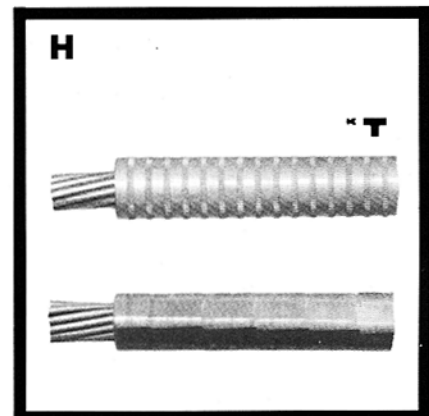
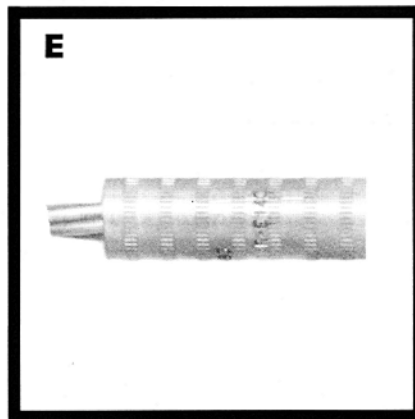
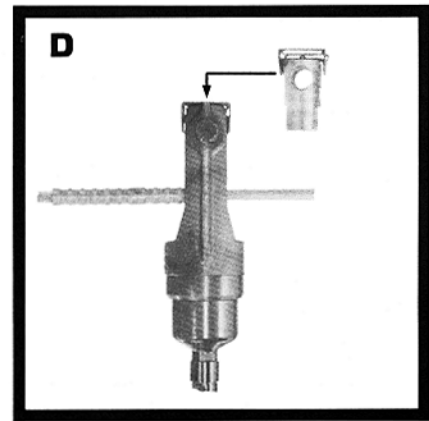
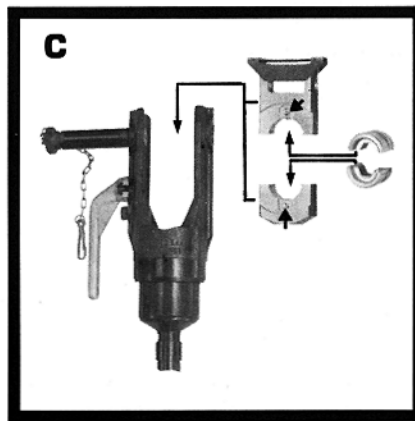
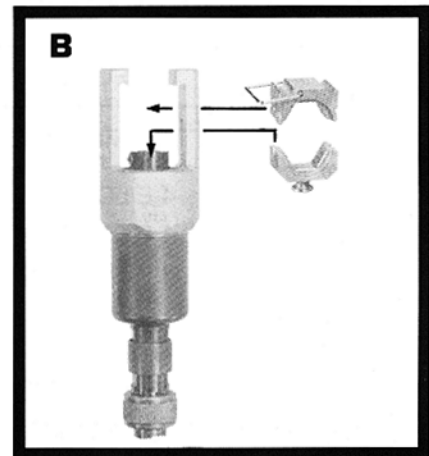
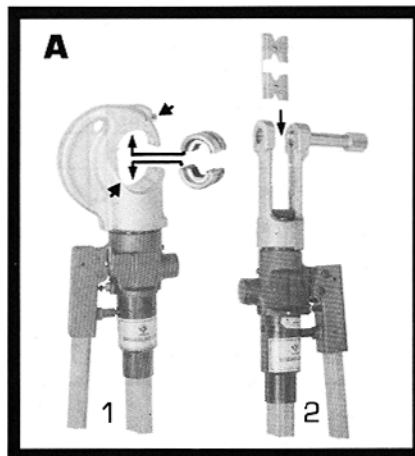
CRIMPING METHOD

General remarks

The sleeves and connectors are greased, ready for use. The cables must be brushed thoroughly. On each sleeve and connector the reference of the tool groove to be used and the location of the crimps are indicated E.F.

2 types of crimp:

between 2 serrations [COMPRESSION] G or by continuous overlapping of the serrations [COMPRESSION] H.



MEDIUM VOLTAGE UNIFORM CONDUCTORS

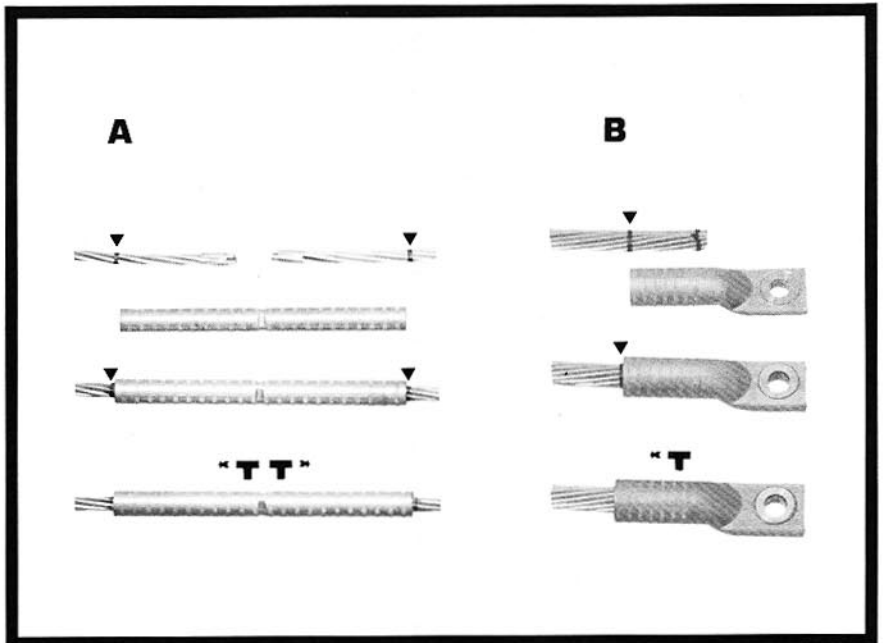
junction sleeves **J..U, J..L**
cable through anchoring sleeves **AT.L, ABT.L**
end lugs **CN2AA-CN2AU-QN2AU**
connectors for **CB spindle**

A. junction sleeves

Mark the length to insert on the cables, brush and push the cable ends as far as possible into the sleeve, ensuring that the marks are in the correct position, crimp from the middle towards one end.

B. terminal lugs

Mark on the cable the length at least equal to the length to be crimped, brush and fully insert the cable, turning the lug. Crimp starting from the fork.

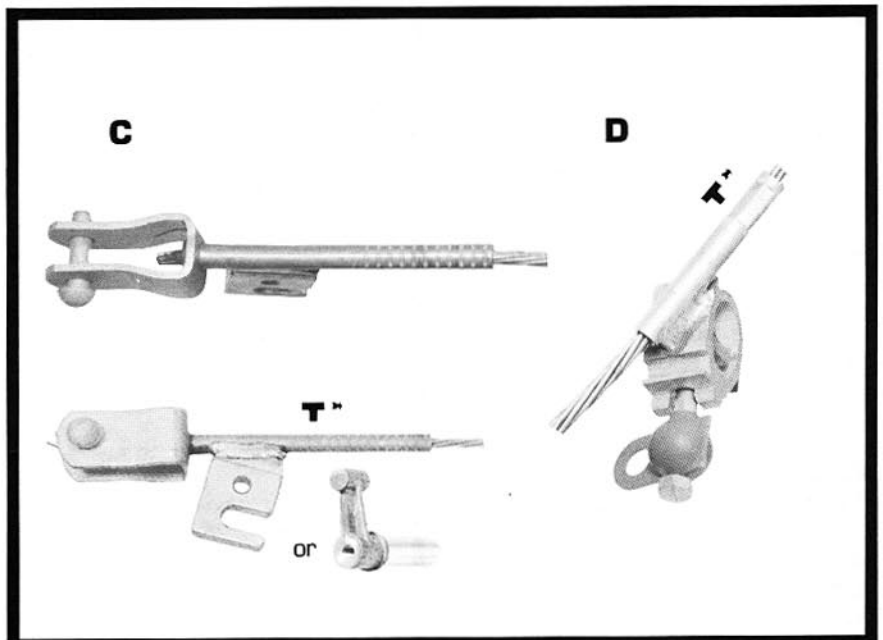


C. cable through anchoring sleeves

Brush and insert the cable, check that it enters the cap, crimp from spindle or fork side towards the end.

D. connectors for spindles

Brush and insert the cable so that it comes out from the shaft to be crimped. Crimp from the weld towards the end.



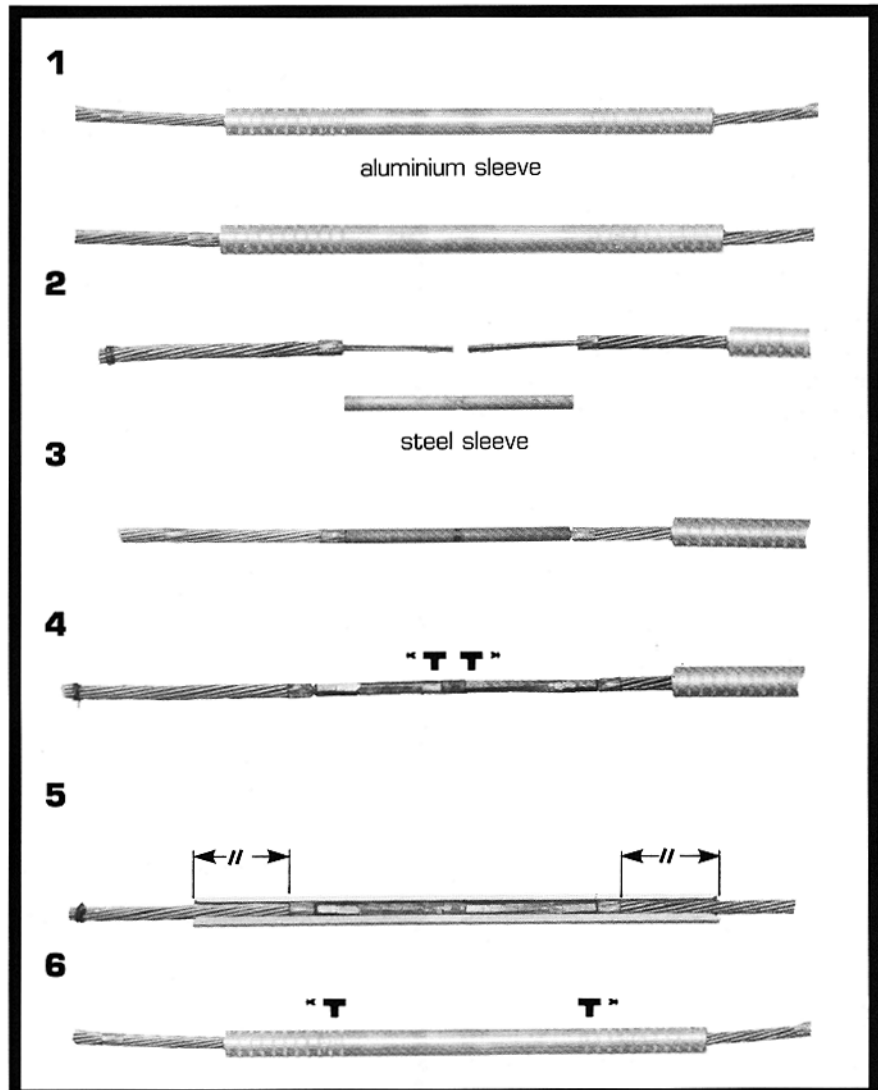
HETEROGENEOUS MEDIUM VOLTAGE CONDUCTORS

junction sleeves **J.AR, J.AL**
closed anchoring sleeves **A.AL, AB..AR**
AB..LR et ALR

junction sleeves

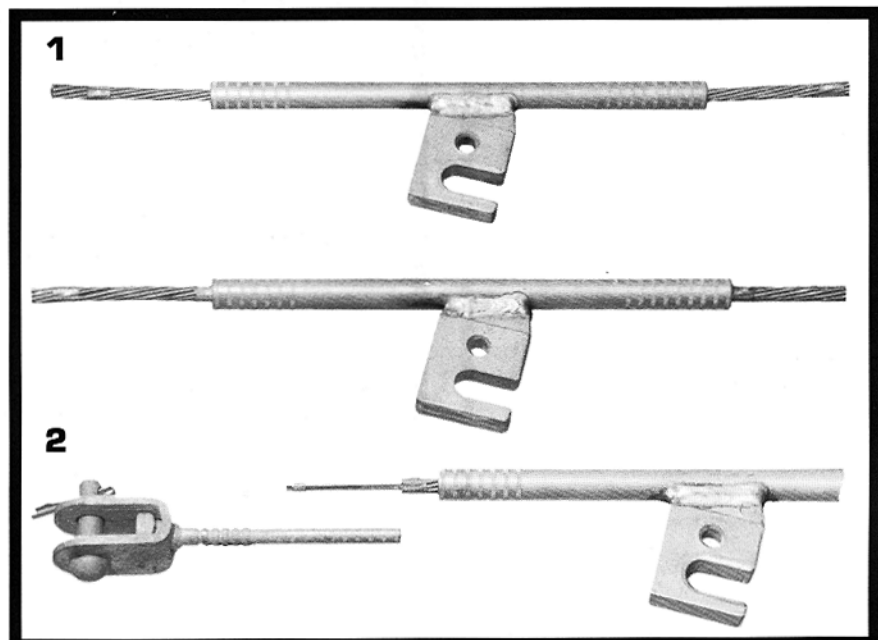
This is made up of a steel part and an aluminium-base part.

1. Slide the aluminium sleeve onto one end of the cable, bind the outer layers.
2. Mark on both cables, according to the steel sleeve, the length of the aluminium wire to be stripped bare.
3. Position the steel sleeve, inserting the cable ends at the same time, after brushing.
4. Crimp starting from the middle of the steel sleeve, remove any burrs resulting from crimping.
5. Measure the length of the aluminium sleeve, mark it equally on either side of the steel sleeve, brush and grease the outer layer.
6. Centre the sleeve against the two marks, crimp the aluminium sleeve starting at the beginning of the marks towards the end.



closed anchoring sleeves

1. Slide the aluminium sleeve onto the end of the cable, bind the outer layer.
2. Mark on the cable, according to the steel anchor, the length of the aluminium wires to be stripped bare. Bind and brush, insert the end of the cable into the steel part, up to the stop.



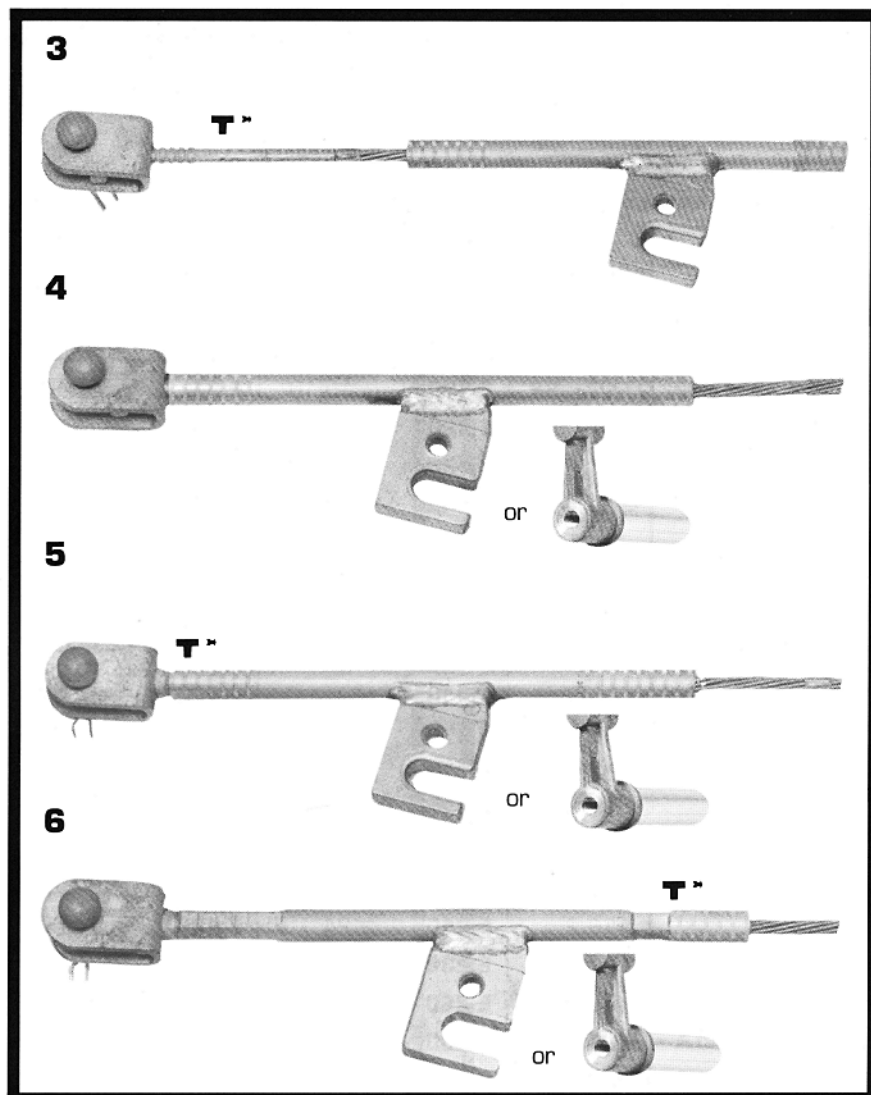
closed anchoring sleeves (cont)

3. Crimp from the cap side to the end. Remove any burrs due to crimping.

4. Bring the aluminium sleeve stop up to the head, direct the fork or spindle as per the connector.

5. Crimp starting by the head, towards the fork or spindle.

6. Finish from the fork or spindle towards the end of the sleeve.



sleeves with inserts

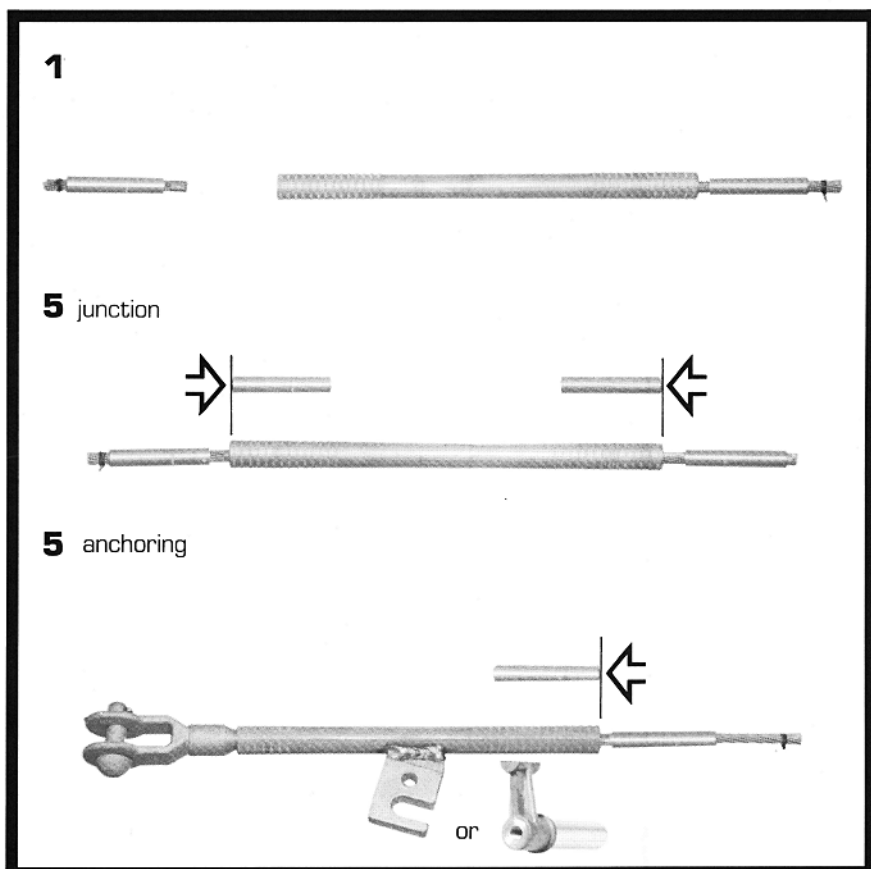
Some sleeves are supplied with inserts, which are used to compensate for the small difference in the cable's outer diameter, compared with that of the steel core.

1. Slide an insert and the aluminium insert onto the cable [a second insert on another cable for junction].

Proceed as in **2, 3, 4** above.

5. Centre the aluminium sleeve against the steel sleeve, slide the inserts [one only for anchoring sleeve] until they come into contact with the ends of the aluminium sleeve.

6. Crimp as above in **5, 6**.



HEXAGONAL CRIMPING GROOVES

medium voltage network - bare lines

ALUMINIUM or ALUMINIUM ALLOY + STEEL CONDUCTORS						
section mm ²	Aluminium			Steel		
	groove	connector	outer dia.	groove	connector	outer dia.
17,8-22	E 120	Ø 15,10		E 54	Ø 7,14	
34,4	E 120	Ø 13,70		E 54	Ø 7,14	
37,7	E 120	Ø 13,70				
37,7	E 140	Ø 17,30		E 72	Ø 8,70	
43,1	E 140	Ø 16		E 54	Ø 7,14	
54,6	E 140	Ø 16,20		E 72	Ø 9	
58,9	E 173	Ø 21		E 100	Ø 12	
59,7	E 140	Ø 16,20				
59,7	E 210	Ø 24		E 120	Ø 14,50	
69,3	E 173	Ø 21		E 72	Ø 8,70	
75,5	E 173	Ø 20,70				
75,5	E 230	Ø 27		E 120	Ø 14,50	
80	E 173	Ø 21		E 100	Ø 12	
88	E 173	Ø 21		E 72	Ø 8,70	
116,2	E 210	Ø 24		E 120	Ø 14,50	
147,1	E 230	Ø 27		E 120	Ø 14,50	
181,6	E 260	Ø 30		E 135	Ø 16	
228	E 280	Ø 33				
228	E 285	Ø 33		E 160	Ø 18,50	

ALUMINIUM ALLOY CONDUCTORS		
section	groove	connector outer dia.
22	E 100	Ø 11,20
34,4	E 120	Ø 13,70
43,1	E 140	Ø 16
54,6	E 140	Ø 16,20
75,5	E 173	Ø 20,70
93,3	E 173	Ø 20,30
117	E 210	Ø 24
148	E 230	Ø 27
181,6	E 250	Ø 30
228	E 280	Ø 33

COPPER CONDUCTORS		
section	groove	connector outer dia.
7,07	E 54	Ø 6,35
9,9-10,8-12,56	E 68	Ø 8,30
12,4-14,1	E 72	Ø 8,50
15,9-19,63		
17,8-22-27,6	E 83	Ø 10,10
28,25-29,3	E 100	Ø 12,50
38,2-38,46	E 100	Ø 12,70
48,3	E 120	Ø 14,30
59,7-74,9-93,3	E 173	Ø 20

CHOICE OF TOOLS AND TOOLINGS

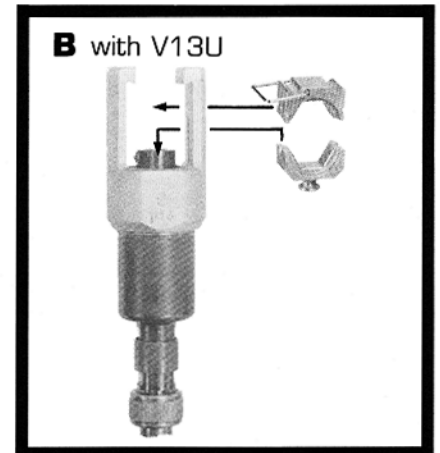
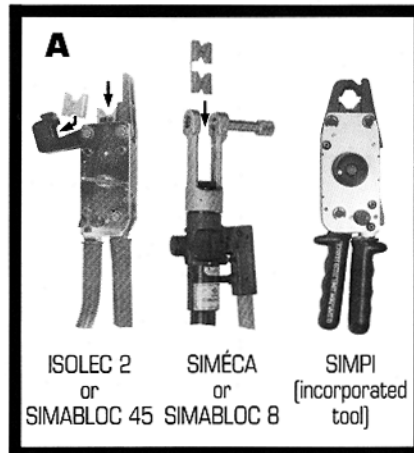
On each sleeve and connector, the reference of the tool groove to be used and the crimping positions are indicated.

SIMABLOC 8 or SIMABLOC C12 pumps		SIMAFLEX		or SOLHYFLEX pumps or GEH or GTH units		
+	die	with head		with head		
		V13U or V20U		V13U or V20U or V22U		
7E...-E...	12SE../..	+	+	+	+	+
		die	die	die	die	die
groove references		13UE../..	13UE../..	13UE../..	13UE../..	22SE../..
		direct	with bed 2S1 or 20UE...	direct	with bed 2S1 or 20UE...	with bed 22SUS
			direct		direct	

HEXAGONAL COMPRESSION ON LOW VOLTAGE OVERHEAD NETWORKS

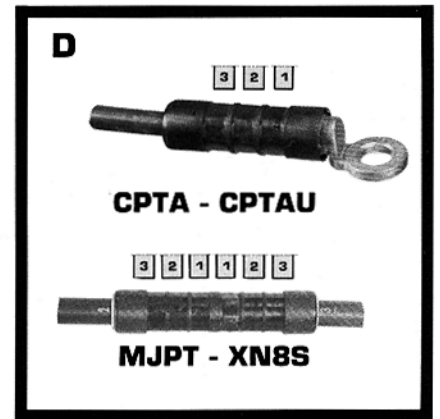
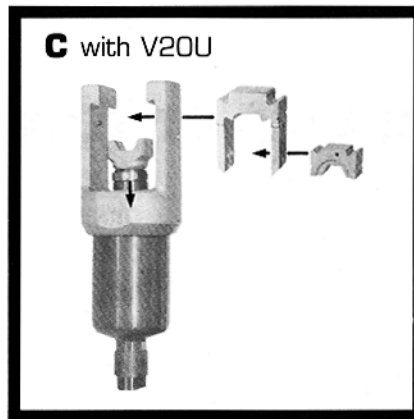
A. with mechanical pliers or hydraulic pumps using the tools from these pumps

The tools from these pliers often have 2 different prints (or grooves). Choose the die according to the section to be crimped and the pliers used (see table on page 18). Mount the 1/2 dies in the heads, turning the groove so that it is on the right side, except for SIMPI pliers, which only have one E140 groove.



B. with hydraulic pump

Select the cylinder-head unit according to the section to be crimped, then attach it to a hydraulic source. Choose the appropriate tools (see table on page 18). Advance the cylinder nose, insert the male die, turning it through a quarter-turn, position the female die in the head using the positioning nipple.



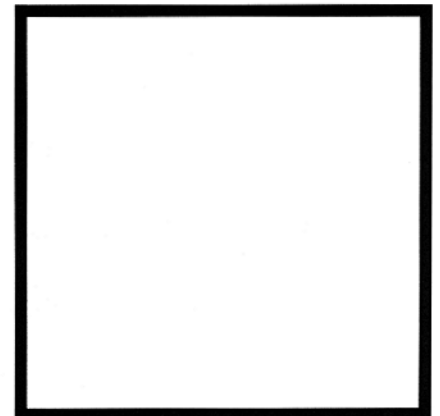
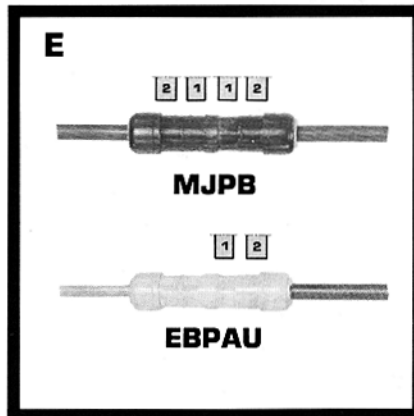
C. inserting the bed

Bed 2S1 only, used with cylinder V20U.

CRIMPING METHOD

D. For CPTA-CPTAU lugs, the first necking is always made by the lug fork. For sleeves MJPT and XN8S, the first compression is made by the centre of the sleeve.

E. The first compression is always made by the centre of the sleeve.



HEXAGONAL CRIMPING GROOVES

low voltage aluminium and aluminium alloy twisted networks

section mm ²	groove	connector outer dia.
4 to 35 inclusive	E140	Ø 16
16 to 95 inclusive	E173	Ø 20
120-150	E215	Ø 25
185-240	E280	Ø 32

CHOICE OF TOOLS AND TOOLINGS

A. Mechanical pliers

section mm ²	SIMPI pliers	ISOLEC 2 pliers or SIMABLOC 45 pump	SIMECA pliers or SIMABLOC 8 pump
4 to 35 inclusive Ø 16	monobloc tool groove E 140 only	4 E <u>140</u> E 83	7 E <u>173</u> E <u>140</u>
16 to 95 inclusive Ø 20	—	4 E 173	7 E <u>173</u> E 140
120-150	—	5 E 215	7 E <u>215</u> E 113

— : groove to be used.

B. Hydraulic pumps

On each sleeve and connector the reference of the tool groove to be used and the crimping positions are indicated

section mm ²	SIMABLOC C12 pump or SIMAFLEX or SOLHYFLEX pumps or GEH or GTH units	with head		with head	
		V13U or V20U	V13U or V20U	V13U or V20U	V13U or V20U
4 to 35 inclusive Ø 16	12 SE 140/9	13UE 140/9	13UE 140/9 + 2S1	13UE 140/9	13UE 140/9 + 2S1
16 to 95 inclusive Ø 20	12 SE 173/9	13UE 173/9	13UE 173/9 + 2S1	13UE 173/9	13UE 173/9 + 2S1
120-150	12 SE 215/9	13UE 215/9	13UE 215/9 + 2S1	13UE 215/9	13UE 215/9 + 2S1
240	—	13UE 280/18	20UE 280/18 direct	13UE 280/18	20UE 280/18 direct

HEXAGONAL COMPRESSION DIE TOLERANCES

These tables provide users with the necessary information to ensure that the tools used are always within tolerances, for proper use. They take into account the manufacturing tolerances plus a maximum authorized wear of 0.1 mm.

BARE ALUMINIUM LINES
ALUMINIUM + STEEL
ALUMINIUM ALLOY
ALUMINIUM ALLOY + STEEL

GROOVE	DIMENSIONS ACROSS FLATS	TOLERANCES FOR USE
E54	5,4	} + 0,1 - 0,1
E68	6,8	
E72	7,2	
E83	8,3	
E100	10,0	
E120	12,0	
E135	13,5	
E140	14,0	} + 0,1 - 0,2
E160	16,0	
E173	17,3	} + 0,1 - 0,3
E210	21,0	
E230	23,0	
E250	25,0	
E260	26,0	
E280	28,0	
E285	28,5	

COPPER CRIMPING

GROOVE	DIMENSIONS ACROSS FLATS	TOLERANCES FOR USE
E6 Cu	4,4	} + 0,1 - 0,1
E10 Cu	5,8	
E16 Cu	6,6	
E25 Cu	7,7	
E35 Cu	8,9	
E50 Cu	10,0	
E70 Cu	12,0	
E95 Cu	14,0	} + 0,1 - 0,2
E120 Cu	16,0	
E150 Cu	17,3	
E185 Cu	19,0	} + 0,1 - 0,3
E240 Cu	21,5	
E300 Cu	23,0	
E400 Cu	27,0	} + 0,1 - 0,4
E500 Cu	33,0	
E630 Cu	34,0	
E800 Cu	40,0	

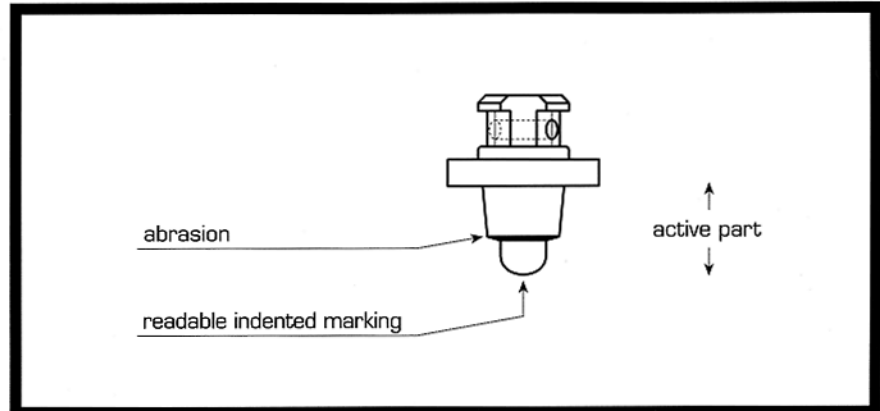
CHECKING AND INSPECTION OF STEPPED PUNCH CRIMP TOOLS

CHECKING THE PUNCH

Visual checks :

The indented marking on the punch end should be readable.

The active part of the punch should not present any sign of scoring, impact damage or abrasion.

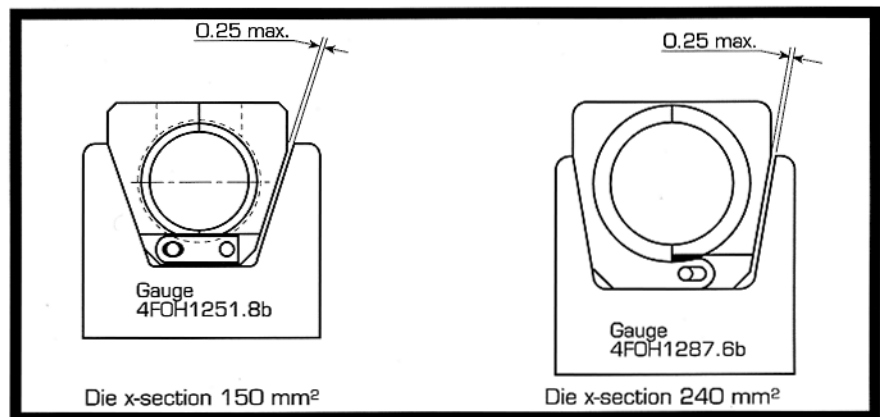


VISUAL CHECKS OF THE DIES

Dies should not present any sign of scoring, impact damage or abrasion.

CHECKING THE OUTWARD SLOPING SURFACES OF THE DIES

Using limit gauge and feeler gauges.



DIE BASE CHECKING

Using limit gauge and feeler gauges.

