



NHC-S20 / NHC-S32

OPERATION MANUAL

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GENERAL

New-Line crimping machines are electrically operated hydraulic crimping machines for hydraulic hose assemblies. The crimping machine comprises a crimping head and a hydraulic unit mounted on the oil tank which serves as machine frame. Normally delivered with a single electric motor. On request it can be equipped with a 3 phase motor.

TRANSPORT

The packed machine is transported on a pallet, which is easy to move and lift by a forklift truck. After unpacking, the machine can be lifted using a hoisting belt. Size of package for P51-models: $x = 102$, $y = 82$, $z = 113$ cm. Size of package for other models: $x = 77$, $y = 62$, $z = 81$ cm.

STORAGE

The manufacturer has protected the machine against the machine against corrosion by using the Zerust method. The machined parts have been treated with Axxatec 77C protective agent. A Zerust vapor capsule has been put into the electric box, and the machine has been packed into a bag made of Zerust film.

The protection is effective for months if the package is not opened. After opening it, the protection of the wrapping film ceases. If the machine is not yet brought into use, it must be reprotected against corrosion. The machine is to be stored in dry indoor conditions.

Remove the protective agent according to the instructions enclosed in the package.

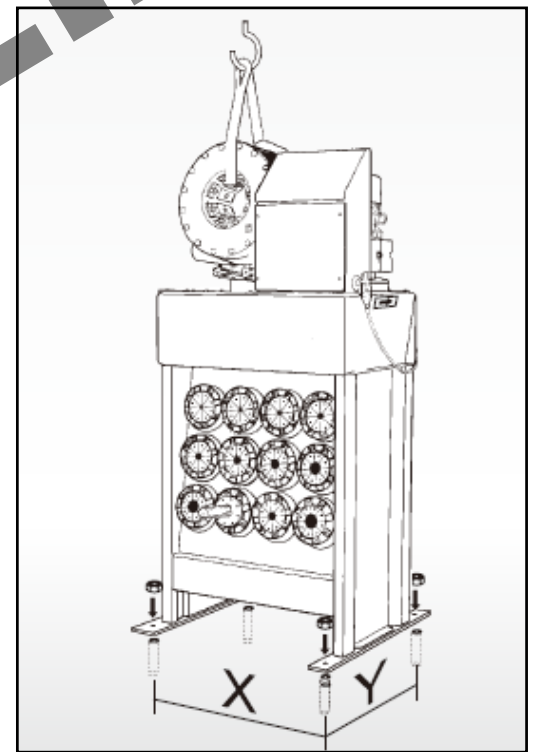
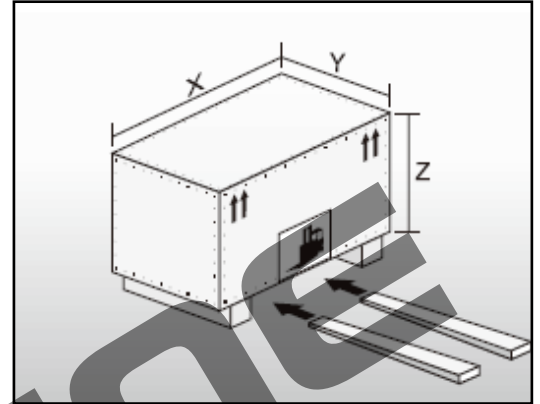
MOUNTING

The adjacent picture shows an appropriate way to lift the machine after it has been unpacked. It is recommended to mount the machine on table. Before mounting, the table must be screwed to the floor with four M12 wedge anchors. Boreholes in the floor: $\varnothing 12$ mm, depth 55mm.

When the machine is mounted on the table, the four shoes under the machine are removed.

The table with assembly instructions is packed separately.

The crimper may be installed on some other table as well, provided it is sturdy and broad enough or it has been fastened on the floor so that it cannot fall over. Furthermore, there must be a hole in the table to enable emptying the oil tank through the drain plug. S20 & S32 - models $x = 558$, $y = 560$.



WARNINGS

GENERAL

The machine is intended for professional use. It is to be operated only by a trained operator who has understood the dangers involved in the operation.

Openings between the dies exceed 6mm, thus being large enough to let fingers go between the dies and get crimped. It is, therefore, **ABSOLUTELY** necessary to follow operating instructions and warnings indicated by the stickers on the machine when changing dies and crimping fittings.

Danger zones



WARNING 1

Do not put your hands inside the dies while the motor is running!



WARNING 2

When crimping a fitting, hold the hose far enough to avoid crimping your hand!

WARNING 3

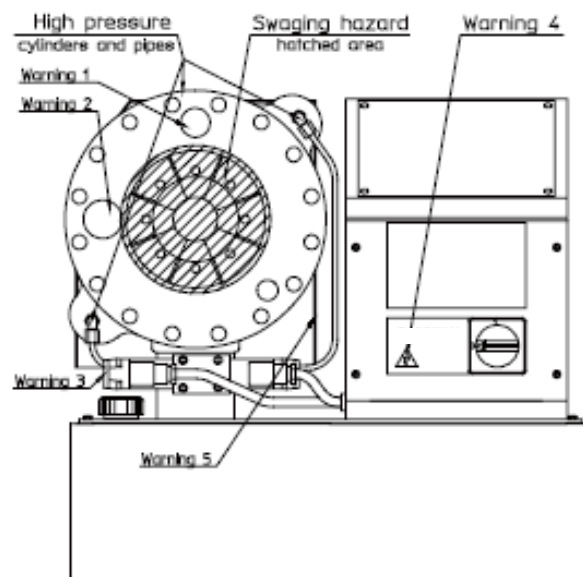
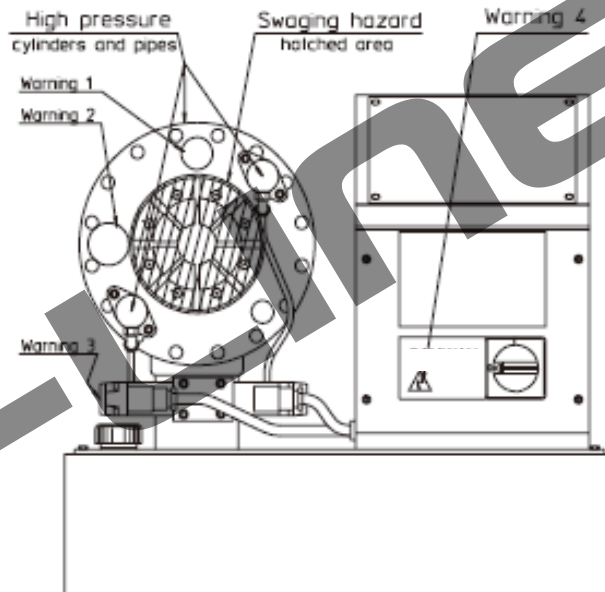
Dies open and close by depressing the hand emergency push-buttons at both ends of the valve. Do not touch these push-buttons during normal operation!



WARNING 4

High voltage.

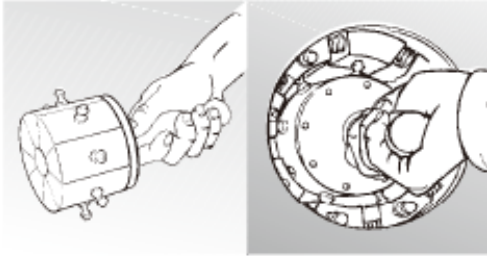
The electric box is to be opened only by a professional electrician!



WARNING 5

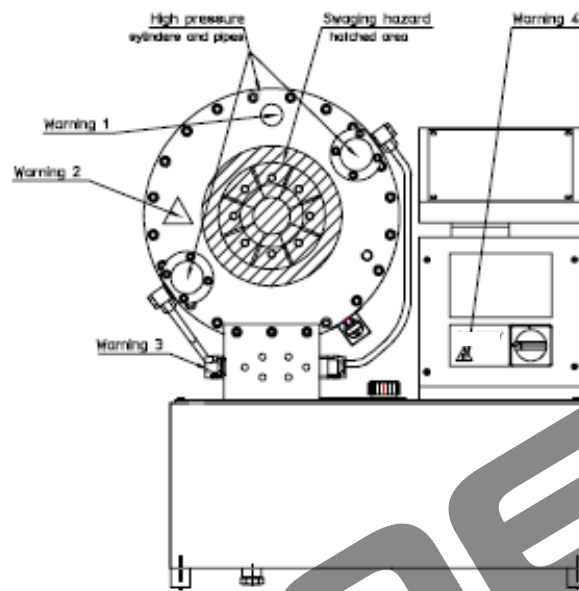
The rear of the crimping head is covered by a housing protecting the operator from the crimping hazard under the housing between rear flange and cylinder.
Do not remove this housing!

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WARNING 6

When changing dies with the quick change tool, hold the handle as shown in the above figures. Make sure your hand will not get between the dies!



COMMISSIONING

OIL FILL

Fill the oil tank to centre line of the indicators in the dipstick with hydraulic oil like Shell Tellus T46 or equivalent. Volume of the tank is 32 litres.

It is recommended to pump the oil into the tank through a 20 μ filter, because new oil in drums is not pure.

OIL FILL

CAUTION! Check that the machine voltage (see type plate) is equal to your supply voltage. For proper installation to local code, consult a licensed contractor.

Bring the supply cable in through the hole in the side panel of the electric box. Secure the cable with a stress relief plug.

1-phase: Connect the phase and the neutral to the retrospective terminals in the supply disconnecting device. Connect the earth connection to the ground terminal on the fixing plate. Check the connection against the wiring diagram enclosed in the spare parts list.

3-phase: Connect the phase conductors to the respective L1, L2 and L3 terminals in the supply disconnecting device. Connect the earth connection to the ground terminal on the fixing plate. Check the connection against the wiring diagram enclosed in spare parts list.

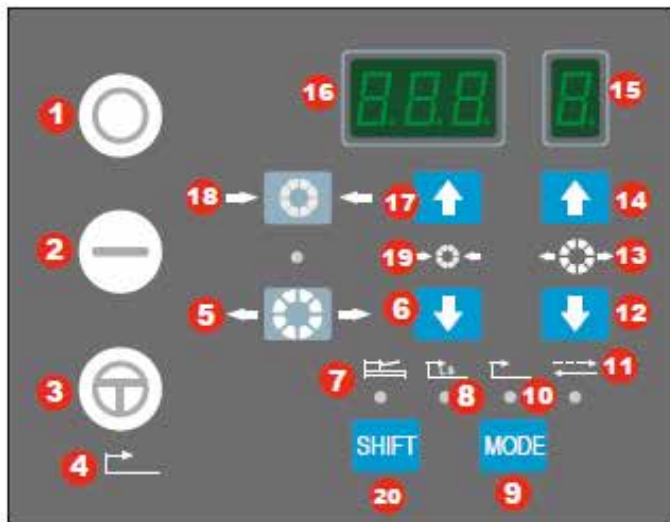
Check that the motor rotation is parallel with the arrow on the tank close to the motor. In case the motor rotates in wrong direction, two phase conductors in the supply disconnecting device must be interchanged.

QUICK FIX-PACKAGE

Included with the machine, there is a Quick Fix-Package which has some basic parts for that machine model.

OPERATION

S20 - S32 CONTROL PANEL ILLUSTRATION



1	Motor Stop
2	Motor Start
3	Semi-Automatic Control
4	Semi-Automatic Control Symbol
5	Manual Opening Button
6	Crimping data adjustment
7	Foot Pedal Control Mode
8	Back Stop Control Mode
9	Mode Selection
10	Semi-Automatic Mode
11	Manual Control Mode
12	Opening data adjustment
13	Opening Symbol
14	Opening Data Adjustment
15	Opening Data Digit Display
16	Crimping Data Display
17	Crimping Data Display
18	Manual Crimping Button
19	Crimping Symbol
20	digit position input



Emergency Stop

Main Power Switch



Die base



Crimping Head



Oil Cap

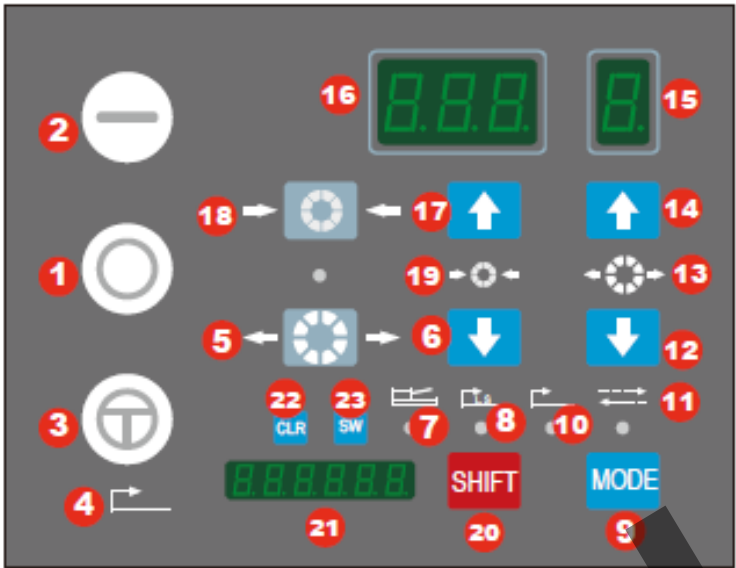


Die Rack

OPERATION

S20 - S32 CONTROL PANEL ILLUSTRATION

The Control Panel with Counter



1	Motor Stop
2	Motor Start
3	Semi-Automatic Control
4	Semi-Automatic Control Symbol
5	Manual Opening Button
6	Crimping data adjustment
7	Foot Pedal Control Mode
8	Back Stop Control Mode
9	Mode Selection
10	Semi-Automatic Mode
11	Manual Control Mode
12	Opening data adjustment
13	Opening Symbol
14	Opening Data Adjustment
15	Opening Data Digit Display
16	Crimping Data Display
17	Crimping Data Display
18	Manual Crimping Button
19	Crimping Symbol
20	Digit Position Input
21	Counter
22	Clear The Current Counting
23	All Counting

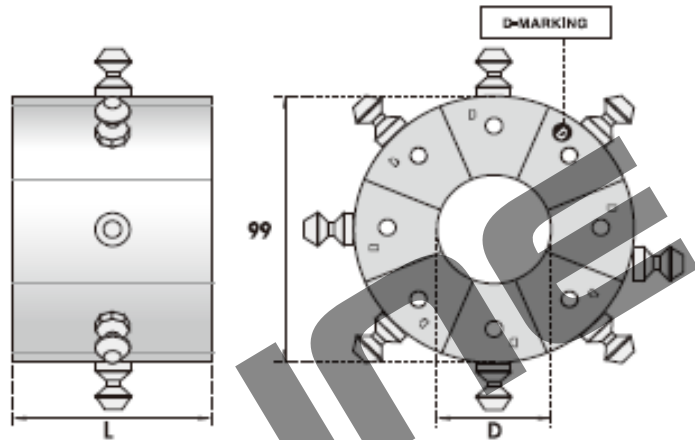
SELECTING THE DIE SET

Use only original die sets in crimping machines.

Refer to the fitting manufacturer's specifications for proper crimping diameter for the fitting. Each die set has its own crimping range. Follow it to assure the roundest possible crimping result. The minimum crimping diameter D is marked on each die set. Example: with die set No 18506/10 the minimum crimping diameter is 10 mm.

D	L	Die set No	Crimping range
10	55	18506/10	10 ... 12 mm
12	55	18506/12	12 ... 14 mm
14	55	18506/14	14 ... 16 mm
16	55	18506/16	16 ... 19 mm
19	55	18506/19	19 ... 22 mm
22	70	18506/22	22 ... 26 mm
26	70	18506/26	26 ... 30 mm
30	70	18506/30	30 ... 34 mm
34	75	18506/34	34 ... 39 mm
39	75	18506/39	39 ... 45 mm
45	90	18506/45	45 ... 51 mm
51	90	18506/51	51 ... 57 mm
57	100	18506/57	57 ... 63 mm
63	110	18506/63	63 ... 69 mm
69	110	18506/69	69 ... 75 mm
74	110	18506/74	74 ... 80 mm
78	110	18506/78	78 ... 87 mm

In addition to the standard dies, a wide range of special dies is available on request.



INSTALLING THE DIE SET

QUICK CHANGE MS (OPTION)

An optional Quick Change Tool Base enables storing die sets under the machine. Die sets can be installed into the master dies with a quick change tool one set at a time.

- Before installing dies, make sure that the master dies are clean.
- STOP THE MOTOR PRIOR TO CLEANING DIES.
- Insert the pins of the tool into the die set in the die table, turn the tool clockwise and pull the whole set out (Image on next page).
- Hold handle of the quick change tool as shown in Figures 1 and 2, and make sure your hand will not get between the dies.
- Mount the die set between master dies (Fig. 2) and start closing the dies.
- TO AVOID DAMAGING MASTER DIES, MAKE SURE THAT ALL DIE SET PINS HIT IN THEIR HOLES.
- Close the master dies completely until the pins are locked in their places (Fig 3). Remove the tool. The dies are now ready for use (Fig 4).
- Die set is removed from the master dies in reverse order: close the dies, insert the tool into the die set, open the master dies and place the set back in the die table.

Fig. 1

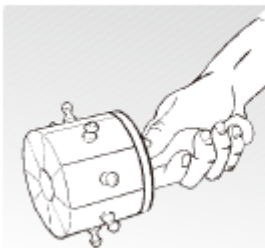


Fig. 2

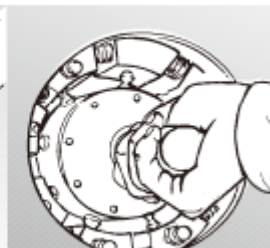


Fig. 3

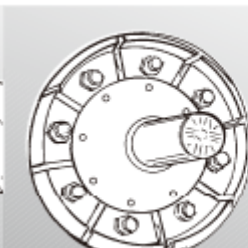
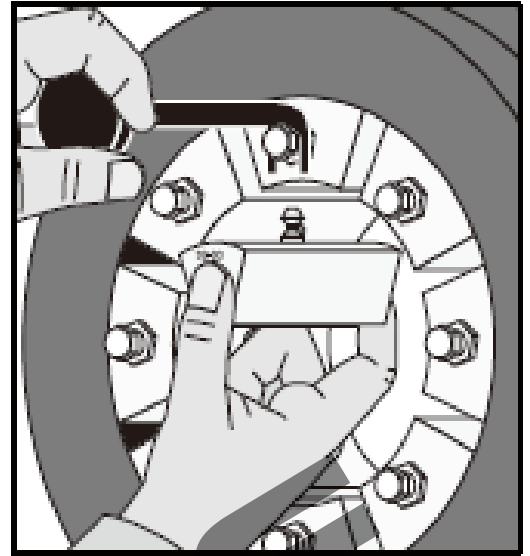


Fig. 4



QUICK CHANGE MS (OPTION)

- Start the motor and depress the retraction button until maximum retraction is reached. Stop the motor.
- CAUTION | THE MOTOR SHALL ALWAYS BE STOPPED DURING INSTALLATION OF DIES.**
- Prior to installing dies, clean the contact surfaces of both the die set and master dies properly to avoid damaging the surfaces.
- Pull the pull pin in the master die with the tool delivered together with the machine (see figure).
- Insert the die with the retaining pin into the master die, die number always towards you. Release the pull pin.
- After installing all the dies, make sure they are straight and properly seated in the master dies.



SETTING THE CRIMPING DIAMETER MS

DIE SET N°	0 min	+1 mm	+2 mm	+3 mm	+4 mm	+5 mm	+6 mm	+7 mm	+8 mm	+9 mm
32-10	10	11	12	13						
32-12	12	13	14	15						
32-14	14	15	16	17						
32-16	16	17	18	19	20					
32-19	19	20	21	22	23					
32-22	22	23	24	25	26	27				
32-26	26	27	28	29	30	31				
32-30	30	31	32	33	34	35				
32-34	34	35	36	37	38	39	40			
32-39	39	40	41	42	43	44	45	46		
32-45	45	46	47	48	49	50	51	52		
32-51	51	52	53	54	55	56	57	58		
32-57	57	58	59	60	61	62	63	64		
32-63	63	64	65	66	67	68	69	70		
32-69	69	70	71	72	73	74	75	76		
32-74	74	75	76	77	78	79	80	81		
32-78	78	79	80	81	82	83	84	85	86	87

The crimping diameter chart S32

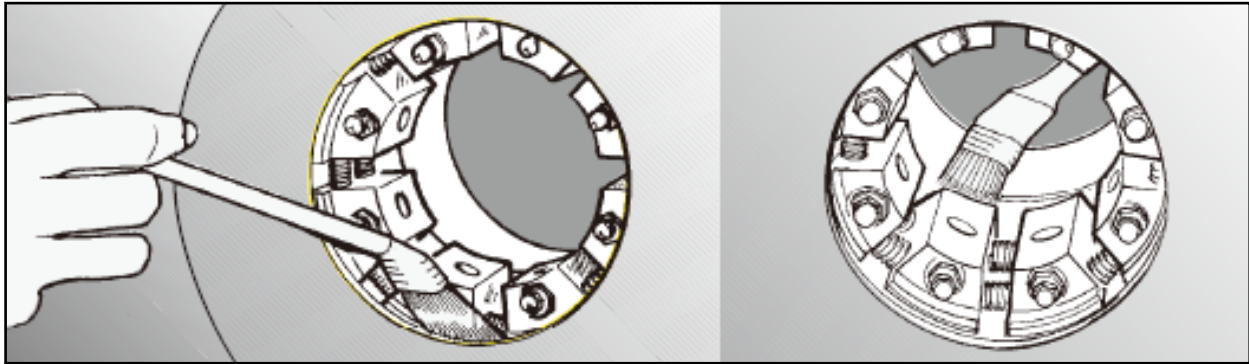
EXAMPLE: Manufacturer has specified a crimping diameter of 20.6 mm for the fitting. Select die set No 20-19 (min crimping diameter 19 mm) according to the die chart. Turn the dial to position 1.60 (upper scale 1, lower 60). This setting will give the crimping diameter 20.6 mm (19 + 1.6 mm)

The machine has been calibrated at the factory with 40 bar pressure. This means that when you are crimping a fitting requiring 44 bar pressure, the measuring scale of the crimping diameter dial provides an accuracy of +/- 0.1 mm (possible elastic recover of the fitting not regarded).

PREVENTATIVE MAINTENANCE

- The following maintenance operations can be performed by the operator according to the instructions below. However, electrical works and repairs like changing seals or the pump must only be carried out by a qualified specialist.
- **PRIOR TO ANY SERVICING OPERATION, TURN THE SUPPLY DISCONNECTING DEVICE TO POSITION '0'.**
- **BEFORE CHANGING THE MOTOR CIRCUIT BREAKER OR UNDERVOLTAGE TRIP, DISCONNECT THE PLUG OR SUPPLY CABLE FROM THE MAINS!**
- Open the dies to maximum retraction before servicing.

GREASING S20 & S32

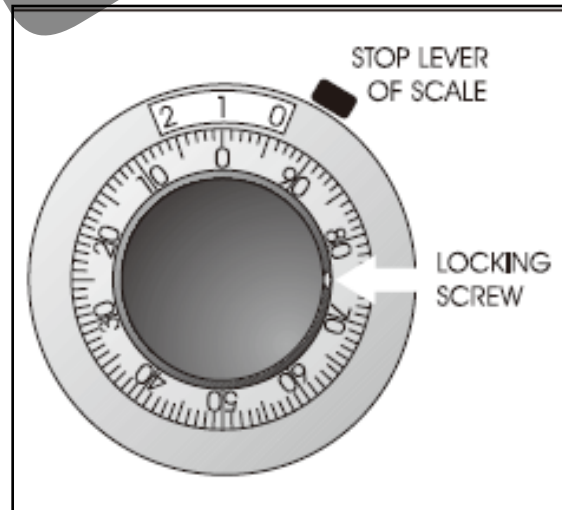


- Lubricate the inner surface of the conical flanges daily with pressure-proof grease like Molub Alloy OG-H or equivalent.
- Apply the grease to the conical surfaces at the front and back of the die with small brush.
- Lubricate often with a small amount of grease rather than seldom with much grease.
- Do not grease the piston rod.

RE-CALIBRATING OF CRIMPING DIAMETER DIAL MS-CONTROL

NOTE: The crimping diameter dial has been calibrated at the factory during test run.

- 1) Re-calibrate the crimping diameter with ferrule (seamless steel tube) $\varnothing$ 25 mm; wall 2 mm, by using the die set No 20-19 (S20) or the die set 32-19 (S32)
- 2) Set the dial at 1.0, so that the crimping diameter will be 20 mm (see adjacent picture) and lock the dial. Crimp the ferrule and measure the real diameter.
- 3) Remove the control dial (avoid turning the dial shaft at the same time).
- 4) Open the dial lock and set the real diameter into it (diameter of ferrule) relock it and reinstall.



- 5) Turn the dial to right diameter and crimp another ferrule. Now the machine has been calibrated and the real diameter should be the same as the diameter on the dial. If not, repeat from point 2 and be more careful when handling the dial.
- 6) After the adjustment, the crimping result should be the minimum nominal crimping diameter of each die set with the dial at 0.0.

IMPROPER DIE WARNING

Improper die set may have the effect similar to the picture shown on the next page. The die set protrudes outward and the rear part of the master die is off the cone track. You can observe the phenomenon quite easily when crimping if this happens. Please view these pictures carefully. When you encounter the same issue, please stop crimping immediately. You need a proper die for your fitting.

This machine requires a balanced crimping. If you experience an improper die - stop crimping immediately and change a die set or contact us for a replacement die set.

POSSIBLE CAUSES

1) The die diameter is not correct, you chose a smaller die (the difference between the die diameter and coupler diameter shall be less than 10 mm). If exceeding 10 mm before crimping, you must check the die sets and change to the one closest.

2) The die set is too long compared to the length of the ferrule needing to be crimped. This makes the crimping part too forward to be able to crimp evenly or balanced. This will cause the problems shown in the pictures on the next page. Normally this is caused by one piece fitting, as one piece fitting is very short compared to the normal fittings. Our standard die set is designed to crimp the most fittings, thus it is usually longer. But when you encounter these phenomena, please stop crimping and request proper die sets from us.

Please stop crimping when you experience these issues. If you proceed you will have serious consequences like but not limited to: breaking the jaw of the master die and damaging the front and back cone surface, which will eventually make the machine useless.

IMPROPER DIE PHENOMENA

STOP CRIMPING IF YOU ENCOUNTER THESE PHENOMENA!



① The die set protrudes outward



② The rear part of the master die is off the cone track

TROUBLESHOOTING

Troubleshooting is to be carried out by a serviceman.

TROUBLE	POSSIBLE CAUSE	ACTION
Machine will not start.	1. No electric supply. 2. Motor protection tripped. 3. Switch broken. 4. Low supply voltage.	1. Check fuses and supply cable connections. 2. Reset if tripped again, check motor and pump connection. 3. Check the voltage up to the motor. 4. Check the voltage.
Motor runs but no piston movement.	1. Wrong rotation direction. 2. Low oil level. 3. Fuses/rectifier/transform out of order. 4. Dial broken (MS). 5. Valve out of order. 6. Pump or coupling broken.	1. Interchange two phases in the supply disconnecting device. 2. Check, refill. 3. Check, replace. 4. Check, replace. 5. Check movability of valve stream. Check the solenoids. 6. Check, replace.
Insufficient crimping force.	1. Insufficient lubrication. 2. Low oil level. 3. Pressure relief valve stuck. Pilot check valve leaking. 4. Leaking pump/pressure pipe 5. Coupling between motor and pump slipping.	1. Lubricate the dies. 2. Check, refill. 3. Check, clean. Replace if broken. 4. Check, tighten, replace. 5. Check, replace.
Crimping diameter varies.	1. Insufficient lubrication. 2. Set value changed. 3. Dial knob loose (MS). 4. Dial loose or broken (MS). 5. Sliding potentiometer. 6. Valve sticking.	1. Lubricate the dies. 2. Check. 3. Check, calibrate, tighten. 4. Check, tighten, replace. 5. Check, tighten, replace. 6. Check, clean.

NHC-S20 DETAILS



Benefit:

- Digital Precision Control
- Quick Change Tool and Die Rack
- Energy Saving and Safety Operation
- TUV, CE, CSA Approved

Main Specification NHC-S20
Max Hydraulic Hose .. 1-1/4" 4 Spiral
Crimping Range 4-60 mm
Die Type S20
Master Die Length 80 mm
Max Opening +25 mm
Motor 4 KW
Crimping Force 1370 KN
Crimpings Per Hour 1200
Control Digital Control

Voltage 220V 1ph 20 amp
Foot Pedal Included
Die Rack Included
Quick Change Tool Included
Backstop Device Optional
Control By Pressure Optional
Noise Level 65 dBA
Protection Class IP56
L*W*H 680*600*1400 mm
Weight 270 KG

Standard Die Sets Included:

Die No.	6*	8*	10*	12*	14	16	19	22	26	30	34	39	45	51*
Length	60	60	60	60	60	60	60	75	75	75	80	80	90	90

*Optional Die Sets Available.

NHC-S32 DETAILS



Benefit:

- Digital Precision Control
- Quick Change Tool and Die Rack
- Energy Saving and Safety Operation
- TUV, CE, CSA Approved

Main Specification NHC-S32
Max Hydraulic Hose 2" 4 Spiral
Crimping Range 4-87 mm
Die Type S20
Master Die Length 80 mm
Max Opening +32 mm
Motor 4 KW
Crimping Force 2200 KN
Crimpings Per Hour 1200
Control Digital Control

Voltage 220V 1ph 20 amp
Foot Pedal Included
Die Rack Included
Quick Change Tool Included
Backstop Device Optional
Control By Pressure Optional
Noise Level 65 dBA
Protection Class IP56
L*W*H 680*600*1400 mm
Weight 300 KG

Standard Die Sets Included:

Die No.	6*	8*	10*	12*	14	16	19	22	26	30	34	39	45	51	57	63	69	74*	78*
Length	60	60	60	60	60	60	60	75	75	75	80	80	90	90	100	100	100	110	110

*Optional Die Sets Available.

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