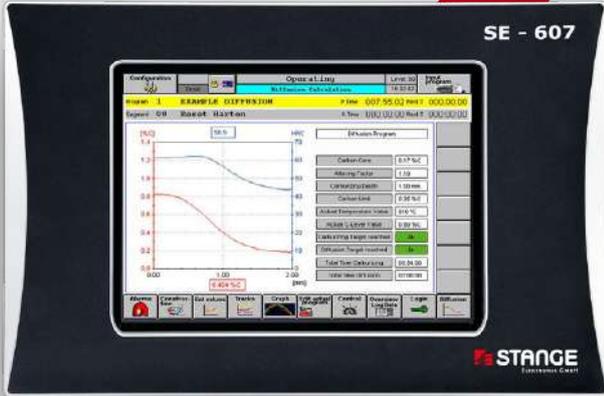




GENERATION SE-60X

robust // efficient // high performance



ONLINE / OFFLINE C-DIFFUSION WITH HARDNESS CURVE

Mathematical module for determining the carburization and hardness curve in the workpiece with knowledge of the material and process-specific properties. Adaptation of the calculation to system-specific conditions.

OFFLINE

Complete simulation of case hardness depth and hardness progression with precalculation and recipe optimization by automatic adaptation of the program sections for reaching the carburizing depth before the program start.

ONLINE

Cyclic monitoring of the case hardness depth and hardness progression by iteration procedure. If required, automatic extension or shortening of the program sections during treatment.

TEST BOLT CORRECTION

A test bolt can be made during the batch. The carburizing depth inside the test bolt determined by the operator can be entered in the diffusion calculation of the SE-60X.

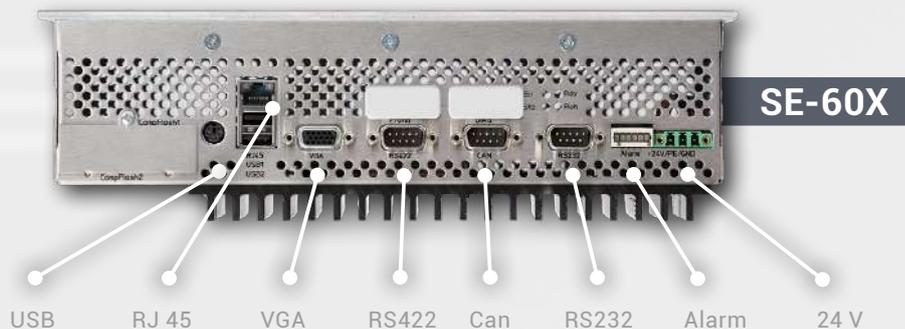
Based on that data an automatic correction of the carburizing speed takes place. Further a jump to the current position in the treatment recipe where the measured case hardness depth is reached will be carried out.



C-LEVEL CORRECTION

New multidimensional, temperature dependent C-level correction.

There are 8 possible correction values at 2 different temperatures.



GENERATION SE-60X



SE-604

SE-607

SE-609

GENERAL

Dimension (WxHxD)	290 x 165 x 90 mm	370 x 260 x 139 mm	462 x 347 x 122 mm
Display	TFT LCD 6,5"	TFT LCD 10,4"	TFT LCD 15"
Operation	foil keyboard	infrared-touch	infrared-touch

PROGRAMMER

Protection class front	IP 65 (NEMA 12), according to EN 60529		
Actual values	1 x Unit: 120 // 2 x Unit: 60 // 10 x Unit: 10		
Grenzwerte / Toleranzen	1 x Unit: 40/40 // 2 x Unit: 35/35 // 10 x Unit: 4/4		
Alarms	1 x Unit: 500 // 2 x Unit: 250 // 10 x Unit: 50		
Digital in- and outputs	1 x Unit: 960 / 960 // 2 x Unit: 480 / 480 // 10 x Unit: 96 / 96		
Analogue outputs	1 x Unit: 32 // 2 x Unit: 16 // 10 x Unit: 4		
Number of control zones	1 x Unit: 50 // 2 x Unit: 25 // 10 x Unit: 4		
Programs	1 x Unit: 250 // 2 x Unit: 99 // 10 x Unit: 99		
Set values	1 x Unit: 50 // 2 x Unit: 30 // 10 x Unit: 4		
Digital tracks	1 x Unit: 64 // 2 x Unit: 32 // 10 x Unit: 5		
Program segments	1 x Unit: 200 + 1 // 2 x Unit: 50 + 1 // 10 x Unit: 50 + 1		
Process steps	1 x Unit: 50 // 2 x Unit: 50 // 10 x Unit: 50		
Number of loops	1 x Unit: 8 // 2 x Unit: 8 // 10 x Unit: 8		

OPTIONS

No. of screen recorders (option)	1 x Unit: 15 // 2 x Unit: 10 // 10 x Unit: 10		
No. of data channels (option)	1 x Unit: 250 // 2 x Unit: 250 // 10 x Unit: 250		
Nitriding potential	1 x Unit: 5-fold // 2 x Unit: 2-fold // 10 x Unit: none		
Further options	nitriding potential calculation C-diffusion Profibus-master/slave Modbus-master/slave		

INTERFACES

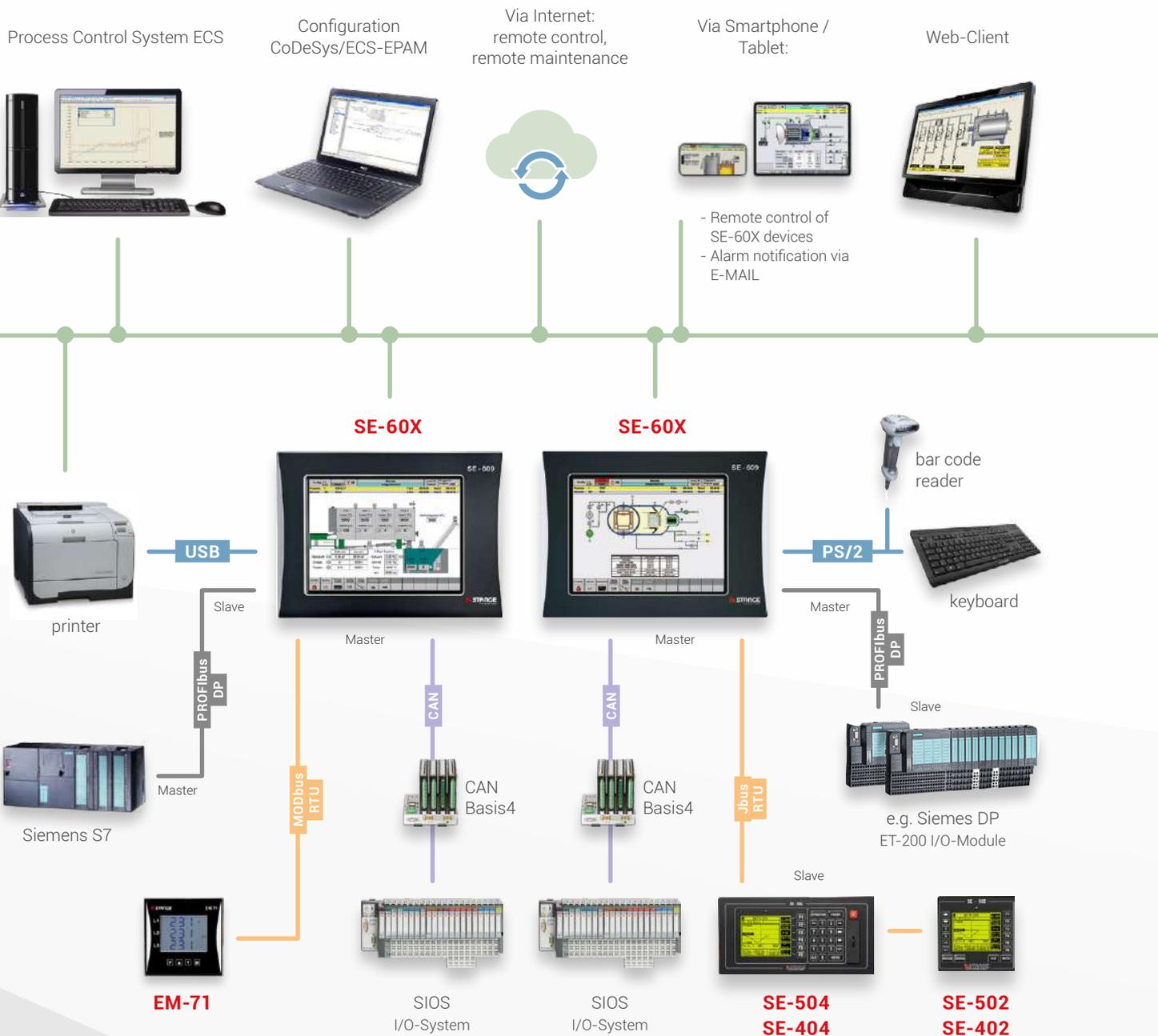
Ethernet 10/100	1x		
PS/2 connection	1x		
USB	2 x 2.0		
RS232 / RS422 / CAN-Master	1x / 1x / 1x		

FURTHER

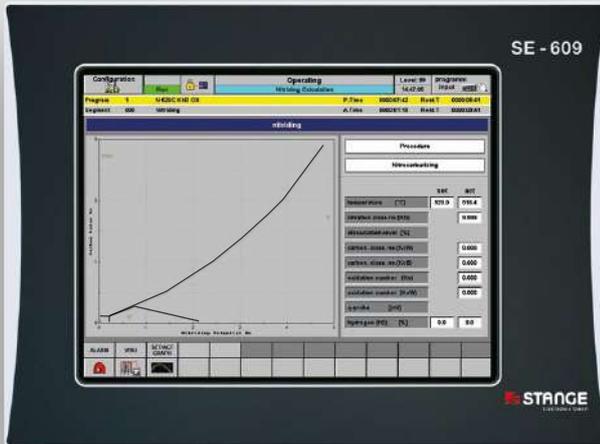
Power supply	24 VDC (18 ... 36V)		
Time levelling	manual or over network time server		
SPS	IEC 61131 SPS CoDeSys, multitasking capable soft PLC		

SE-60X-HARDWARE CONNECTED

COMMUNICATION POSSIBILITIES



OPTIONS & MODULES



NITRIDING POTENTIAL CONTROL

Software module for display and control of nitriding potential (classic nitriding, nitrocarburizing, oxynitriding, X-nitriding, pre-oxidation, post-oxidation, low-temperature oxynitriding).

The expected layer build-up at the specified operating point, as well as the actual condition, is shown graphically in the Lehrer/Kunze diagram.

NITRIDING POTENTIAL AUTOMATIC PROCESS START

The process start automatic causes a bumpless switching of the process gas quantities at beginning of the KN control.

This process can save NH_3 during process start.

AMS2750 ACTUAL VALUE ADJUST TABLE

To meet the requirements of AMS2750, the SE-60X instrument functionality can be supplemented by an extended actual value adjustment table.

In addition to the normal display the ID numbers of the thermocouples in use are shown according AMS2750.

There can be entered up to 12 values for thermocouples, thermocouple compensation wirings and offsets.

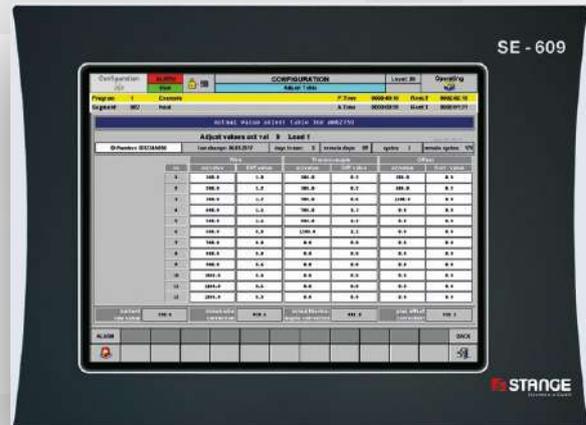


TABLE OF SERVICE LIFE OF THE THERMOCOUPLES

This table gives an overview of how long the AMS2750 thermocouples have been in use. On the one hand this is indicated in days of use and on the other hand in furnace cycles.

The SE-60X remembers in which temperature range a thermocouple has been used and shows this in the table under the indication of the remaining cycles.

If the number of remaining cycles of the system drops to '0', the system can be blocked for starting.

MONITORING OF CYCLIC MAINTENANCE

Cyclic maintenance, but also TUS and SAT measurements can be monitored in the SE60X.

Shortly before the end of the interval, a message with the remaining time is displayed when the program is started. If the cycle time is exceeded a start of the system is blocked.

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