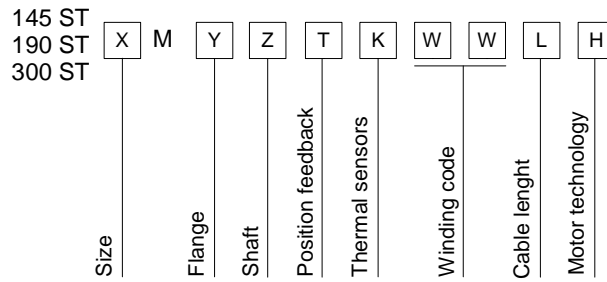


# CODIFICATION FOR ST MOTORS



## POSITION FEEDBACK DESCRIPTION

Position feedback :

- 1 - ALXION Resolver 12 poles  $\pm 1'$  (See resolvers table)
- 2 - HEIDENHAIN® ERN180 incremental encoder 2048 sine waves 1v peak to peak  $A, \bar{A}, B, \bar{B}, C, \bar{C}$
- 3 - SICK STEGMANN® SCK KIT 101 HIPERFACE encoder
- 4 - HEIDENHAIN® ERN1387 incremental encoder 2048 sine waves 1v peak to peak  $A, \bar{A}, B, \bar{B}, C, \bar{C}$  + 2 sin waves phased of  $90^\circ$  per revolution
- 5 - HEIDENHAIN® ERN1381 incremental encoder 2048 sine waves 1v peak to peak  $A, \bar{A}, B, \bar{B}, C, \bar{C}$
- 6 - Standard resolver 2 poles  $\pm 10'$  (See resolvers table)
- 7 - HEIDENHAIN® ECN113 absolute encoder on 1 revolution, 8192 positions (13 bits), 2048 sine waves 1v peak to peak ENDAT 2.2 / 01
- 8 - HEIDENHAIN® ECN1313 absolute encoder on 1 revolution, 8192 positions (13 bits), 2048 sine waves 1v peak to peak ENDAT 2.2 / 01
- 9 - HEIDENHAIN® EQN1325 absolute encoder on 4096 revolutions (12 bits), 8192 positions per revolution (13 bits), 2048 sine waves 1v peak to peak ENDAT 2.2 / 01
- A - HEIDENHAIN® ERN180 HP incremental encoder 5000 sine waves 1v peak to peak encoder  $A, \bar{A}, B, \bar{B}, C, \bar{C}$
- B - HEIDENHAIN® ECN125 absolute encoder on 1 revolution, 33554432 positions (25 bits), ENDAT 2.2
- C - HEIDENHAIN® ECN1325 absolute on 1 revolution, 33554432 positions (25 bits), ENDAT 2.2
- D - HEIDENHAIN® EQN1337 absolute encoder on 4096 revolutions (12 bits), 33554432 positions (25 bits), ENDAT 2.2
- E - HEIDENHAIN® ECI 4010 absolute encoder on 1 revolution, 1048576 positions (20 bits), ENDAT 2.2
- F - HEIDENHAIN® EBI 4010 absolute encoder on 65536 revolutions (16 bits), 1048576 positions (20 bits), ENDAT 2.2

More information on different feedback systems on respective websites:

- <http://www.heidenhain.de>
- <http://www.sick.com>

Resolvers table

	Number of poles	Rated supply voltage (V)	Transformation ratio	Input impedance $Z_{ro}$	Output impedance $Z_{ss}$	Mechanical accuracy (arc min)	Phase shift ( $^\circ$ )
Resolver #1	12	7	0.23	$77 + j177$	$118 + j258$	$\pm 1$	7
Resolver #6	2	7	0.5	$105 + j215$	$155 + j200$	$\pm 10$	4

## THERMAL SENSORS

Our motors are equipped with two kinds of thermal sensors for winding temperature survey :

- Linear winding temperature by means of linear resistor KTY 84 : 575 Ohm at  $20^\circ\text{C}$  ; 1000 Ohm at  $100^\circ\text{C}$ .
- Winding thermal security by means of PTC resistor : ohmic value lower than 100 Ohm for acceptable temperature ; ohmic value higher than 1300 Ohm from  $160^\circ\text{C}$  threshold (maximum acceptable winding temperature)

The thermal sensors are connected to the feedback position cable for motors 145 & 190ST and to signal connector for motors 300ST.

## MOTOR TECHNOLOGY

- H : High precision technology for motor 145 & 190 ST, cogging  $< 1\%$
- S : Standard precision technology for motor 145 & 190 ST, cogging  $\leq 2\%$
- X : High precision technology for motor 300 ST, cogging  $< 2\%$