

# **SERVO-TOP**

**QE5542**

**CE**

## **Type**

# **Q30SE**

## **Instruction Manual**

### **Part 3**

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## Contents

## Page

### Part 3

11.	Survey and List of Parameters	11.1 - 11.6
11.1	Explanation of Parameter Survey	
11.2	Explanation of Parameter List	
11.3	Parameter Survey	
11.4	List of Parameters	
12.	Electrical Connections Diagram	12.1 - 12.4
13.	Maintenance and Repair	13.1

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## 11. Survey and List of Parameters

### 11.1 Explanation of Parameter Survey

The parameter survey is designed as an aid for finding parameters quickly. It is a summary of references for the parameter list. Listed behind each reference are all parameters which exert an influence on the function described by the reference.

The parameter survey is divided into five columns:

Column 1 shows the references (functions) to which parameters are assigned.

Column 2 shows the abbreviations of the respective functions.

Column 3 shows all parameters (setting numbers) belonging to the respective reference.

Column 4 shows, for each function (reference) which controls inputs or outputs, the applicable indications such as Ex or Ax which can also be found on the connections diagram.

Column 5 shows, for each function (control inputs (Ex) or control outputs (Ax)), the respective plugs with the number of contacts (see connections diagram).

Example for searching a parameter:

Keyword (function): inverse rotation

The parameter survey shows in column 3 the parameter numbers 618, 623, 801.

Suppose that the inverse rotation function is to be enabled. The parameter list shows this function under parameter number 618.

### 11.2 Explanation of Parameter List

The parameter list is divided into 5 columns. These comprise, in

column 1: the parameter number,

column 2: is the explanation (meaning) of the parameters and the coding system of row 1 of the keys of the mini operator's panel, used when the parameter concerned can be programmed with the mini operator's panel,

column 3: the programming level (A, B, C) on which the parameter in question can be accessed,

column 4: the range of values within which the parameter in question can be set,

column 5: the value of the parameter in question is set on delivery ex factory.

Parameters having "either/or" validity (software switches) can merely be set to value I or II. In the case of such parameters, column 4 is empty.

### 11.3 Parameter survey Q30SE (2A\_913\_G.ENO)

Function	Abbrev'n	Parameter	Input Output	Connection Socket/Contacts
Accelerate	DRZAN	722		
Affichage	ANZ	605		
Blower	BLA	668		
Brake	DRZAB	723		
Chopper	MESSER	561/714		
Control	REG	884/885/886 887/889/890 891/894		
Decorative backtack	ZRIE	679		
Defect search	HWT	797		
Delay	VERZ	545/623/679 716/717/730 770		
Direction of rotation	DRR	800		
Display	ANZ	605		
End backtack	ER	604		
Feed reverse	TUM	721	A1	X1:11
Hardware test	HWT	797		
Inverse rotation	RDR	618/623/801		
Machine class	MAKL	790/799		
Needle position	NAPO	700/701/702 703/705/706 930		
Needle position change-over	NPW	678/691	E1	X1:3
Number of stitches	STZA	112/541/543 561		
ON period	EINZ	714/715/738 749/889		
Photocell	LS	112/543/561		
Plunger	TAUCH	778		
Presser foot	PF	651/691/692 719/729/730 770	A3	X1:13

Program	PR	543		
Programming level C	EBC	798		
Residual brake	STBR	718		
Seam end	NE	543		
Single stitch	EST	678/691		
Soft start	SANL	116/117		
Speed	DRZ	117/573/605 606/607/608 609/676/850 901		
Speed decrease	DRZAB	723		
Speed increase	DRZAN	722		
Speed limitation	DB	573/676		
Start	START	541		
Start delay	STVERZ	729		
Starting block	ANLSP	665	E2	X1:5
Stitchcounter	STZ	561		
Stop	STOP	561/665		
Stop time	STOPZ	712		
Target stitch	PEIPO	653/789		
Thread tension release	FSL	749		
Thread trimming	SN	601/604/609 692/705/706 714/717/738 901	A2	X1:9
Thread wiper	WI	668/715/716		
Time needed to switch on	EINZ	714/715/738 749/889		
Timing output	TA	705/719/721		
Vacuum	SAUG	541/543/545		

## 11.4 List of Parameters Q30SE (2A\_913\_G.EN)

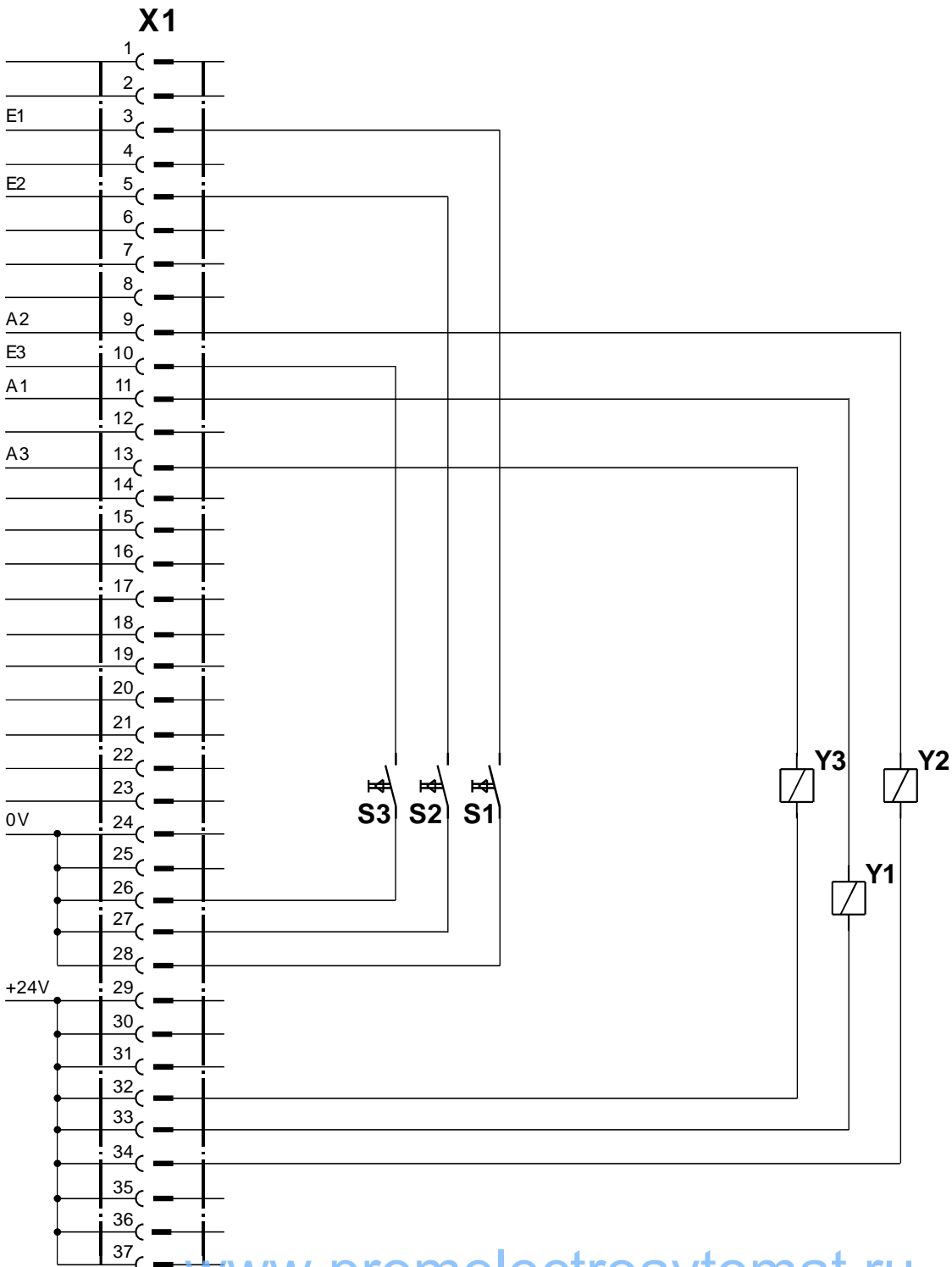
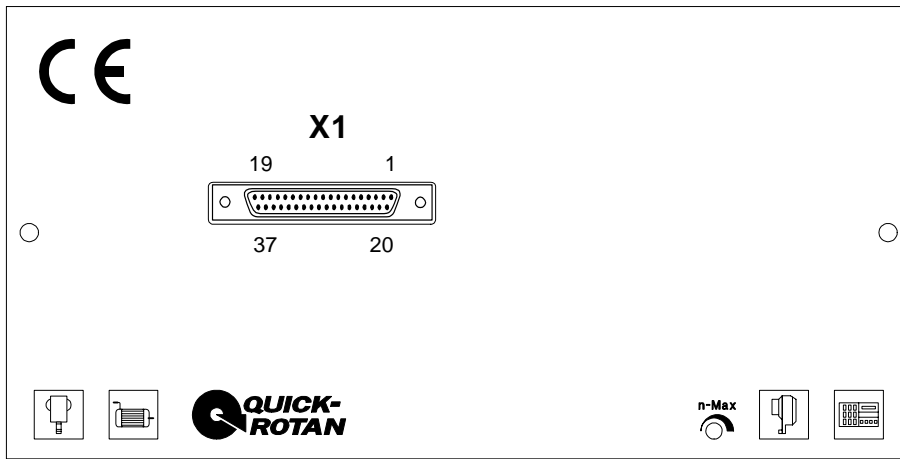
No.	Function (Meaning)	Level	Range Values	of Value	Standard
112	(LS/STZA) Number of stitches for light barrier fade-out on knit fabrics (according to stitch size)	A,B,C	0 - 255	0	Kl. 1, 2, 3, 4, 5
116	(SANL) Soft start stitches	A,B,C	0 - 255	0	Kl. 1, 2, 3
117	(SANL/DRZ) Speed for soft start stitches	B,C	30 - 640	1 400 500	Kl. 4, 5 Kl. 1, 2, 3 Kl. 4, 5
541	(SAUG/START/STZA) Number of stitches from start to vacuum off	A,B,C	0 - 255	10	Kl. 1, 2, 3, 4, 5
543	(LS/NE/SAUG/STZA/PR) Number of stitches from light barrier clear to vacuum on at programmed sewing	A,B,C	0 - 255	10	Kl. 1, 2, 3, 4, 5
545	(SAUG/VERZ) Delay (ms) to vacuum off	A,B,C	0 - 2550	100	Kl. 1, 2, 3, 4, 5
561	(LS/MESSER/STOP/STZ/STZA) Seam end: number of stitches 1 from photocell clear to stop and chopper <533>	A,B,C	0 - 255	50	Kl. 1, 2, 3, 4, 5
573	(DRZ/DB) Speed limitation	B,C	300 - 6400	2000	Kl. 1, 2, 3, 4, 5
601	(SN) Trimming I yes II no	B,C		II	Kl. 1, 3, 4, 5 Kl. 2
604	(SN/ER) Trimming after single end backtack I forward II backward	B,C		II	Kl. 1, 2, 3, 4, 5
605	(DRZ/ANZ) Actual speed in display I yes II no	B,C		I	Kl. 1, 2, 3, 4, 5
606	(DRZ) Speed: level 1 (min.)	B,C	30 - 640	180 300	Kl. 1 Kl. 2, 3, 4, 5
607	(DRZ) Speed: level 12 (max.)	B,C	100 - 10000	1200 1400 3000	Kl. 1 Kl. 2, 4 Kl. 3, 5
608	(DRZ) Speed level curve (treadle characteristic) I linear II not linear	B,C		II	Kl. 1, 2, 3, 4, 5
609	(SN/DRZ) Trimming speed 1	B,C	30 - 300	180 90	Kl. 1, 3, 5 Kl. 2, 4
618	(RDR) Inverse rotation after seam end I yes II no	B,C		I	Kl. 1, 2, 3, 4, 5
623	(RDR/VERZ) Delay in start-up time (ms) for inverse rotation	B,C	0 - 2550	10 100	Kl. 1, 2, 4 Kl. 3, 5
651	(PF) Presser foot with automatic descent on machine stop I yes II no	B,C		II	Kl. 1, 2, 3, 4, 5
653	(PEIPO) Target stitch before sewing I yes II no	B,C		I	Kl. 1, 2, 3, 4, 5
665	(ANLSP/STOP) Run locking/stop I contact closed II contact open	C		II	Kl. 1, 2, 3, 4, 5
668	(BLA/WI) Thread wiper/thread clearer I yes II no	B,C		II	Kl. 1, 2, 3, 4, 5
676	(DRZ/DB) Speed limitation via potentiometer at the SERVO-TOP control or via the keys V+ / V- at the MINI-STOP control I yes II no	B,C		II	Kl. 1, 2, 3, 4, 5

678	(EST/NPW) Function of external key (input) I needle position change-over (NPW) II single stitch (EST)	B,C		I	Kl. 1, 2, 3, 4, 5
679	(ZRIE/VERZ) Fancy tack: time from positioning to switch-on of reverse feed	B,C		I	Kl. 1, 2, 3, 4, 5
691	(PF/NPW/EST) function of external button (input) I lift presser foot II change needle position / single stitch (<678>)	B,C		I	Kl. 1, 2, 3, 4, 5
692	(SN/PF) function of external button (input) when <691>=I I cut II lift presser foot (cutting via ped „-2“)	B,C		I	Kl. 1, 2, 3, 4, 5
700	(NAPO) Needle position 0 (reference position of the needle) (01101000)	B,C	0 - 239	0	Kl. 1, 2, 3, 4, 5 *
701	(NAPO) Angular adjustment I with handwheel (teach-in) II by keys (+/-)	B,C		II	Kl. 1, 2, 3, 4, 5
702	(NAPO) Needle position 1 (needle down)	B,C	0 - 239	75 158 210	Kl. 1 Kl. 2, 4 Kl. 3, 5
703	(NAPO) Needle position 2 (thread take-up lever up)	B,C	0 - 239	213 227 49	Kl. 1 Kl. 2, 4 Kl. 3, 5
705	(NAPO/SN/TA) Needle position 5 (end of trimming signal 1 (magnetic thread trimmer) / clock pulses start of the trimming signal 1)	B,C	0 - 239	125	Kl. 1, 2, 3, 4, 5
706	(NAPO/SN) Needle position 6 (start trimming signal 2 (pneumatic thread trimmer))	B,C	0 - 239	119	Kl. 1, 2, 3, 4, 5
712	(STOPZ) Time for stop in needle position 1	B	0 - 2550	100	Kl. 1, 2, 3, 4, 5
714	(EINZ/SN/MESSER) Duration (ms) for chainstitch trimming or chopper	B,C	0 - 2550	120 100	Kl. 1, 2, 3 Kl. 4, 5
715	(EINZ/WI) Duration (ms) of thread wiper	B,C	0 - 2550	120 2000	Kl. 1, 2, 3 Kl. 4, 5
716	(VERZ/WI) Delay in start-up time (ms) for thread wiper	B,C	0 - 2550	120 1500	Kl. 1, 2, 3 Kl. 4, 5
717	(SN/VERZ) Delay in start-up time (ms) for trimming method when the machine is not activated by the treadle	B,C	0 - 2550	30	Kl. 1, 2, 3, 4, 5
718	(STBR) Timing of residual brake (0 = brake off)	B,C	0 - 100	0 5	Kl. 1, 3, 5 Kl. 2, 4
719	(PF/TA) Timing output A4 (lifting presser foot) (0 = 100% switched on)	B,C	0 - 100	40	Kl. 1, 2, 3, 4, 5
721	(TUM/TA) Timing output A5 (feed reverse) (0 = 100% switched on)	B,C	0 - 100	40	Kl. 1, 2, 3, 4, 5
722	(DRZAN) Acceleration ramp 1 gradual 50 steep	B,C	1 - 50	40	Kl. 1, 2, 3, 4, 5
723	(DRZAB) Brake ramp 1 gradual 50 steep	B,C	1 - 50	30 25	Kl. 1, 3, 5 Kl. 2, 4
729	(STVERZ/PF) Start delay after lowering presser foot	B,C	0 - 2550	120	Kl. 1, 2, 3, 4, 5
730	(PF/VERZ) Lift delay for presser foot after seam end	B,C	0 - 2550	50	Kl. 1, 2, 3, 4, 5
738	(EINZ/SN) Time needed to switch on (ms) for trimming signal 2	B,C	0 - 2550	100	Kl. 1, 2, 3, 4, 5
749	(EINZ/FSL) Duration (ms) of thread tension release	B,C	0 - 2550	0	Kl. 1, 2, 3, 4, 5
770	(PF/VERZ) Lifting delay of presser foot at thread-position „-1“	B,C	0 - 2550	60	Kl. 1, 2, 3, 4, 5
778	(TAUCH) I Only for plunger raising II Trimming / without plunger	B,C		II	Kl. 1, 2, 3, 4, 5
789	(PEIPO) Needle position 10 (target stitch)	B,C	0 - 239	225	Kl. 1, 2, 3, 4, 5

790	(MAKL) Program selection for machine classes by operators box (11111100)	B,C	0 - 18	0	Kl. 1, 2, 3, 4, 5 *
797	(HWT) Hardware test I yes II no	B,C		I	Kl. 1, 2, 3, 4, 5
798	(EBC) Programming level C I yes II no	B,C		I	Kl. 1, 2, 3, 4, 5
799	(MAKL) Machine class which has been selected	B,C	1 - 5	1 2 3 4 5	Kl. 1 Kl. 2 Kl. 3 Kl. 4 Kl. 5
800	(DRR) Direction of motor rotation viewed from belt pulley I left-hand rotation II right-hand rotation (01111000)	B,C		I	Kl. 1, 2, 3, 4, 5 *
801	(RDR) Reverse rotation angle after seam end	B,C	5 - 200	30	Kl. 1, 2, 3, 4, 5
850	(DRZ) Maximum motor speed	C		4500 6000	Kl. 1, 2, 4 Kl. 3, 5
884	(REG) Proportional amplification of the speed control (in general)	B,C	4 - 70	12 50	Kl. 1 Kl. 2, 3, 4, 5
885	(REG) Integral amplification of the speed control	C	0 - 255	30 50	Kl. 1 Kl. 2, 3, 4, 5
886	(REG) Proportional amplification of the order controllers	C	1 - 255	20	Kl. 1, 2, 3, 4, 5
887	(REG) Differential amplification of the order controllers	C	1 - 255	30	Kl. 1, 2, 3, 4, 5
889	(EINZ/REG) Time required for order controlling (0 = always)	C	0 - 2550	400	Kl. 1, 2, 3, 4, 5
890	(REG) Proportional amplification of the superior order controllers for the residual brake	C	1 - 255	25	Kl. 1, 2, 3, 4, 5
891	(REG) Proportional amplification of the lower speed controllers for the residual brake	C	1 - 255	20	Kl. 1, 2, 3, 4, 5
894	(REG) Rotational direction of motor and synchronizer I different II same	C		II	Kl. 1, 2, 3, 4, 5
901	(DRZ/SN) Trimming release speed	C	30 - 500	300	Kl. 1, 2, 3, 4, 5
930	(NAPO) increments for shifting needle position NP2	B,C	0 - 239	15	Kl. 1, 2, 3, 4, 5

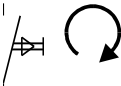
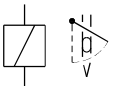


## 12. Electrical Connections Diagram X1 Q30XL


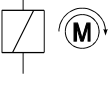
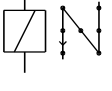
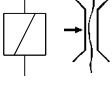




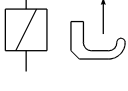
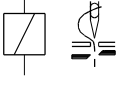
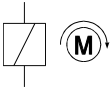


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Bedeutung der Magnete bzw. Magnetventile, Taster / Meaning of magnets and/or solenoids and keys  
 Signification des aimants resp. solenoides et touches / Significação dos imãs e/ou as solenoidas e teclas  
 Significato dei magneti, delle valvole magnetiche e dei tasti / Significación de los imanes y/o los solenoides  
 y pulsadores / Betekenis van de magneten resp. magneetkleppen, toetsen

<p><b>S1</b> </p> <p>&lt;678&gt; = I, &lt;691&gt; = II</p>	<p>Nadelpositionswechsel / needle position change-over /                  changement de position d'aiguille / troça de posição da agulha /                  cambio di posizione dell'ago / cambio de posición de aguja /                  naaldpositie-verwisseling</p>
<p><b>S1</b> </p> <p>&lt;678&gt; = II, &lt;691&gt; = II</p>	<p>Einzelstich / single stitch /                  point unique / ponto individual /                  punto singolo / puntada individual /                  enkele steek</p>
<p><b>S1</b> </p> <p>&lt;691&gt; = I, &lt;692&gt; = II</p>	<p>Presserfuß heben / lifting presser foot / relevage du pied presseur /                  levantar do calcador / sollevamento del alzapiedino /                  elevación de prensatelas / drukvoet optillen</p>
<p><b>S1</b> </p> <p>&lt;691&gt; = I, &lt;692&gt; = I</p>	<p>Fadenschneiden / thread trimmer / coupe-fil /                  corte de linhas / rasafilo / cortahilos /                  draadsnijder</p>
<p><b>S2</b> </p>	<p>Laufsperrung - Stopp / run locking - stop / blocage de marche - stop /                  bloqueio de marcha - paragem / partenza bloccata - stop /                  bloqueo de marcha - parada / loopblokkering - stop</p>
<p><b>S3</b> </p> <p>&lt;790&gt; = 0,1,2</p>	<p>Entketteln / chain close-off / fixation des mailles / travar a linha /                  disirimettaggio / desencadenado / uithalen</p>
<p><b>S3</b> </p> <p>&lt;790&gt; = 3,4,5,6</p>	<p>Presserfuß heben / lifting presser foot / relevage du pied presseur /                  levantar do calcador / sollevamento del alzapiedino /                  elevación de prensatelas / drukvoet optillen</p>
<p><b>S3</b> </p> <p>&lt;790&gt; = 10,11,12</p>	<p>Drehzahlbegrenzung / speed limitation / limitation de vitesse /                  limitação das rotações / limitazione velocità / limitación de velocidad /                  beperking van het toerental</p>
<p><b>S3</b> </p> <p>&lt;790&gt; = 7,8,9</p>	<p>Transportumstellung (Zwischenriegel) / feed reverse / renversement de marche /                  mudança do transporte / commutazione trasporto / inversión de transporte /                  transportomschakeling</p>
<p><b>S3</b> </p> <p>&lt;790&gt; = 13</p>	<p>Drehzahl konstant (automatisch) / constant speed (automatic) /                  vitesse constante (automatique) / rotação constante (automático) /                  velocità costante (automatico) / velocidad constante (automático) /                  toerental constant (automatisch)</p>
<p><b>Y1</b> </p> <p>I max 8 A*</p> <p>&lt;790&gt; = 0,1,4,5,6,10 &lt;715&gt;, &lt;716&gt;</p>	<p>Fadenwischer / thread wiper /                  écarteur de fil / retina-linhas /                  scartafilo / retirahilos /                  draadwisser</p>

Bedeutung der Magnete bzw. Magnetventile, Taster / Meaning of magnets and/or solenoids and keys  
 Signification des aimants resp. solenoides et touches / Significação dos imãs e/ou as solenoidas e teclas  
 Significato dei magneti, delle valvole magnetiche e dei tasti / Significación de los imanes y/o los solenoides  
 y pulsadores / Betekenis van de magneten resp. magneetkleppen, toetsen

<p><b>Y1</b>                    I max                  8 A *                  &lt;790&gt; = 0                  &lt;799&gt; = 4,5                  &lt;715&gt;, &lt;716&gt;</p>	<p>Heißschneider / hot chain cutter / un coupe chainette à chaud /                  taglio a caldo / con cortador de cadeneta en caliente / faca quente                  warnte snijder</p>
<p><b>Y1</b>                    I max                  8 A *                  &lt;790&gt; = 2,3</p>	<p>Motorlauf / motor runs / moteur en marche /                  motor em movimento / motore in moto / motor en marcha /                  loop van de machine</p>
<p><b>Y1</b>                    I max                  8 A *                  &lt;790&gt; = 7,8,9</p>	<p>Transportumsteller / feed reverse / renversement de marche /                  mudança do transporte / commutazione trasporto / inversión de transporte /                  transportomschakeling</p>
<p><b>Y1</b>                    I max                  8 A *                  &lt;790&gt; = 11,12                  &lt;749&gt;</p>	<p>Fadenspannungslösen / thread tension release /                  détenteur de fil / soltar tensão da linha /                  sbloccaggio tendifilo / detensión del hilo /                  verbreken van de draadspanning</p>
<p><b>Y1</b>                    I max                  8 A *                  &lt;790&gt; = 13</p>	<p>Pedal rückwärts / treadle backward /                  pédale en arrière / pedal para atrás /                  pedale indietro / pedal atrás /                  pedaal achteruit</p>
<p><b>Y2</b>                    I max                  8 A *                  &lt;790&gt; = 11,13</p>	<p>Fadenschneiden / thread trimmer / coupe-fil /                  corte de linhas / rasafilo / cortahilos /                  draadsnijder</p>
<p><b>Y2</b>                    I max                  8 A *                  &lt;790&gt; = 11</p>	<p>Fadenfänger / thread catcher / rattrapeur de fil /                  captador de linhas / prenditore de filo / captador de hilos /                  draadvanger</p>
<p><b>Y2</b>                    I max                  8 A *                  &lt;790&gt; = 13</p>	<p>Pedal vorwärts / treadle forward /                  pédale en avant / pedal para a frente /                  pedale avanti / pedal adelante /                  pedaal vooruit</p>
<p><b>Y3</b>                    I max                  8 A *                  &lt;790&gt; = 11,13                  &lt;730&gt;</p>	<p>Presserfuß heben / lifting presser foot / relevage du pied presseur /                  levantar do calcador / sollevamento del alzapiedino /                  elevación de prensatelas / drukvoet optillen</p>
<p><b>Y3</b>                    I max                  8 A *                  &lt;790&gt; = 11</p>	<p>Fadenschneiden / thread trimmer / coupe-fil /                  corte de linhas / rasafilo / cortahilos /                  draadsnijder</p>
<p><b>Y3</b>                    I max                  8 A *                  &lt;790&gt; = 13</p>	<p>Motorlauf / motor runs / moteur en marche /                  motor em movimento / motore in moto / motor en marcha /                  loop van de machine</p>

- \* Die Summe der Lastströme aller gleichzeitig eingeschalteten Stellglieder (Magnete, Magnetventile) darf den Wert von 4A nicht überschreiten (siehe hierzu Kapitel 2. Technische Daten).
- \* The total of load currents of all servos activated simultaneously (solenoids, solenoid valves) is not allowed to exceed 4 amps (see also section 2. Technical Specifications).
- \* Le total des courants de charge de tous les vérins (aimants, électro-vannes) activés simultanément ne doit pas dépasser 4 A (voir aussi le chapitre 2. "caractéristiques techniques").
- \* A soma das correntes sob carga de todos os actuadores ligados ao mesmo tempo (ímans, solenóides) não pode ultrapassar o valor de 4A (ver também capítulo 2. Dados Técnicos).
- \* La somma delle correnti di carico di tutti gli attuatori inseriti contemporaneamente (magneti, elettrovalvole) non deve essere superiore a 4 A (vedere il capitolo 2. Dati Tecnici).
- \* La suma de las corrientes bajo carga de todos los elementos de todos los componentes de regulación conectados simultáneamente (imanes, válvula magnética) no podrá sobrepasar el valor de 4A (véase también el capítulo 2. de datos técnicos).
- \* De belastingsstroom van alle tegelijkertijd ingeschakelde bedieningsschakels (magneten, magneetventielen) mag in totaal niet meer dan 4 A bedragen (zie hiervoor hoofdstuk 2. Technische gegevens).

## 13. Maintenance and Repair



!! Before starting maintenance or repair work, switch off the SERVO-TOP, separate the drive system from mains power (for instance by pulling out the mains plug) and wait for the motor to come to a complete stop.

General maintenance work must only be done by specially trained personnel paying close attention to the operating instructions.

The SERVO-TOP is largely maintenance-free.

However, make sure to perform the following maintenance work:

Depending on the operating conditions, clean the drive system regularly, at least once a week, from any dust or lint. Make sure in particular that the ventilation louvres and cooling fins of the motor, especially the cooling fins between the motor and the control box, are perfectly clean (Fig. 13).

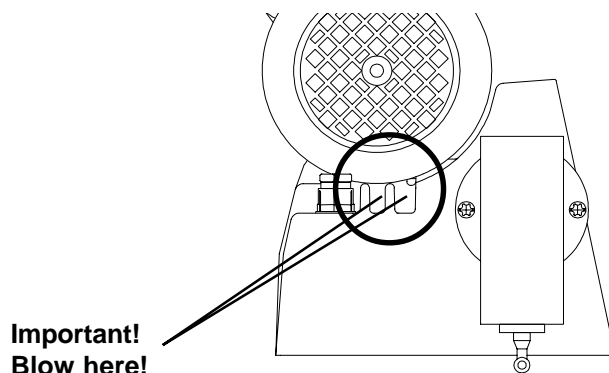


Fig. 13

Remove any threads caught on the synchronizer shaft or on the belt pulley and/or motor shaft.

Check if the drive system is perfectly secured to the stand and that the accessories (synchronizer on machine shaft, speed control unit on control box) are safely mounted in their respective positions.

Check the drive belt for any wear and for correct tension. Incorrect belt tension can increase noise and vibrations.



When opening covers or removing parts, apart from those removable by hand, live elements can be exposed. Connections can also be electrically live.

If you require to open the drive system before starting maintenance or repair work or before replacing any parts, disconnect the drive system from any and all power sources.

If maintenance or repair work on the open unit is unavoidable, this may only be done by qualified personnel familiar with the risks involved. Observe all regulations as per EN 50110.

There can still be capacitors carrying a charge in the power electronics system, even when the drive system has been disconnected from all power sources. To avoid injury by electrical shock, it is therefore essential to wait at least 10 minutes between mains power shutoff and opening the control box.

In order to protect semi-conductor components from overvoltage, use only high-resistivity measuring equipment when making checks on the control system.

Any repair or servicing work requiring skilled knowhow may only be done by qualified personnel authorized by Quick-Rotan.

We emphasize that in accordance with the product liability law we are under no responsibility for damages caused by our products if these are due to

- unqualified repair
- the use of components not authorized by us
- actions made by any persons not authorized by us.

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