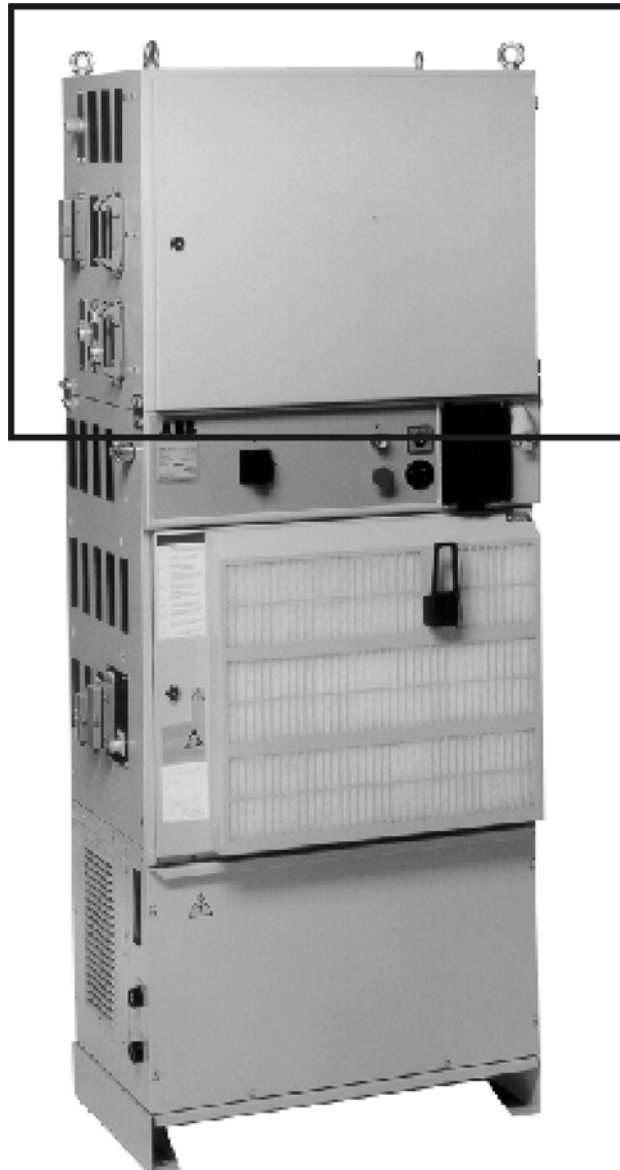


# Control Cabinet

503 623-102  
2001-05-18

S4Cplus



**ABB Flexible Automation AB  
Welding Systems**

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# 1 General

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## 1.1 Types of robot

The top cabinet for equipment from the standard product range is adapted for connection to the control system S4Cplus. Please refer to the Product and User Guide for a description of the control system.

The product range has been designed for the robot models IRB 140/1400/2400 in the AW-design. However, some products can be fitted without modification to other robot models.

Information regarding the combination options for respective products can be found on product specifications.



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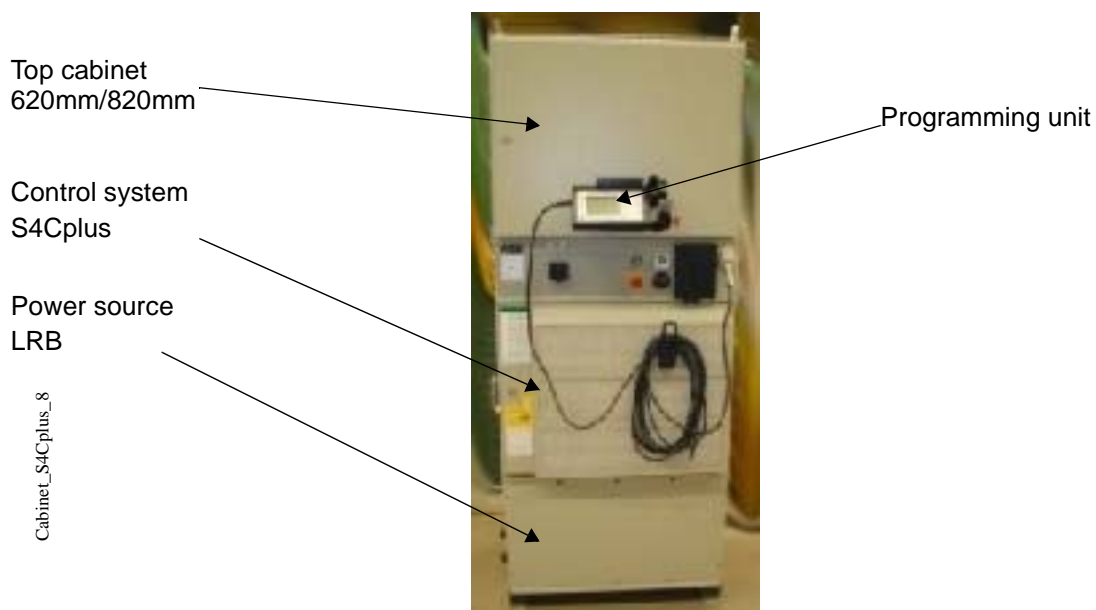
## 2 Description top cabinet 620/820

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### 2.1 Structure

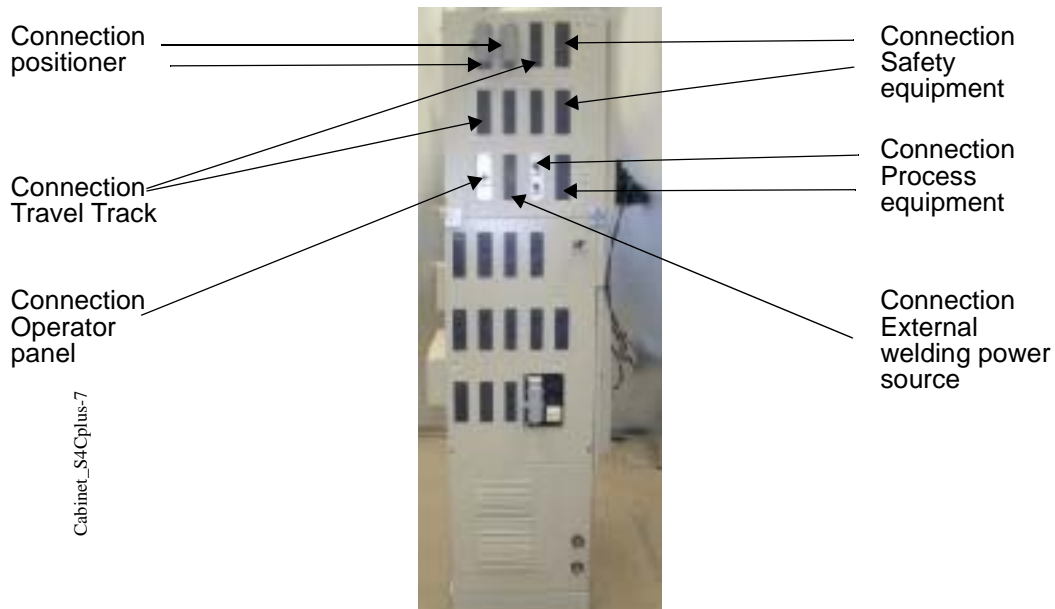
The Control Cabinet consists of the following units:

- Control system S4Cplus
- Top cabinet with interfaces for:
  - positioner
  - process equipment
  - personal safety equipment
- Power source ARCITEC LRB (if applicable)



**Description top cabinet 620/820**

**2.1.1 Connections**



The interface modules in the top cabinet are connected to the control system via a signal interface that distributes the requisite system signals and feeds. Connections to the different units are made using jackable terminals to facilitate service and repair work.

**Inside the top cabinet with component interface modules.**



Figure 1 Cabinet\_S4Cplus\_5



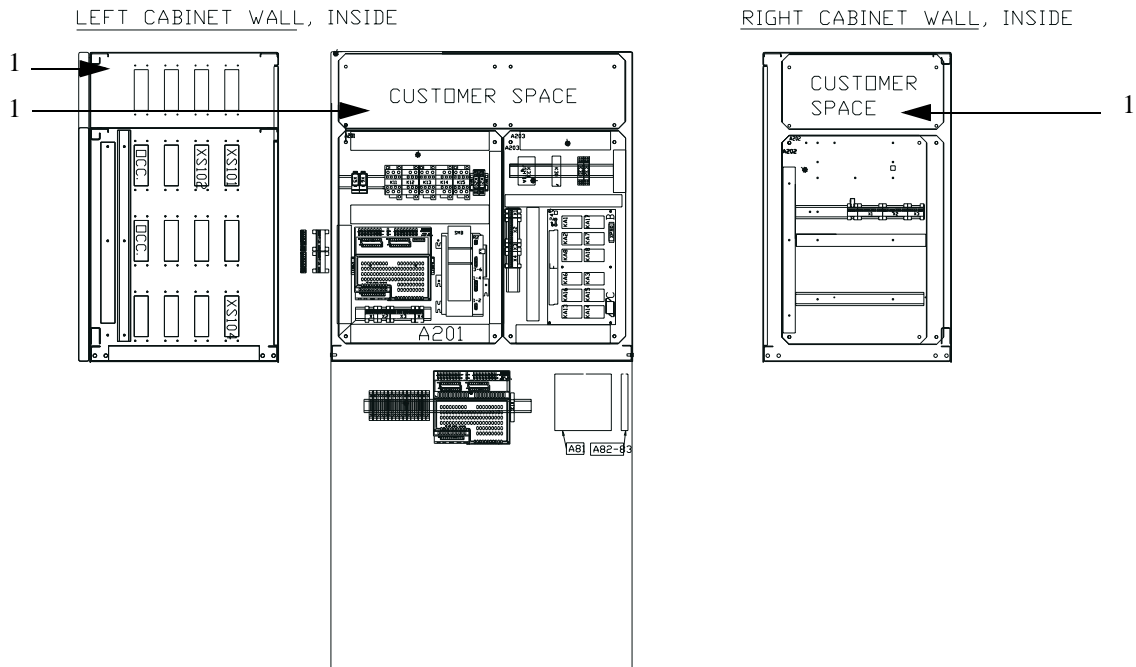


Figure 2 1 Extra customer space in top cabinet 820mm

### 2.1.2 Option Extended emergency stop function

Some installations require more emergency stop signals from the control system than are available in the standard design. This applies, for example, when emergency stop functions are required to be integrated in fixture control or distributed to external equipment. This option offers a possibility of connecting an optional number of redundant relays as required. See Figure 1

### 2.1.3 Customer connections

As standard the following signals and feeds are available on jackable terminals to allow the addition of customer specific equipment :

Terminal A204-X1	24V I/O (DC) max 2A
Terminal A204-X2	Contactor/relay control via "MOTORS ON" Two channel function control
Terminal A204-X3	Two channel connection for emergency stop device
Terminal A204-X4	CAN-bus connection

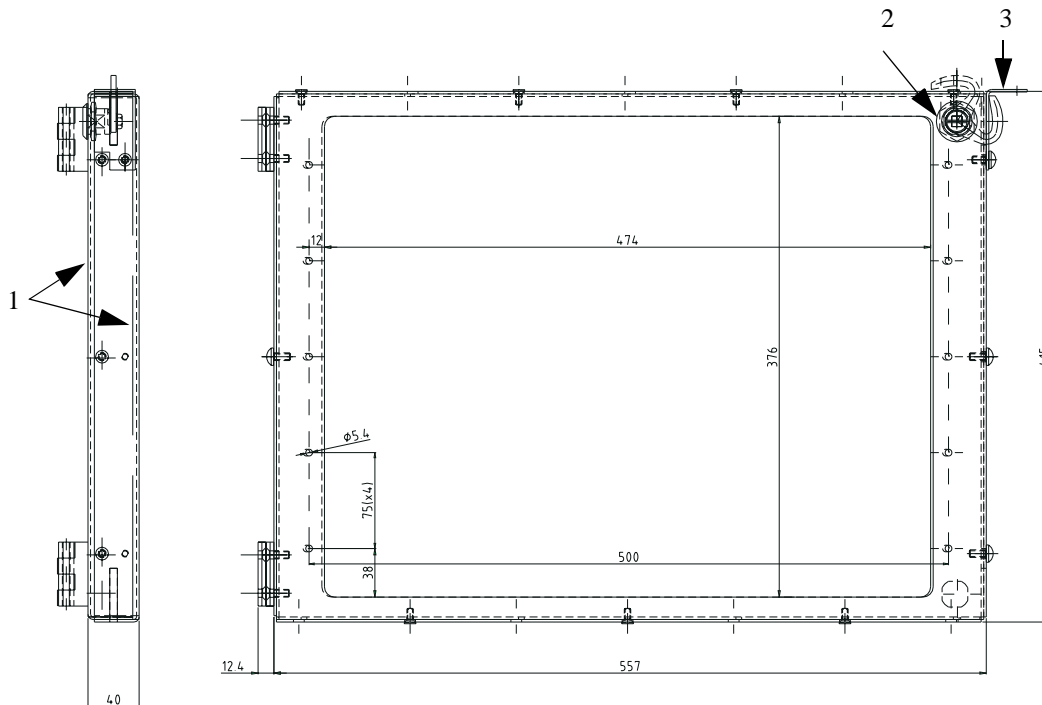
If the "Extended emergency stop" option is included the following signals are also available:

Terminal A204-X5	Two channel contactor/relay control via "EMSTOP" Two channel function control of contactor/relay control as above
------------------	---

See Figure 1 for customer connections.

**Description top cabinet 620/820****2.1.4 Option swing frame**

A swing frame is available as an accessory to top cabinet 620/820. The swing frame is fitted to the left-hand end of the top cabinet door opening. On the inside of the swing frame space is provided for the installation of further equipment and components.



1 Frame section

2 Lock

3 Transport lock

**2.1.5 Safety/Directives and Standards**

Electrical equipment is designed to comply with the demands set out in:

- EU's low voltage directive 72/23/EEC
- EU's EMC directive 89/336/EEC

And applicable parts of occupational health and safety related parts of EU's Machinery directive 89/392/EEC.

The following standards:

- EN292-1 Safety of machinery. Basic concepts, general principles for design. Part 1: Basic terminology, methodology
- EN292-2 Safety of machinery. Basic concepts, general principles for design. Part 2: Technical principles and specifications
- EN418 Safety of machinery. Emergency stop equipment, functional aspects. Principles for design.

- EN954-1 Safety of machinery. Safety related parts of control systems. General principles for design.
- EN50199 Electromagnetic compability (EMC):Product standard for arc welding equipment.

### **2.1.6 Safety categories**

Equipment for personal safety has been designed so that safety functions are maintained in the event of individual faults, such as a sticking relay, in the supervision system. Faults are detected at the latest with the next call to the safety function. This corresponds with category 4 in accordance with EN 954-1, Safety of machinery. Safety related parts of control systems. Part 1: General principles for design.

For other parts of the control system please refer to IRB 140/1400/2400.

503 623-102

***Description top cabinet 620/820***

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### 3 Technical Data

Also refer to the Product Manual for the robot

<b>Weight</b>	280kg (without power source) 380kg (with power source) Additional (20)kg top cabinet 820mm Additional 20kg swing frame Additional 30kg power source with transformer
<b>Dimensions (WxHxD), top cabinet 820mm in brackets</b>	800x1570(1770)x623mm (without power source) 800x2010(2210)x623mm (with power source)
<b>Environmental demands</b>	
<b>Transport temperature</b>	Min -25°C Max +42°C Max +70°C
<b>Operating temperature (ambient)</b>	Min +5°C Max +45°C
<b>Relative humidity</b>	Max 95% at constant temperature
<b>Electrical data (incl. control cabinet):</b>	
<b>Mains voltage</b>	3x200 – 600V AC, +10%, -15%
<b>Frequency</b>	48.5 – 61.Hz
<b>Fuse protection</b>	16A slow burn (400V)

**Technical Data**

**The following applies for the control cabinet with power source LRB400:**

Nätspänning/ Mains voltage ( V )	Säkring (Trög) / Fuse (Slow-blow) <sup>2)</sup> ( A )
200	80
220	80
<sup>1)</sup> 400	32 ( 35 )
440	40 ( 50 )
475	40 ( 35 )
500	32 ( 35 )
525	32 ( 35 )
600	32 ( 35 )

<sup>1)</sup> 400V without power source transformer.

<sup>2)</sup> Fuse in brackets can be used if recommended fuse is unavailable.

**Rated power (without/with ext. axes)** 4.5/7.8kVA without power source

17.5/20.8kVA with power source

**Protection class**

IP54

IP21 power source LRB400

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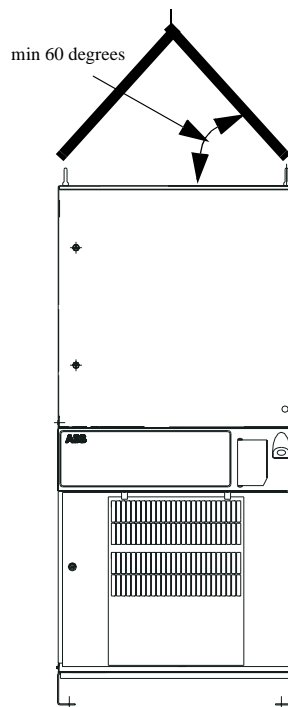
## 4 Installation and set-up

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### 4.1 Lifting instructions

The control cabinet is fitted with lifting eyes to allow easy lifting.

Qualified personnel may only lift the control cabinet using equipment that corresponds with applicable lifting standards.



lifting instructions

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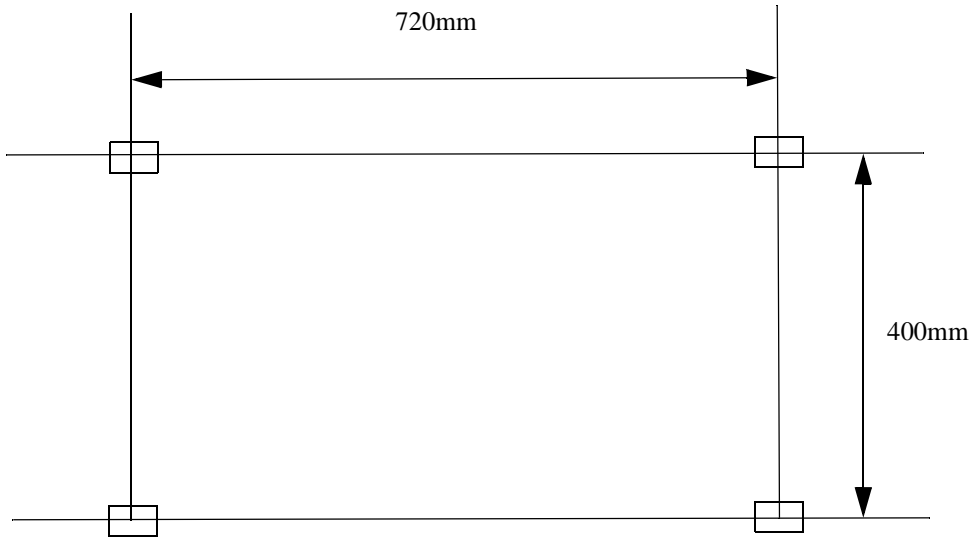
### 4.2 Mechanical installation

The base of the control cabinet has fastening holes for secure mounting to the floor.

The surface should be flat and solid corresponding to a concrete, workshop floor.

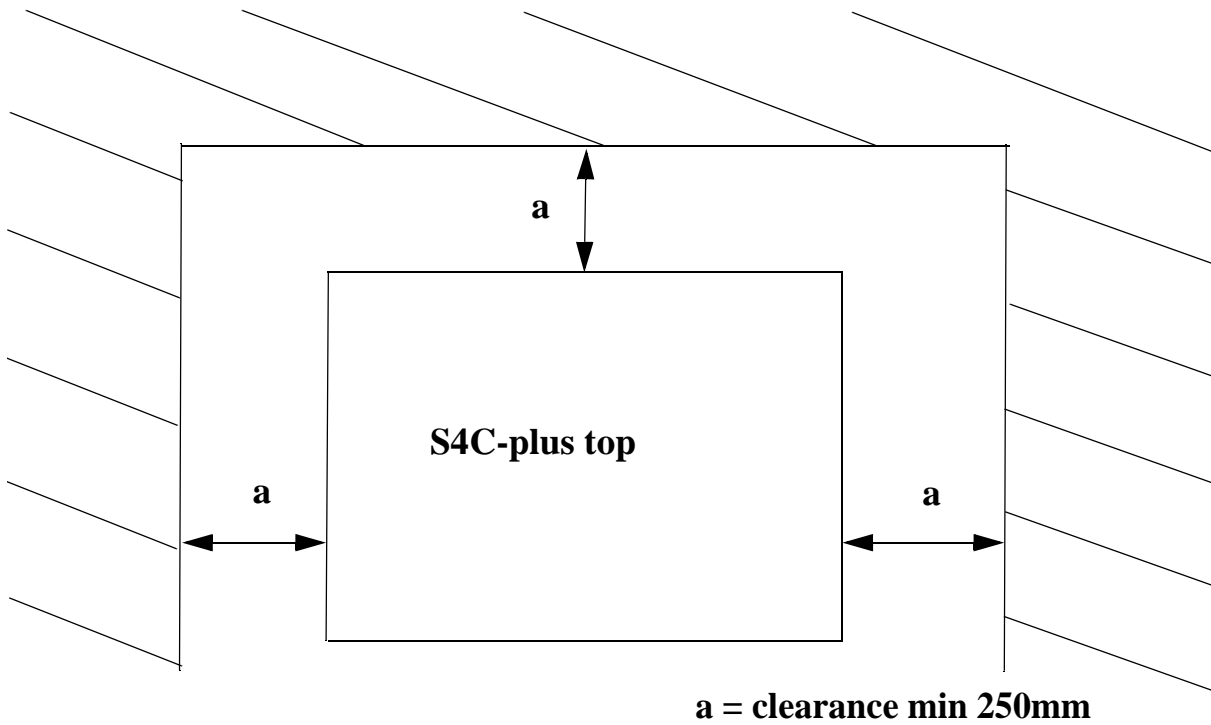
Holes for expansion bolts or the like should correspond with the hole pattern illustrated below.

**Installation and set-up**



Also refer to the Product Manual for the robot.

The control cabinet is supplied mounted on a stand in welding cells type FlexArc Compact. In this design the bottom section of the control cabinet is bolted directly to the stand.





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## 4.3 Connections

### Mains connection

Control cabinet\_S4Cplus-7



The control cabinet is supplied as standard with cable glands for the entry of incoming supply cables. The mains voltage is connected to the control cabinet's main power switch as set out in the wiring diagram.

The main connection must be carried out by qualified personnel.

Also refer to the Product Manual for the robot.

In welding cells type FlexArc and FlexArc Compact the mains cable is routed to a 63A IEC-socket, located on the wall of the cell, for easy mains connection.

Information on the mains voltage, fuse protection, etc can be found in section 3 "Technical data".

---

## 4.4 Start up

Check that all component equipment is connected correctly.

Switch on the main power switch on the control cabinet and the main power switch on the welding power source if fitted. The main power switch on the control cabinet normally controls the power supply to all component modules in the cabinet.

**Note! Some welding power sources provide the process control card with external reference voltage, which is why parts of the control cabinet can be energised even when the main power switch is in the "OFF" position.**

All requisite system software is installed on delivery.

Wait until the message "Welcome to..." is shown on the programming unit's display.

***Installation and set-up***

The system is now ready for use.

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## **5 Maintenance**

Clean any filters according to the instructions in the robot's Product Manual and in the product Manual for the power source.

Check that the cables/connectors are not damaged. Damaged components must be replaced immediately.

If personnel safety equipment has been included this should be tested preferably in connection with each new shift.



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## **6 Reservdelsförteckning/Spare Parts List**

Reservdelar beställs genom ABB Flexible Automation AB. Vid beställning var vänlig uppge typ och tillverkningsnummer samt benämningar och beställningsnummer enligt reservdelsförteckningen.

Rätt till ändring av specifikationer utan avisering förbehålles.

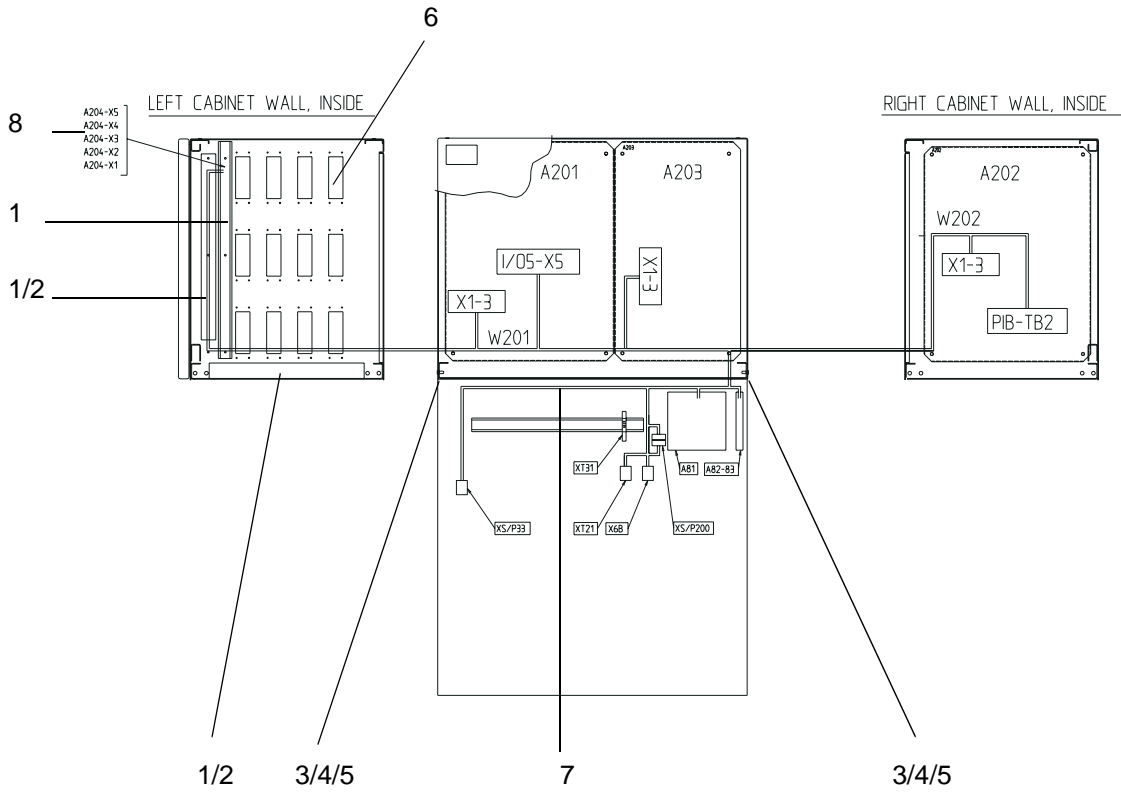
*Spare parts are to be ordered from ABB Flexible Automation AB. Kindly indicate type of unit, serial number, denominations and ordering number according to the spare parts list.*

*Rights to reserved to alter specifications without notice.*

**Reservdelsförteckning/Spare Parts List**

<b>Positions- nummer Position number</b>	<b>Antal Quantity</b>	<b>Beställningsnummer Ordering number</b>	<b>Benämning</b>	<b>Denomination</b>	<b>Anmärkingar Remarks</b>
		502 273-880	<b>ÖVERSKÅP 620mm</b>	<b>Cabinet extension 620mm</b>	
1	10	489 327-025	Skruv MRT-TT M5X8	Screw MRT-TT M5X8	
2	0.9m	418 883-003	Kabelkanal H50xB37.5	Cable trunking H50xB37.5	
3	4	502 561-001	Förband	Joint	
4	16	190 437-451	Skruv M6S M8X20	Screw M6S M8X20	
5	16	215 100-018	Bricka BRB ST.16/ 8,4X1,5	Washer BRB ST.16/ 8.4X1,5	
6	6	193 715-920	Täcklock för flänsöppn.	Cover plate	
7	1	502 288-880	Huvudkabelstam 620/ 820mm	Main cable harness 620/ 820mm	
8	1	502 796-880	CANBUS-terminering hyls	CAN-bus termination socket	

**Reservdelsförteckning/Spare Parts List**



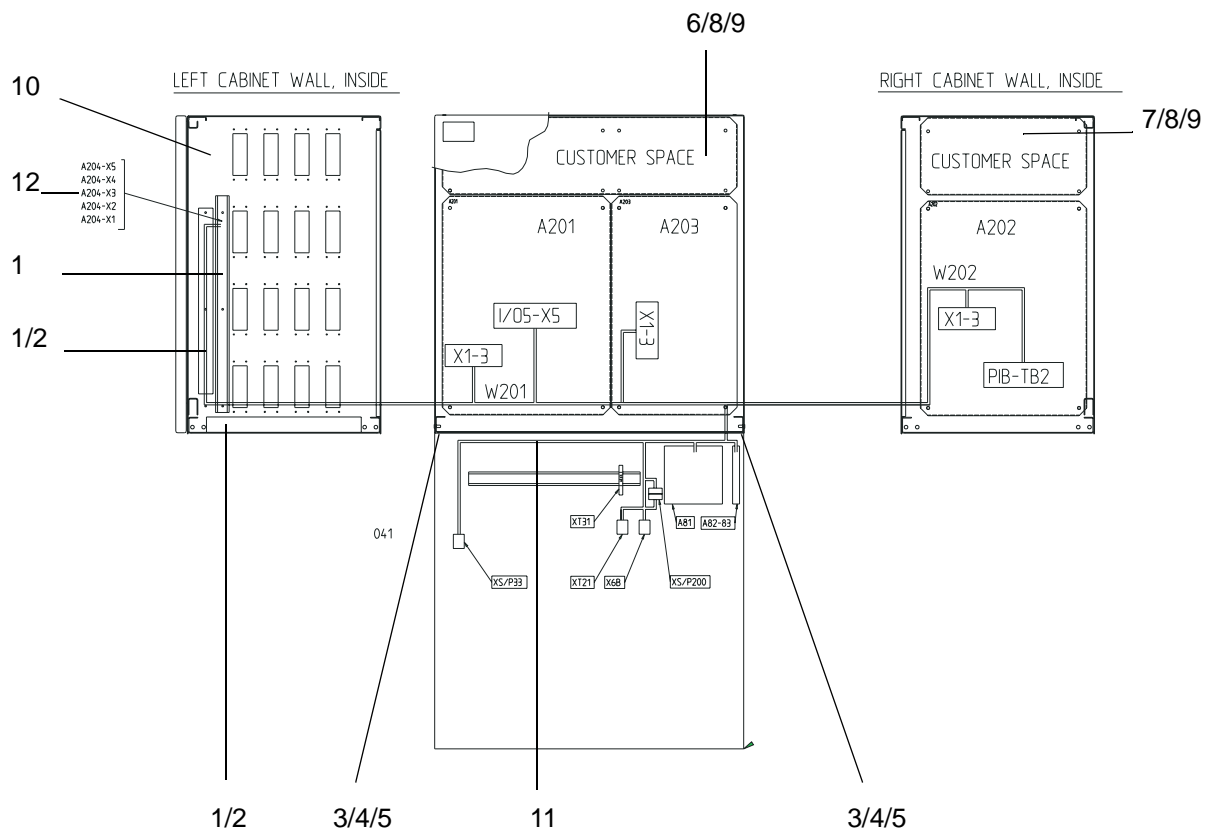
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**Reservdelsförteckning/Spare Parts List**

<b>Positions- nummer Position number</b>	<b>Antal Quantity</b>	<b>Beställningsnummer Ordering number</b>	<b>Benämning</b>	<b>Denomination</b>	<b>Anmärkingar Remarks</b>
		502 272-880	<b>ÖVERSKÅP 820mm</b>	<b>Cabinett extension 820mm</b>	
1	10	489 327-025	Skruv MRT-TT M5X8	Screw MRT-TT M5X8	
2	0.9m	418 883-003	Kabelkanal H50xB37.5	Cable trunking H50xB37.5	
3	4	502 561-001	Förband	Joint	
4	16	190 437-451	Skruv M6S M8X20	Screw M6S M8X20	
5	16	215 100-018	Bricka BRB ST.16/ 8,4X1,5	Washer BRB ST.16/ 8.4X1,5	
6	1	502 150-001	Mont.plåt bak ex.kundtr.	Rear assembly plate	
7	1	502 151-001	Mont.plåt höger sida ex.	Right side assembly plate	
8	8	212 601-109	Mutter 6K stål 8.8 M8	Nut 6K steel 8.8 M8	
9	8	219 501-311	Bricka lås AZ	Washer AZ	
10	6	193 715-920	Täcklock för flänsöppn.	Cover plate	
11	1	502 288-880	Huvudkabelstam 620/ 820mm	Main cable harness 620/ 820mm	
12	1	502 796-880	CANBUS-terminering hyls	CAN-bus termination socket	



**Reservdelsförteckning/Spare Parts List**



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**Reservdelsförteckning/Spare Parts List**

<b>Positions- nummer Position number</b>	<b>Antal Quantity</b>	<b>Beställningsnummer Ordering number</b>	<b>Benämning</b>	<b>Denomination</b>	<b>Anmärkingar Remarks</b>
		503 221-880	<b>UTÖKAD NÖDSTOPP FUNKTION</b>	<b>Extended emergency stop function</b>	
1	2	500 861-881	Säkerh.relä kompl.2växl	Safety relay complete 2 change over contact	
2	2	193 540-004	Relä ECO30-24V	Relay ECO30-24V	
3	2	193 541-001	Knivsäkringsplint	Knife secured terminal board	
4	1	193 541-002	Avslutningsplatta AP(	Termination plate AP	
5	2	567 900-126	Finsäkring trög 0.1 A	Delay action fuse 0.1A	
6	2	436 829-101	Ändvinkel (TS 35)	End bracket (TS 35)	
7	1	503 351-880	Kabelstam opt. 503221	Cable harness opt. 503221	



**Reservdelsförteckning/Spare Parts List**

<b>Positions- nummer Position number</b>	<b>Antal Quantity</b>	<b>Beställningsnummer Ordering number</b>	<b>Benämning</b>	<b>Denomination</b>	<b>Anmärkningar Remarks</b>
		502 157-880	<b>SVÄNGRAM 620/820mm</b>	<b>Swing frame 620/820mm</b>	
1		5DLN 528301-60	Ramämne	Frame	
2		5DLN 216701-FHB	Låssats	Lock set	
3		9ADA 629-54	Gängpressad skruv	Screw	
4		503 736-880	Transport säkring	Locking device	

Reservdelsförteckning/Spare Parts List

502157A01

