

CLANSMAN DYNAMICS LIMITED

QUOTATION AND SPECIFICATION

FOR CLANSMAN C 620 RB MANIPULATOR

E2 WORKING ENVELOPE

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CDL REF NUMBER PCZ13/07

**1 8 07
Revised 23 8 07**



1.0 PRICES (All prices are per item)

1.1 Manipulator

1.1.1 1 x standard Clansman C620 RB E2 manipulator with 6 axes of movement, and gripper.

1.1.2 Pre-delivery testing and commissioning

1.1.3 Supply of site supervisor for installation and commissioning (estimate 2 days).

1.1.4 On site operator and maintenance training (2 days).

1.1.5 Standby after final commissioning (1 day).

1.1.6 Travel and accommodation for installation engineer.

1.1.7 3 copies of operator and maintenance manual in the Czech language.

PRICE.....€ 161.100 (includes all above).

1.2 Delivery
CIF to foundry

PRICE.....€ 3.300

1.3 Options

1.3.1 125 mm connection point in cabin roof for customer to connect to a fixed air conditioning unit to be supplied by customer – diffuser inside cabin to spread air away from direct contact with driver.

PRICE.....€ 280

1.3.2 Cab controlled variable grip force.

PRICE..... € 2,008

1.3.3 Raising of cabin on heavy fabricated structure, with ladder, grab handles and extended cables.

PRICE..... € 1,540

RIP

- 1.3.4 Ancillary controls (eg for apron conveyor, second conveyor, monorail etc) in the operator's cabin for other equipment. Additionla 6 buttons

PRICE.....€ 280

- 1.3.5 Any items for compliance with GIFF norms are excluded unless specifically mentioned in this quotation.

PRICE.....Not applicable.


- 1.3.6 Quick change 6 mm Lexan sheet in steel frame.

PRICE.....€ 200

TOTAL FOR ABOVE ITEMS.....€ 168.708,00

TOTAL AFTER AGREED REDUCTION.....€ 162.041,00

RWP



2.0 TERMS AND CONDITIONS

2.1 Terms of payment

30% with order. (EXACT PAYMENT METHOD TO BE
CONFIRMED BY 25 SEPTEMBER 2007 FOR DELIVERY DATE
TO BE MAINTAINED)

65% on delivery

5% on commissioning.

Invoices to be paid within 14 days of presentation.

2.2 Delivery

31 MAY 2008

2.3 Warranty

The warranty is offered in 2 parts:

2.3.1 For the complete structure from axes 1-6, bearings in all axes 1-6 and all the components of the forcefeedback system a guarantee of 30 months for parts is given against defects in design, materials, workmanship, provided the manipulator is used and serviced in accordance with the operating and maintenance instructions contained in the maintenance manual.

2.3.2 For the parts not covered in para 2.3.2 above the guarantee period is 12 months and the same conditions apply.

Both elements to the warranty cover supply of parts only, but where there is a significant part to be fitted then Clansman will supply labour for this.

2.4 Acceptance

Acceptance of the manipulator will be based on performance criteria as described in para 4.0 below. The manipulator will be considered to be accepted 1 week after commissioning unless CDL are informed otherwise.

2.5 Value added tax and all other duties, taxes and customs clearance are excluded.

RGP

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3.0 TECHNICAL DATA

3.1 Manipulator

Machine size : C620 RB
Working envelope : E2
Vertical arm length : 1500mm
Horizontal arm length : 2100
Operating capacity : 800/500 kgs

Speeds
- Slew : 60 deg/sec
- Vertical : 1.0/sec
- Horizontal : 0.8 m/sec/sec

3.2 Wrist W 500

Operating capacity : 500 kgs
Movement
- Yaw : 145 degs
- Axis 5 (Pitch) : 90 degs
- Axis 6 (roll) : 360 degs continuous at 90 deg/sec

3.3 Gripper G 500

Payload : 500kgs
Grip force : 1200 kgs max
Grip opening : 0-800 mm To be confirmed

3.4 Powerpack

Motor size : 22 kw (SEE POWERBREAKER)
Tank capacity : 250 litres
System pressure : 140 BAR

3.5 Electrical requirement

Mains supply : 380 ph 50 Hz
: Customer to provide 220 VAC.

3.6 Water for cooling

: max 21 l/min at 25 deg C

3.7 Paint

: Manipulator – RAL 5021
: Cabin – silver; cylinders – black;
grips – yellow.

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4.0 PRODUCTION INFORMATION

4.1 Documentation

CDL layout drawings 0700684
Customer site drawing received by e mail.

4.2 Description of process

Manipulator will be used to:

1. Load castings from the apron conveyor into shotblastl.
2. Separate gatings from castings where possible.
3. Load castings from shotblast to pallet/box.
4. Load castings from shotblast with winched chariot.
5. Feed Powerbreaker.

4.3 Production data

Component weight : Max 200kgs
Temperature : 700 C
Production cycle : max 100 + 45 moulds per hour
Component type : jobbing foundry / housing type
Mould box size :
Parts per mould :

4.4 Operation

16 hours per day – 5 days per week

4.5 Ambient temperature

40 deg C max in the area of the powerpack.

5.0 MANIPULATOR SPECIFICATION

5.1 Manipulator

3 servo axes with parallelogram linkage to hold the relative position of the gripper throughout the working envelope. **All with heavy duty spherical roller bearings.**

300 degrees slew rotation.

Mechanical slew buffers to prevent overtravelling of the slew limits.

Electric slew limits for slow down and emergency stop.

Shock absorber on horizontal link.

Hydraulic cylinder drive for the vertical and horizontal movements with cushioning and electronic slow down limits.

Slew driven by hydraulic motor via pinion and large diameter toothed slew bearing.

Hydraulic force limitation for reduced stalling loads.

Acceleration control.

5.2 Wrist

3 axes wrist.

Hydraulic cylinder drive for pitch axis with shaft **in heavy duty roller bearings.**

Hydraulic motor drives for yaw and roll axes **with heavy duty roller bearings.**

Shock absorber on gripper mounting plate.

5.3 Gripper

Actuated by hydraulic cylinder and linkage.

All bearings heavy duty spherical roller type including cylinder

5.4 Cabin

Steel fabricated with windows to give 180 degrees visibility.

Operators seat with 3 axes of movement (height, fore/aft and tilt).

Operators panel containing pump stop/start, emergency stop, safe startup controls, warning lights and 6 additional pushbuttons (3 functions) to control customer's equipment.

Interior light

Master control arm

Sound proofing and double glazing

Electronics control panel.

5.5 Powerpack (Vickers Pump with Hydac filters is standard)

Positive head design with stainless steel tank above pump.

Variable displacement pump with pressure compensation.

TEFC electric motor for pump drive, mounted on anti vibration blocks.

Non bypass pressure line filtration (10 micron) with filter blocked indicator.

5 micron return line filtration.

Filtered tank filler with quick disconnect coupling.

Oil heater with thermostat.

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6.0 Exclusions

- 6.1 Site installation – but a working site supervisor will be provided by Clansman.
- 6.2 All foundation and foundation materials.
- 6.3 Supply of electric power to the manipulator.
- 6.4 Cell guarding.
- 6.5 Lifting to position.
- 6.6 Oil.

RHRL

R. H. PITHURICK

23/8/07.

23-08-2007



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