

Cooling Tower Dosing Systems

Bleed, Inhibitor, Secondary Biocide, ORP

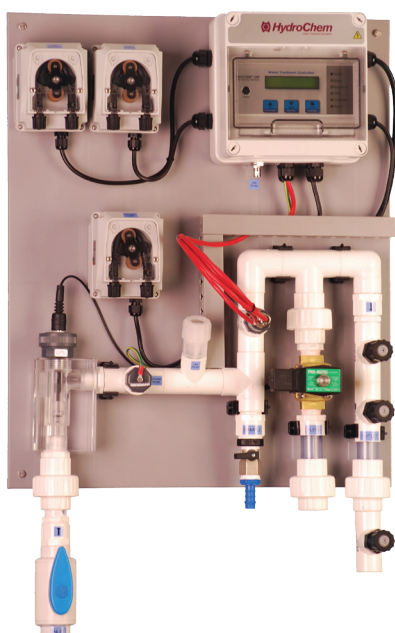
Ordering Code	Description
HCTC-CA-RXP-HC1	DIGICHEM® -ORP-XP2 Controller, Pumps & Manifold mounted on 1 PVC backboard. Incl. Inhibitor, Secondary Biocide, & Chlorine Peristaltic Pumps (1.3 l/hr, 2.7b). Manifold incl. TDS/ORP/Ground probes, flow switch, bleed valve (pH upgrade NOT possible)
HCTC-CA-RXB-HC1	DIGICHEM® -ORP-XP2 Controller, Pumps & Manifold on 1 PVC board. Incl. Inhibitor & Secondary Biocide Peristaltic Pumps (1.3 l/hr 2.7b) with 2m lead & DIN plug for optional brominator solenoid valve. Manifold incl. TDS/ORP/Ground probes, flow switch, bleed valve (pH upgrade NOT possible)
HCTC-CA-RXB-HC2	DIGICHEM® -ORP-XP2 Controller, Pumps & Manifold on 1 PVC board. Incl. Inhibitor & Secondary Biocide Peristaltic Pumps (1.3 l/hr 2.7b). Manifold incl. TDS/ORP/Ground probes, flow switch, bleed valve, solenoid valve for optional brominator (pH upgrade NOT possible)

Description

One complete system for cooling towers incorporating ORP Control of Oxidising Biocides with or without Non-oxidising Biocide. With standard features of Conductivity Control & Inhibitor Dosing, the system can be supplied on a PVC backboard or inside a hinged plastic cabinet.

The integrated **DIGICHEM®**-ORP-XP2 controller, with data logging, maintains the conductivity of the tower water via its bleed solenoid valve, and also main the ORP of the tower water via a Chlorine Pump or via an optional Brominator.

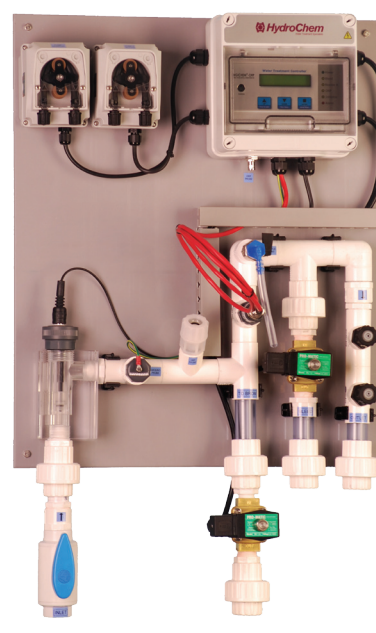
Corrosion Inhibitors are dosed on bleed, on a cycle or proportional to make-up. Non-Oxidising Biocide chemicals are dosed according to 10 independent 28-day timer programs. The circulating/condenser pump can be configured to automatically run during and after any biocide dosing program to ensure that the biocide mixes thoroughly.



HCTC-CA-RXP-HC1



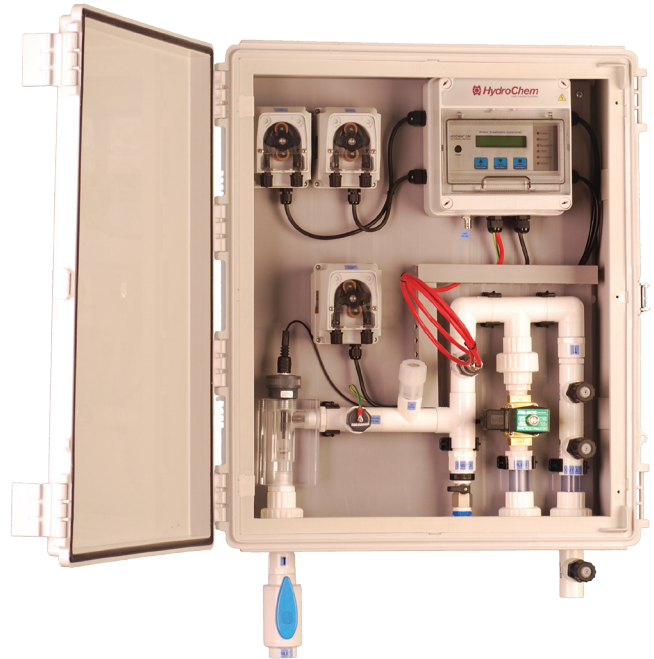
HCTC-CA-RXB-HC1



HCTC-CA-RXB-HC2

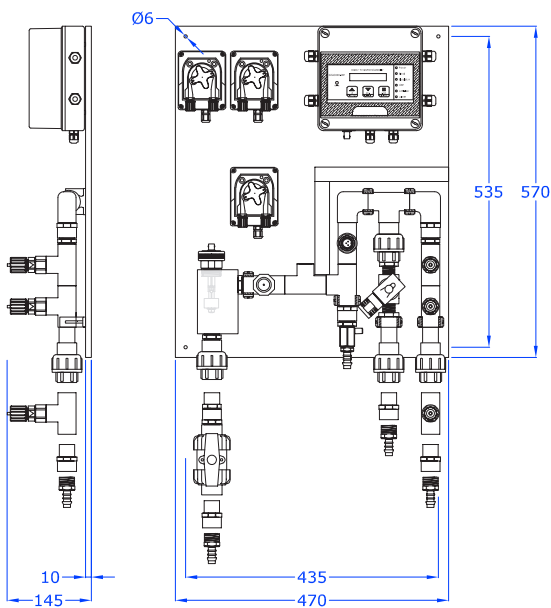
Features & Benefits

- Bleed Control via solenoid valve (or via optional actuated ball valve)
- Non Oxidising Biocide on 28 day timer
- Inhibitor Dosing on bleed, on cycle or proportional to make-up (via water meter pulses)
- ORP Control (with 28 day timer) of Chlorine and/or Bromine via dosing pumps or optional brominator
- Data logging of Conductivity, ORP, output status, flow, alarm & power status
- Easy to program and calibrate
- Backlit LCDs simultaneously displays Conductivity, Temperature & Setpoint as well as ORP, & Setpoint
- Manual priming & testing via menu
- Automatic Slug Dose Feature
- Fail-safe alarm relays with remote power failure detection
- Condenser pump override facility with delay-off timer - ensures flow through manifold during & after Non-oxidising Biocide dosing
- Integrated flow switch can be configured to disable different combinations of outputs on no-flow
- Weatherproof - can be mounted outside

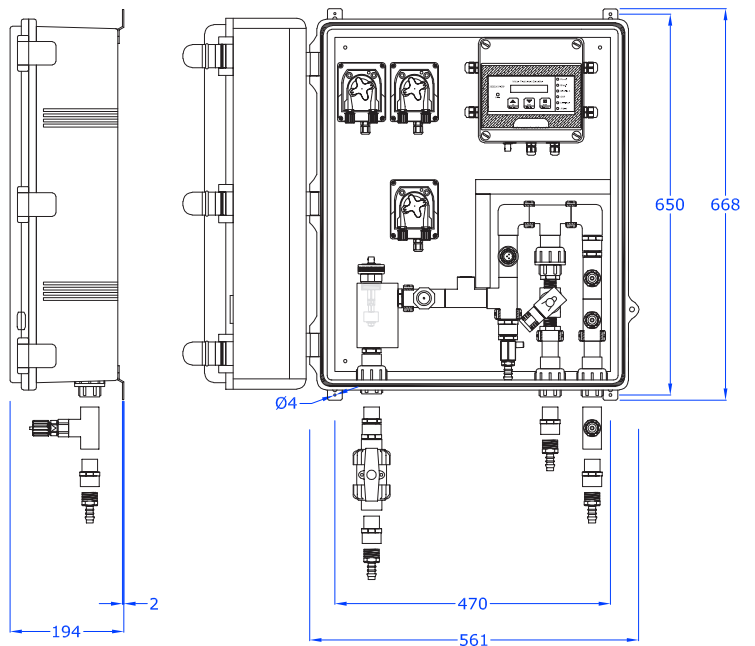


HCTC-CA-RXP-HC1 in optional cabinet,
part no HCTC-CA-OPT-CABG

Dimensional Drawings - Chlorine Systems



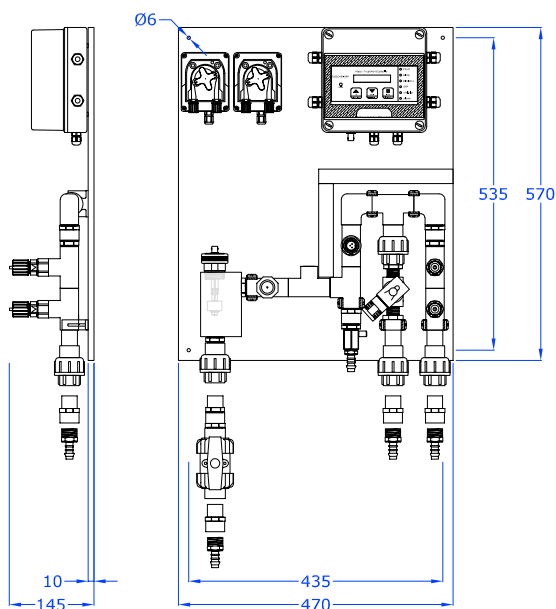
HCTC-CA-RXP-HC1



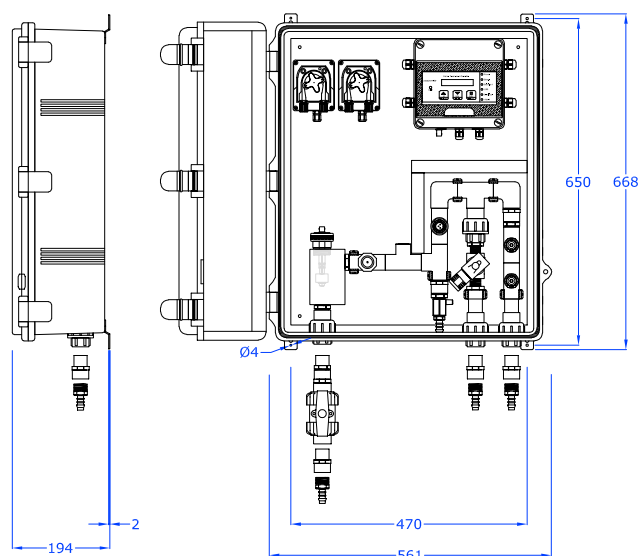
HCTC-CA-RXP-HC1 in optional cabinet,
part no HCTC-CA-OPT-CABG

Dimensional Drawings

- Brominator Systems with 2m Lead & DIN plug for Optional Brominator Solenoid Valve



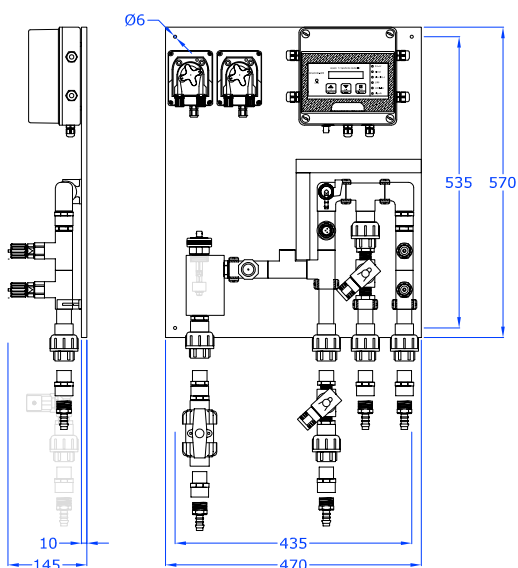
HCTC-CA-RXB-HC1



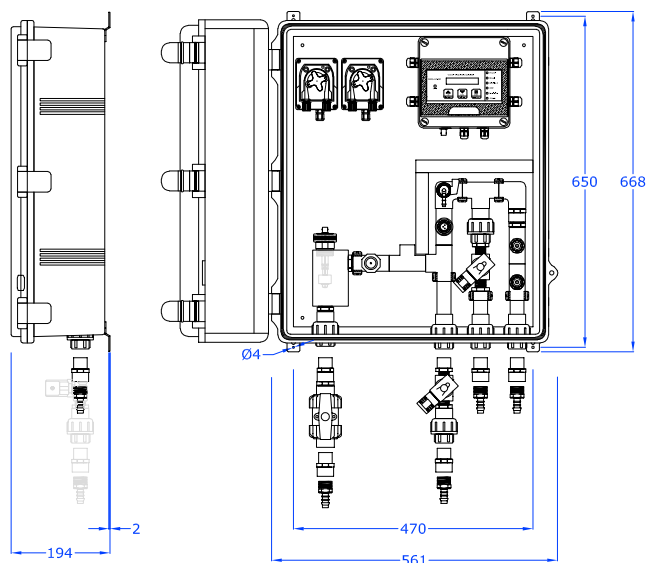
HCTC-CA-RXB-HC1 in optional cabinet,
part no HCTC-CA-OPT-CABG

Dimensional Drawings

- Brominator Systems with Brominator Solenoid Valve



HCTC-CA-RXB-HC2



HCTC-CA-RXB-HC2 in optional cabinet,
part no HCTC-CA-OPT-CABG

How to Order

Ordering Code → **HCTC - CA - RX P - HC 1**

Explanation of Fixed Part Codes	
HCTC	System with DIGICHEM® -ORP-XP2 Series controller
C	Inhibitor Pump included
A	Secondary Biocide Pump included
RX	ORP Control
HC	HydroChem exclusive system

Solenoid Valves Included	
1	Solenoid valve included for bleed. No Brominator Solenoid valve included
2	2 Solenoid valves included: 1 for Bleed 1 for optional Brominator

ORP Output	
P	Chlorine Pump included
B	ORP output to be connected to Chlorine Pump or to Brominator Solenoid Valve

Upgrades - ORP Probe, Belimo Valve, 5 l/hr Pumps

Ordering Code	Description
DP-UPGRADE-PROBE-M10-ORP	Replace WA SOTA-ORP-A-1.5m or IONODE IH30 probe that is supplied as standard in a new system with a higher spec WA OPF10-NNN-1.5m 1/2" threaded ORP probe (NOTE: The price of this item is an upgrade cost, i.e. It must be ordered with a new system)
AF02-1/2-LRU230	Upgrade 1/2" bleed solenoid valve to Belimo actuated ball valve. Manifold on PVC backboard with this upgrade is not weatherproof. It must be protected from rain.
DP-UPGRADE-PUMP-PE-5.0	Replace SEKO PE-1.3 pump that is supplied as standard in a new system with a SEKO PE-5.0 (5l/hr, 1.5 bar) (NOTE: The price of this item is an upgrade cost, i.e. It must be ordered with a new system). PRICE PER PUMP UPGRADED

Recommended Spare Parts & Consumables

Ordering Code	Description
SP-DCON-P10T-P	Replacement conductivity probe 3/4" BSPM
WA SOTA-ORP-A-1.5m	Replacement standard ORP probe, 1.5m cable, 12mm diameter smooth body
WA OPF10-PBN10-1.5m	Replacement higher spec ORP probe, 1.5m cable, process connection - 1/2" MNPT thread
SP-SOL-1/2-S	Replacement SMC direct acting solenoid valve (0-2.7bar)
SP-SK-01A-BK	Replacement Squeeze tube, EPDM 3x8mm (pre-greased with connectors) for SEKO PE-1.3 peristaltic pump with SP-SK-06 rotor assembly
SP-SK-06	Replacement rotor assembly for SEKO PE-1.3 pump with SP-SK-01A-BK squeeze tube
SP-DIGI-XP2-BAT	Replacement battery type CR-2032 (3.0VDC) for DIGICHEM-ORP-XP2 controller

Options & Accessories

Ordering Code	Description
HCTC-CA-OPT-CABG	Mounting of HCTC-CA-RX-HC dosing system inside Polycarbonate/Polyester cabinet 600 mm (h) x 500 mm (w) x 180 mm (d). Holes in bottom of cabinet provided for Manifold and cable entry/exit
RV ILS-3/4-T20E	In-line Strainer, 3/4" NPTF ports, transparent Nylon bowl, 20% glass filled PP body, EPDM gasket, 20 mesh (915 micron) SS304 screen, max 6.9 bar @ 52 degC or 10.3 bar @ 21 degC, mounting in any orientation
RV ILS-1-T20E	In-line Strainer, 1" NPTF ports, transparent Nylon bowl, 20% glass filled PP body, EPDM gasket, 20 mesh (915 micron) SS304 screen, max 6.9 bar @ 52 degC or 10.3 bar @ 21 degC, mounting in any orientation
SEKO PE-0.4-FP	Peristaltic Pump (0.4 l/hr, 2.7 bar) for Bromine to add to ORP output so that pump doses simultaneously with Chlorine Pump to produce Hypobromous Acid (DIGI-A[B]2RX2A-P only)
DP-OPT-MIX-PVDF	Add PVDF (Kynar) Mixing chamber for neat mixing of Chlorine & Bromine to return neat via tube to tower basin
DP-OPT-MIXS-PVDF	Add PVDF (Kynar) Mixing chamber to go in-line with manifold outlet
SP-BC2-MIX-PVC	Bromine/Chlorine Mixing Chamber - machined PVC with no injection valves on inlet but 1 outlet valve & 2 pipe clips, 120ml capacity
AF10/10A-XP2	DIGICHEM-ORP-XP2 option: Card with 2 x Isolated 4-20mA & 6 event outputs (NPN open collector) - (4-20mA = 0-5000uS/TDS & 0-1000mV). Incl. 2 F/F spacers w/screws and one-way interconnecting lead
SP-XP2-COMCABLE-1	Serial cable for local download of logged data from DIGICHEM® XP2 & ORP-XP2 controllers (plugs into Comms port on controller fascia. Software for download at www.cwc.com.au). NOTE: HOBO CABLE-USB-232 also required if serial port not available on laptop
HOBO CABLE-USB-232	USB to Serial Adaptor to connect SP-XP2-COMCABLE-1 Serial cable to USB port. (Converts any serial DE-9 or DB-9 Connector to USB)
Available on Request	BROMINATORS - refer to Brominators Data Sheet
Available on Request	CIRCULATION PUMPS - refer to Onga Pumps Data Sheet
Available on Request	WATER METERS - refer to Water Meters Data Sheet
Available on Request	CORROSION COUPON RACKS - refer to Corrosion Coupon Racks Data Sheet

Specifications

DIGICHEM® -ORP-XP2 CONTROLLER

Control Functions

Measured Variables	Conductivity	ORP
Range	0-9999 μ S/TDS	1-999mV
Resolution	1 μ S / 1 ppm TDS	1mV
Accuracy	0.2% of Range	0.4% of Range
Repeatability & drift	1% of Range	0.8% of Range
Control Type	ON/OFF	ON/OFF or proportional
Hysteresis	1-90% fixed	1-90% (ON/OFF control only)
ON/OFF Dose [Bleed] Cycle	ON/OFF=0-99s/0-99s	ON/OFF = 0-99s/0-99s (ON/OFF control only)
Proportional Band	-	1-90% (Proportional control only)
Cycle Time	-	10-100s (Proportional control only)

Alarms

Level Alarms	High & Low μ S/TDS	High & Low ORP
Max Dose [Bleed] Timer Alarm	0-999m (0=disabled)	0-999m (0=disabled)
Alarm Output	Common alarm via N/O & N/C failsafe volt-free contact	

Dose Settings

Inhibitor	Programmable Cycle (ON/OFF) – in Modes: Continuous, On Bleed, or Proportional to Make-up pulses (pulse water meter optional)	
Primary Biocide	ORP controlled (ON/OFF or Proportional modes with 28 day timer)	
Secondary Biocide	Non-oxidising Biocide Timed doses via 28 day timer programs (10 max per day)	
Pre-Bleed	Conductivity Setpoint lowered by (0-50%), Duration (0-999 min) before timed Biocide dosing	
Bleed Lock-out	Conductivity Setpoint raised by (0-50%) when timed Biocide Starts until (0-999min) after Biocide stops	
Condenser pump override	During timed Biocide dosing and during Manual Dose with delay-off timer (15-240min)	

General

Display	Backlit Dual Line LCD displays Conductivity (μ S/TDS), ORP, Setpoints, Water Temp, Flow & Alarm Status	
Keypad	UP, DOWN & ENTER pushbuttons	
LED Indication	green (Power on), yellow (Bleed, Inhibitor, Biocide A, ORP), red (Alarm)	
Manual Test	All outputs independently activated via menu	
Flow Sensing	Flow sensing individually set per output	
Calibration	Menu driven	
Datalogging Interval	Programmable from 5 min to 240 min	
Logged Variables	Conductivity, Temp, ORP, %Bleed, %Inhib, %Biocide A, %ORP, %Bleed, %Alarm	
Data Retention	100 years	
Battery Backup	1 year (approx)	
Battery Type	CR2032 (3VDC), part no SP-DIGI-XP2-BAT	

Electrical

Power Supply	220-240 VAC, 50/60Hz (110VAC available on request)	
Power Consumption	10W max (with no loads on outputs)	
Fuse	2A, 5x20mm (in-line with circuit & powered relays)	
Auxiliary Mains Output	240VAC continuous (2A fused)	
Control Relay Outputs	Switched 240VAC outputs rated 6A/250VAC resistive (2A fused)	
Alarm Relay Outputs	N/O & N/C Volt-free (6A/250VAC resistive) 2A fused. Relay Coil de-energises on power failure	
Condenser Pump Relay	N/O Volt-free (6A/250VAC resistive) 2A fused	
Water Meter Input	Make-up (volt-free pulse)	

	HCTC-CA-RXP-HC1	HCTC-CA-RXB-HC1	HCTC-CA-RXB-HC2
Dosing Pumps Incl.			
Inhibitor	1.3 l/hr	1.3 l/hr	1.3 l/hr
Chlorine (ORP controlled)	1.3 l/hr	-	-
Bromine (ORP controlled)	optional	-	-
Secondary Biocide (28 day timer control)	1.3 l/hr	1.3 l/hr	1.3 l/hr
Acid/Base (pH controlled)	N/A as controller does not have pH measurement or control function		
Pump Type	Peristaltic Pump (SEKO PE-1.3-FP-T), 2.7 bar max (EPDM Compound Squeeze tube, PP injection valve, PVC foot valve, Clear PVC suction tubing, Black UV stable PE discharge tubing). Bromine Pump 0.4 l/hr, 2.7bar		

Solenoid Valves

For Bleed	1/2" (15mm)		
For optional Brominator	-	2m lead with DIN plug for optional solenoid valve	1/2" (15mm)
Valve Type	SMC (or similar type) 240VAC NC Direct Acting 0-2.7 bar, 10mm orifice (higher pressure valve, larger sizes, and actuated ball valves available as options on request)		

HCTC-CA-RXP-HC1
HCTC-CA-RXB-HC1
HCTC-CA-RXB-HC2

HCTC-CA-RXP-HC1 with HCTC-CA-OPT-CABG
HCTC-CA-RXB-HC1 with HCTC-CA-OPT-CABG
HCTC-CA-RXB-HC2 with HCTC-CA-OPT-CABG

Manifold

Description (Inlet to Outlet)	Inlet, isolation valve, flow switch, solution ground probe, ORP Probe, Conductivity Probe, sample point, Bleed solenoid valve, check valve, injection points, outlet. Additional Solenoid valve fitted for optional brominator (HCTC-CA-RXB-HC2 systems only)
Probes Included	Conductivity (SP-DCON-P10AT-P), ORP (WA SOTA-ORP-A-1.5m), Solution ground (SP-DCON-CMR), N/O volt-free flow switch
Inlet & Outlet	20mm solvent weld union ends, or 3/4" BSP Female thread (3/4" Male x 12mm hosetails supplied loose)
Max Pressure & Temp	270 kPa / 2.7 bar, 50°C

Physical

Protection	IP55	IP66
Operating Temperature	0-50°C	
Mounting	PVC backboard - 570 (h) x 470 (w) mm	Polyester Hinged cabinet - 600 (h) x 500 (w) mm
Packaged dimensions	860x580x220mm	860x580x220mm
Actual Packaged weight	18kg	20kg