

Tender for Design and Fabrication of a Metal - Plastic Overmoulding Mould and a Metal Melt Flow Evaluation Test Rig

(Ref: SM00059)

September 2019

Part I – General Specification

1. Introduction

Hong Kong Productivity Council (hereinafter referred to as “HKPC”) is a statutory organization established in 1967 to promote productivity excellence and enhance the value-added content of products and services.

HKPC is now looking for qualified supplier(s) (hereinafter referred to as “the Supplier”) to design and fabricate a metal - plastic overmoulding mould and a metal melt flow evaluation test rig (hereinafter referred to as “the Services / the Items”).

HKPC will go through *an open* tender to invite qualified Suppliers and will enter into contract with the selected Supplier based on the terms and conditions of this tender document (hereinafter referred to as “the Tender”).

2. Tender Procedures

2.1. Clarification of Tender

For enquiries, please contact the following person:

Timothy TO (Manager, Procurement)
Finance and Procurement Division
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Ms Fanny CHENG, (Officer, Procurement)
Finance and Procurement Division
Tel: (852) 2788 5980
Email: fanny@hkpc.org

Any clarification questions must be sent by using the Annex 1 – Clarification Question from Tenderer via email to fanny@hkpc.org **on or before 11 September 2019 HK Time**. The questions with the answers will be posted on HKPC’s website www.hkpc.org. In this event anonymity will be maintained. Late enquiries may not be considered.

2.2. Submission of Tender Proposals

Based on “Part II – Technical Specification” and “Part III – Fee Specification”, your tender should be completed in two proposals, namely “Technical Proposal” and “Fee Proposal” with **one set of original document, three sets of copy and one soft copy on CD ROM/USB Drive for each Proposal**, which should be:

- sealed and returned by hand in two plain envelopes with the provided Cover Sheet stuck on each of the two envelopes;
- marked with “Technical Proposal” or “Fee Proposal” on the envelopes;
- marked with the tender reference and closing date on the envelopes; and
- **submitted not later than 20 September 2019, 12:00noon (HK Time).**

Both the hard copies and soft copy of the documents must be submitted in their separate envelopes of Technical and Fee Proposal respectively.

Late tenders may not be accepted.

2.2.1. The Technical Proposal should include at least the following:

- Tender Submission Form
- Copy of valid Business Registration Certificate or equivalent documents
- Copy of insurance certificates such as Public Liability, Employee Compensation listed on Section 5
- Annex 2 - Confirmation Letter for Compliance with Anti-Collusion Clauses
- Documents and information required in “Part II – Technical Specification”
- Copy of audited financial statements for the last three financial years, such as income statement and balance sheets, directors and auditors reports, cash flow statements
- Application Form for Inclusion in HKPC Suppliers List (if you are not registered to HKPC suppliers list), the form can be download from HKPC website: <https://www.hkpc.org/zh-HK/about-us/tender-information/supplier-registration>
- NO PRICE OR COST should be included in “Technical Proposal”, otherwise the tender may not be considered

2.2.2. The Fee Proposal should include at least the following:

- Schedule and Offer Form
- Reply to “Part III – Fee Specification”

3. General Requirements

3.1. Terms of Payment

Payment will be made by electronic means (e.g. bank transfer with [30] days credit against invoice) after completion of goods / services delivery supported by HKPC's acceptance, unless otherwise specified.

3.2. Validity of Quoted Fees

The fees provided by the Supplier in "Part III - Fee Specification" shall be valid from date of tender submission to the end of the tender appointment period. No change shall be made without the prior consent of HKPC.

3.3. Termination Policy

The appointment may be terminated by HKPC on giving one month prior written notice to the Supplier.

Without prejudice to any other remedy HKPC may have against the Supplier, HKPC shall have the right to terminate the contract immediately if the Supplier:

- (a) is wound up or is petitioned to be wound up, commits an act of bankruptcy or compound or arrange with its creditors or have a receiving order made against it or being a limited supplier enters into compulsory or voluntary liquidation (except for the purposes of amalgamation or restructure only).
- (b) refuses or prevents the furnishing of services / goods under the contract.
- (c) breaches or violates any of the terms and requirements contained in the contract.

3.4. Confidentiality

The Supplier shall at all times keep confidential (and to procure that its respective employees shall keep confidential) any confidential information which it may acquire in relation to HKPC, its clients, business or affairs and shall not use or disclose such information except with the consent of HKPC or in accordance with the order of a court of competent jurisdiction provided that the obligations of the Supplier contained in this clause shall cease to apply to any information coming into the public domain otherwise than by breach by the Supplier of its obligations contained in this clause and that nothing herein shall prevent the

Supplier from disclosing any such information to the extent required in or in connection with legal proceedings arising out of the agreement / contract between the Supplier and HKPC.

4. Statutory Obligations

4.1. Working hours, rates of wages etc.

The Supplier shall comply with any current legislation or regulations regarding working conditions, working hours, or rates of payment to employees and accept the risk of any impending legislation or other conditions, which alters any obligations or imposes new obligations.

4.2. Compliance with Laws and Regulations

The Supplier shall ensure full compliance in accordance with the laws and regulations of the Hong Kong Special Administrative Region ("Hong Kong").

4.3. Where applicable, the Supplier (and its sub-contractors, if any) shall ensure that all staff, labour and workers employed and engaged in the supply of the Services to HKPC are legally entitled to be so employed and engaged, and that all necessary qualification, registration, visas, licenses and permits have been obtained. The Supplier shall indemnify HKPC on demand from any losses, liabilities, costs and claims resulting from violation of or failure to comply with any terms or conditions of any qualification, registration, permits, licenses or visas or any applicable requirements of Hong Kong laws, ordinances, rules and regulations by staff, labour or workers (e.g. the "Designated workers for designated skills" provision under the Construction Workers Registration Ordinance). From time to time HKPC may require the Supplier (and its sub-contractors) to demonstrate that all necessary qualification, registration, visas, licenses and permits have been obtained for the lawful employment and engagement of staff, labour and workers in connection with the supply of the Services.

4.4. Safety precautions

The Supplier shall comply with the Labour Department's regulations for safety and health. The Supplier shall be liable for, and shall indemnify HKPC against, any expense, liability, loss, claim or proceedings whichever arising under any statute or at the common law in

respect of personal injury to or death of any person, or in respect of any injury or damage whatsoever to any real or personal property in so far as such injury or damage whomever arising out of or in the course of or caused by the carrying out of the works.

HKPC premises operate an Occupational Health & Safety Management System (OHSMS) that complies with OHSAS 18001 / ISO 45001 standard.

HKPC is implementing the 'Hong Kong Productivity Council Occupational Health and Safety Policy' which can be viewed at the following link. Supplier is welcomed to contact HKPC for any queries or feedback regarding to the Policy as well as the OHSMS.

[English Version: https://www.hkpc.org/images/stories/corp_info/hkpc_ohs_en.pdf]

OR

[Traditional Chinese Version:

https://www.hkpc.org/images/stories/corp_info/hkpc_ohs_hk.pdf]

OR

[Simplified Chinese Version:

https://www.hkpc.org/images/stories/corp_info/hkpc_ohs_cn.pdf]

The Supplier shall be deemed to be aware of the 'Hong Kong Productivity Council Occupational Health and Safety Policy' and shall use its reasonable endeavour to prevent injury and ill health resulting from our operations and services,

HKPC manages its various processes fully in accordance with the requirements of the OHSAS 18001/ISO45001 standard, whilst controlling subcontractors' work processes that affect HKPC's own services conformity with requirements.

5. Insurance

5.1. Employees' Compensation Insurance

HKPC shall not be liable for or in respect of any damages or compensation payable at law in respect of or in consequence of any accident or injury to any person in the employment of the Supplier, save and except an accident or injury resulting from the negligence of HKPC, its agents or servants. The Supplier shall indemnify and keep indemnified HKPC against all such damages and compensation save and except as aforesaid, and against all claims,

proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto. Compliance with the insurance provisions of this clause shall not limit or modify the Supplier's liability under the indemnity aforesaid.

The Supplier shall insure against such liability with an authorized Insurer in Hong Kong and shall continue such insurance during the whole of the time that any persons are employed by him on the works and shall, when required produce to HKPC such policy of insurance and the receipt for payment of the current premium.

The Supplier's insurance under this clause shall take the form of an Employees' Compensation Insurance Policy complying with the latest requirements of the Hong Kong Employees' Compensation Ordinance and covering this Common Law liability for an unlimited amount during the period of insurance.

6. Protection of properties

- 6.1. The Supplier shall take every precaution necessary to protect the public from injury or death during the course of works.
- 6.2. The Supplier shall maintain and protect all public properties of public utility companies and bear all costs incurred in making good any damage caused thereto.
- 6.3. The Supplier shall take every precaution necessary to protect adjoining properties from damage and shall bear all costs incurred in remedying damage caused through lack of proper care on its part.
- 6.4. Special precautions should be taken to protect properties of HKPC and its client(s) from damage and the Supplier shall bear all costs incurred in making good all damages caused through lack of proper care on its part.
- 6.5. The Supplier shall maintain all existing roads, footpaths, steps, etc. and reinstate any damage caused by any reason whatsoever during the progress of the works.
- 6.6. It will be the Supplier's responsibility to ensure that the roads leading to and around HKPC and its client(s) premises shall be kept free from obstruction brought about by the works on the site and in no way shall cause any hindrance to traffic or ancillary works either by its own vehicles or by its workpeople, materials, etc.

- 6.7. The Supplier shall be responsible for repairing damage to private streets and access roads if deterioration occurs during the contract period.
- 6.8. The Supplier shall take all necessary steps to restrict the nuisance of dust and noise.

7. Handling of Materials and Garbage (if applicable)

7.1. Loading and unloading of materials

The Supplier shall take every care in the loading and off-loading of materials for the works, ensure that the streets, roads and footpaths are not obstructed or the traffic impeded and conform with the police regulations therewith.

The Supplier shall take all necessary precautions and care to cause minimal disturbances to the occupants and the usual operations of the existing building.

7.2. Removal of garbage

The Supplier shall remove garbage at frequent intervals during the progress of the works and HKPC premises shall be left clean and tidy to the satisfaction of HKPC on completion.

7.3. Treasure trove, coin, etc.

Any treasure trove, coins or objects of antiquity shall become the property of HKPC and shall be carefully removed by the Supplier and handed to HKPC.

8. Acceptance

HKPC is entitled to accept either the whole or any part of the tender at its sole discretion. HKPC is entitled to select any kind of Services / Items under the tender to meet its requirement and is not obliged to accept the lowest price bidder and to give any reasons.

9. Conditions of Tendering

- 9.1. No unauthorized alteration or erasure to the text of the tender documents will be permitted. Any tender containing such alteration or erasure may not be considered
- 9.2. No liability will be admitted, nor claim allowed, in respect of errors in the Supplier's tender due to mistakes which should have been rectified in the manner described above.
- 9.3. HKPC is not bound to accept the lowest or any tender it may receive.
- 9.4. HKPC reserves the right to withdraw the invitation before the acceptance of any tender.
- 9.5. HKPC will not be liable for any expenses or losses which may be incurred by the Supplier in the preparation of this tender including any alternative offers.

Part II – Technical Specification

1. Obligations of the Supplier

- 1.1. Subcontracting and / or out-sourcing the works to other sub-supplier(s) without the prior consent from HKPC is not allowed.
- 1.2. The Supplier shall meet all the terms and requirements set out in this tender document.

2. Scopes of Service

Design and fabricate a metal - plastic overmoulding mould and a metal melt flow evaluation test rig to be installed on an 80 ton clamping force plastic injection moulding machine with an index plate type rotary table for production of a dual material metal - plastic overmoulding part and evaluating low melting point metal alloy injection performance respectively.

The requirements of mould and test rig are described in section 2.1 and the product information is described in section 2.2.

2.1. Requirement

2.1.1 Requirements of mould:

Index plate type two - component mould for moulding 3 different products. One cavity for moulding thermoplastic material and another cavity for moulding low melting point metal alloy. The melting point of plastic ranged from 150°C to 350°C. The melting point of metal alloy ranged from 100°C to 250°C. The runners to the three cavities can be blocked independently.

Mould Size (模具尺寸):	<420mm(H) x 500mm(V)
Mould Thickness (模具厚度):	>250 mm and <450 mm
Number of cavity (模腔數):	3+3
Material of cavity (模芯材料):	S136, or equivalent
Lifecycle (模具壽命):	≥ 100K cycle
Clamping Force (鎖模力):	>80T

Mould temperature (模溫):	100°C to 200°C
Heating method (加熱方式):	Hydraulic oil circulation or electric heating
Ejector driving method (頂針驅動):	Mould equipped with driving cylinder (either hydraulic/ pneumatic/ electric)
Hardness (硬度):	HRC 46 - 52
Moulding cycle (周期時間):	60s - 70s

2.1.1. Requirements of test rig:

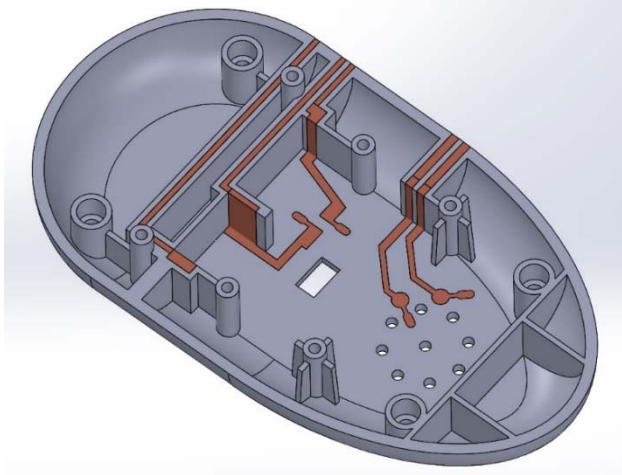
Index plate type two - component test rig for molding 4 different sizes of channels. One cavity for moulding thermoplastic material and another cavity for moulding low melting point metal alloy. The melting point of plastic ranged from 150°C to 350°C. The melting point of metal alloy ranged from 100°C to 250°C. The insert should be interchangeable to test the four different size channels.

Mould Size (模具尺寸):	<420mm(H) x 500mm(V)
Mould Thickness (模具厚度):	>250 mm and <450 mm
Types of core (模芯種類):	4
Number of cavity (模腔數):	1+1
Material of cavity (模芯材料):	S136, or equivalent
Lifecycle (模具壽命):	≥ 100K cycle
Clamping Force (鎖模力):	>80T
Mould temperature (模溫):	100°C to 200°C
Heating method (加熱方式):	Hydraulic oil circulation or electric heating
Ejector driving method (頂針驅動):	Test rig equipped with driving cylinder (either hydraulic / pneumatic / electric)
Hardness (硬度):	HRC 46 - 52
Moulding cycle (周期時間):	60s - 70s

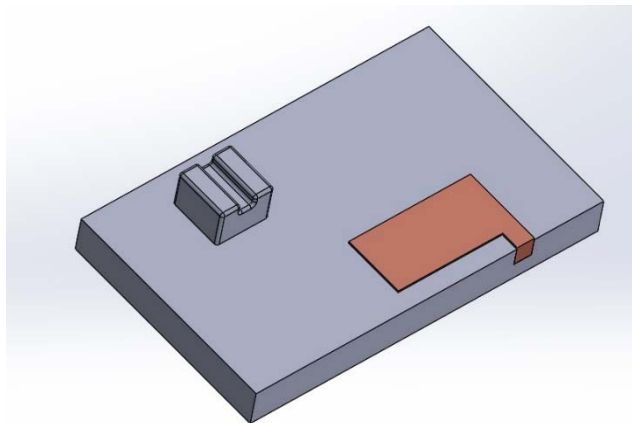
2.2. Specification of product:

2.2.1. Mould

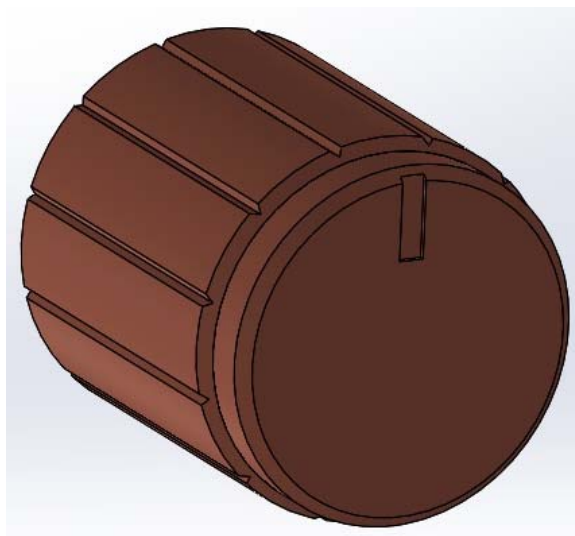
2.2.1.1. Housing



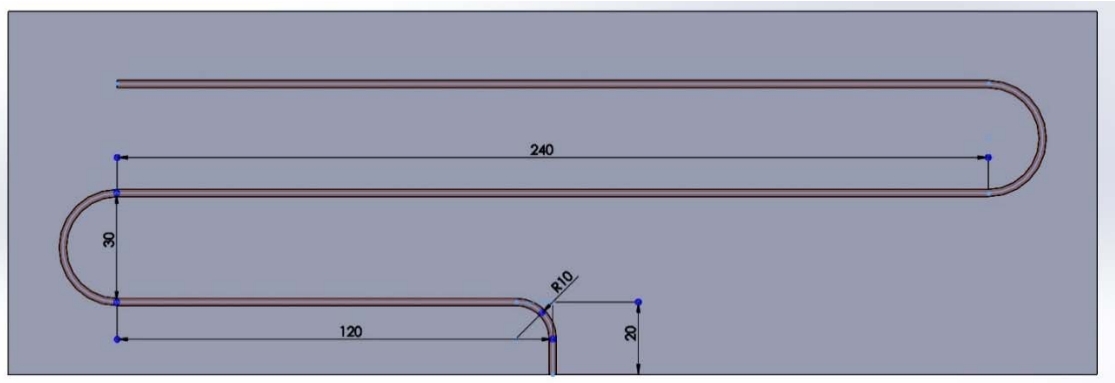
2.2.1.2. Switch



2.2.1.3. Knob



2.2.2. Test rig



Detail information of the 3 products of the mould and 4 types of channel of the test rig are enclosed in Annex 3 & 4, and 3D drawing of the 3 products and 4 channels are enclosed in Annex 5 & 6 respectively.

2.3. Injection machine and rotary table

Specification of the plastic injection machine and index plate type rotary table which the mould and test rig will be installed on are enclosed in Annex 7 & 8 respectively.

2.4. Technical support:

Technical support	Conduct mould modification upon HKPC's satisfactory acceptance.
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2.5. Tentative Project schedule:

- Delivery location: HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong
- Expected delivery date: 15th October , 2019

3. Mandatory Requirements

The supplier is mandatorily required to complete the following table which requires full compliance in order to be considered further.

Item	Description/ Requirement	Fully Comply (Yes / No)
3.1.	The General Conditions of Contract and Terms of Tender are fully understood and accepted.	
3.2.	Mould:	
3.2.1.	Mold Size (模具尺寸) • <420mm(H) x 500mm(V)	
3.2.2.	Mold Thickness (模具厚度) • >250 mm and <450 mm	
3.2.3.	Number of cavity (模腔數) • 3+3	
3.2.4.	Material of cavity (模芯材料) • S136, or equivalent	
3.2.5.	Lifecycle (模具壽命) • ≥ 100K cycle	
3.2.6.	Clamping Force (鎖模力) • >80T	
3.2.7.	Mould temperature (模溫) • 100°C to 200°C	
3.2.8.	Heating method (加熱方式) • Hydraulic oil circulation or electric heating	
3.2.9.	Ejector driving method (頂針驅動) • Mould equipped with driving cylinder(eider hydraulic/ pneumatic/ electric)	
3.2.10.	Hardness (硬度) • HRC 46 - 52	
3.2.11.	Moulding cycle (周期時間) • 60s - 70s	
3.3.	Test rig:	
3.3.1.	Mold Size (模具尺寸)	

Item	Description/ Requirement	Fully Comply (Yes / No)
	<ul style="list-style-type: none"> <420mm(H) x 500mm(V) 	
3.3.2.	Mold Thickness (模具厚度) <ul style="list-style-type: none"> >250 mm and <450 mm 	
3.3.3.	Types of core (模芯種類) <ul style="list-style-type: none"> 4 	
3.3.4.	Number of cavity (模腔數) <ul style="list-style-type: none"> 1+1 	
3.3.5.	Material of cavity (模芯材料) <ul style="list-style-type: none"> S136, or equivalent 	
3.3.6.	Lifecycle (模具壽命) <ul style="list-style-type: none"> ≥ 100K cycle 	
3.3.7.	Clamping Force (鎖模力) <ul style="list-style-type: none"> >80T 	
3.3.8.	Mould temperature (模溫) <ul style="list-style-type: none"> 100°C to 200°C 	
3.3.9.	Heating method (加熱方式) <ul style="list-style-type: none"> Hydraulic oil circulation or electric heating 	
3.3.10.	Ejector driving method (頂針驅動) <ul style="list-style-type: none"> Mould equipped with driving cylinder(eider hydraulic/ pneumatic/ electric) 	
3.3.11.	Hardness (硬度) <ul style="list-style-type: none"> HRC 46 - 52 	
3.3.12.	Moulding cycle (周期時間) <ul style="list-style-type: none"> 60s - 70s 	
3.4.	Design the mould and test rig accordance with the preliminary drawing in annex 3 - 6	
3.5.	Technical support <ul style="list-style-type: none"> Conduct mould modification upon HKPC's satisfactory acceptance. 	
3.6.	Deliver the mould to HKPC building	

4. Information to be Provided by the Supplier

A total score of 100 will be assigned in this Section. The passing mark is 60. Only tender(s) getting at least 60 marks will be considered further.

4.1. Mould design (100 marks)

Please submit the proposed mould and test rig design drawing on demonstrating the cavity layout, runner design, recommendation on product modification and, parting line and ejecting consideration.

HKPC would evaluate the applicability of the proposed mould and test rig design to fulfil the requirements stated in section 2 on producing plastic and low melting point metal alloy parts.

4.1.1. Mould cavity layout design (20 marks)

4.1.2. Runner design (20 marks)

4.1.3. Recommendation on product modification for facilitating mould design and moulding (40 marks)

4.1.4. Parting line and ejecting consideration (20 marks)

5. Tender Evaluation

5.1 A total score of 100 is assigned to “Section 4 Information to be provided by the Supplier”. Tender with scores less than 60 or failing in any attribute may be regarded as unsuccessful and may not be considered further.

5.2 In principle, tender meeting requirements set by HKPC in “Part II – Technical Specification” and offering the lowest price in “Part III – Fee Specification” will be considered as successful. However, HKPC reserves the right to accept the whole or part of the tender and is not bound to accept the lowest or any tender.

5.3 Tentative schedule

It is a tentative schedule of the tender process. However, HKPC reserves the right to change the schedule to suit its operation need.

Items	Tentative Schedule
Tender Q&A Submission Deadline by Supplier	11 September 2019
Posting of Q&A Reply from HKPC	13 September 2019
Tender Closing	20 September 2019
Tender Evaluation	In the week of 23 September 2019
Tender Award / Issue Purchase Order	Late September 2019
Project Commencement	Early October 2019
Project Completion	31 October 2019

6. All documents / materials submitted to HKPC will not be returned.

Part III – Fee Specification

Please submit “Fee Proposal” with **one set of original documents, three sets of copy and one soft copy on CD ROM/USB Drive**, which should be sealed in separate plain envelope.

The Supplier shall complete the tables below to show the prices / fees for the provision of the Services / the Items. All other associated costs shall be specified (if any).

1. Prices

1.1

Item	Description	Qty	Total Price (HK\$)
1	Design and Fabrication of Mould (Refer to Section 2 of Part II Technical Specification)	1 set	
2	Design and Fabrication of Test Rig (Refer to Section 2 of Part II Technical Specification)	1 set	
3	Premium for Insurance (Refer to Section 5 of Part I General Specification. Note: Insurance under statutory requirement and tender’s existing policy cover should not be charged.)	1 job	Included
	Total (1 - 3):		\$

1.2 Other cost, if any (please specify)

2. Payment Terms

Please state your acceptance of our payment term in below table.

Description	Acceptance
Net 30 days against invoice by direct credit or T/T after completion of goods / services delivery supported by HKPC's acceptance	Yes / No (If no, please specify)

3. Validity of Quoted Prices

The offer provided above shall be valid from date of tender submission to the end of the tender appointment period. No change shall be made without the prior consent of HKPC.

Remarks:

The submitted fee proposal must comply with the submitted technical proposal in accordance with those requirements set by HKPC in “Part I – General Specification” and “Part II –Technical Specification”.