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11 Laurier St. / 11, rue Laurier
Place du Portage, Phase III
Core 0B2 / Noyau 0B2
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

SOLICITATION AMENDMENT MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address
Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution
Vehicles & Industrial Products Division
11 Laurier St./11, rue Laurier
7A2, Place du Portage, Phase III
Gatineau, Québec K1A 0S5

Title - Sujet CO2 Circulation Pump/Compressor	
Solicitation No. - N° de l'invitation 23375-170383/A	Amendment No. - N° modif. 001
Client Reference No. - N° de référence du client 23375-170383	Date 2016-09-01
GETS Reference No. - N° de référence de SEAG PW-\$\$HP-404-71405	
File No. - N° de dossier hp404.23375-170383	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2016-09-26	Time Zone Fuseau horaire Eastern Daylight Saving Time EDT
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Michele Mak	Buyer Id - Id de l'acheteur hp404
Telephone No. - N° de téléphone (873) 469-3338 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

Amendment 001 is raised to answer the following questions:

Question 1

Do you have preferences on diaphragm compressor or piston compressors?

Answer 1

Either is acceptable provided all the mandatory criteria in Annex A are met.

Question 2

Does it have to be oil free or lubricated compressors are acceptable?

Answer 2

The process gas portion of the compressor must be oil free. See mandatory criteria 20.

Question 3

Is the gas pure CO₂? Should we expect any moisture in the CO₂ gas?

Answer 3

The gas is pure CO₂.

Question 4

Does the compressor need to include its own controls or you have your own control system?

Answer 4

The compressor must include a control system. Please see mandatory criteria 23 in the updated Annex A for details.

Question 5

Do you have any noise limitations? Should sound enclosure be included?

Answer 5

The noise must be less than 85 dB at 1 m. Please include an enclosure if required to meet this specification.

Question 6

Is the compressor going to be indoor or outdoor with a shed?

Answer 6

The compressor is going indoors.

Solicitation No. - N° de l'invitation
23375-170383/A

Amd. No. - N° de la modif.
001

Buyer ID - Id de l'acheteur
hp404

Client Ref. No. - N° de réf. du client
23375-170383

File No. - N° du dossier
hp40423375-170383

CCC No./N° CCC - FMS No./N° VME

Question 7

Would also appreciate if you can kindly advise the zone classification where the compressor is going to be installed.

Answer 7

The compressor will be in a Class 1, Zone 2 environment. The control panel will be located remotely, in a non-hazardous environment.

All other terms and conditions remain unchanged.

Supercritical Carbon Dioxide Pump/Compressor – Mandatory Requirements and Specifications

The Bidder is to supply a compressor or pump package for the CanmetENERGY supercritical carbon dioxide system based on the following specifications. Due to high density and compressibility of supercritical CO₂, a pump or a compressor is acceptable provided the flow and pressure requirements are met. The pump or compressor must be able to circulate supercritical carbon dioxide in a heat transfer loop, as detailed in Figure 1.

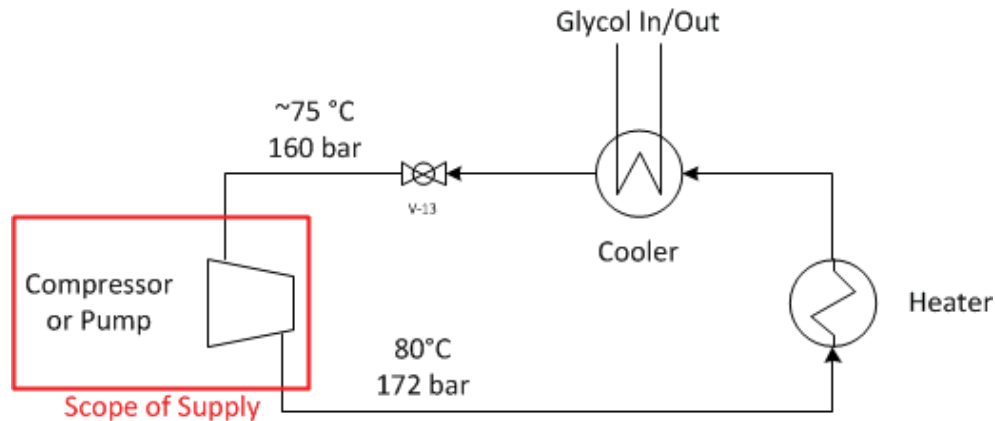


Figure 1 - Pump/Compressor use case

The pump or compressor package must be skid mounted and include all necessary equipment for operation such as the compressor/pump, hardware, gas plumbing, electrical/control components, PLC control panel, gauges, sensors and instrumentation and cooling systems.

All bidders must meet the minimum requirements stated below.

Item #	Requirement/Specification	Min.	Nominal	Max.	Compliant (YES/NO)
1)	Suction Temperature (°C)	30	75	90	
2)	Suction Pressure (barg)	150	160	170	
3)	Outlet Temperature (°C)	50	-	150	
4)	Outlet Pressure (barg)	160	172	175	
5)	Ambient Temperatures (°C)	20	22	40	
6)	Outlet mass flow rate (kg CO ₂ /hr)	950	2600	2600	
7)	Compressor cooling (if required)	Air or Water Cooled			
8)	Acceptable Drive Types	Electric			
9)	Motor voltage (VAC)	575			
10)	Motor frequency (Hz)	60			
11)	Motor duty rating	Continuous			
12)	Motor type	Totally Enclosed Fan Cooled (TEFC)			

Item #	Additional Mandatory Requirements	Compliant (YES/NO)
13)	The contractor must provide verification documentation of pump or compressor operation upon delivery of the compressor package to the client. Documentation to include: CO ₂ flow rate at specified suction and discharge pressures and temperatures, air cooler performance and operation of all associated instrumentation, gauges and sensors included in the compressor package. The contractor must include detailed test descriptions and results in the documentation package. All testing and verifications to be performed on the finished compressor package prior to delivery to the client.	
14)	All process gas connections must be flanged (ASME B16.5)	
15)	Supply any required pressure safety valves to prevent over pressurization of the pump/compressor.	
16)	Any supplied electrical enclosures must be Nema 4/4X	
17)	CSA approval or equivalent required on any supplied electrical components	
18)	Any supplied control system must be able to communicate via Modbus protocol with an ABB Freelance DCS system OR have sufficient hardwired status indication (analog or digital, 24 VDC) for operating status of the compressor to be integrated with an ABB Freelance DCS system	
19)	Contractor must supply documentation (1 hard copy & 1 electronic copy) including operation and maintenance manuals, maintenance procedures, drawings, spare parts list and manufacturers data for accessories	
20)	Compressor/pump must be oil-free on process gas side	
21)	A performance curve for the proposed pump or compressor must be provided.	
22)	The compressor/pump noise must not exceed 85dB at 1m.	
23)	<p>The pump/compressor must be supplied with a control panel that includes all necessary controllers and instruments required to operate the compressor. The following signals are also required to integrate with a distributed control system:</p> <ul style="list-style-type: none"> • Run permissive contact (24 VDC) <ul style="list-style-type: none"> • Fault signal (24 VDC) • Remote start/stop 	