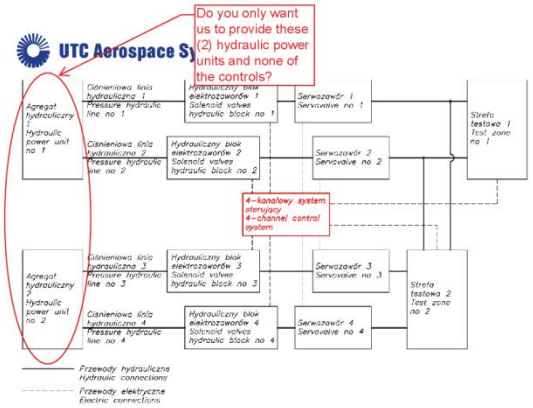
Questions & Answers – Design and delivery of Hydraulic Power Pack for phosphate ester (Skydrol®)

Q1: Can you confirm that you are only looking for the Hydrualic Power Units and not the controls as circled in the attachment on this email?



A1: We confirm, that the subject of the delivery is only one item of phosphate ester hydraulic power unit (for Skydrol®), without additional elements (there are two hydraulic power packs marked on the drawing – one unit should be deliver).

Q2: Page 5 item 2: *Power Pack Couplings should be type G* , there are hydraulic fittings type G & Electric Motor /Pump couplings type G , could you confirm to which you are referring please ?

A2: Point 2 on page 5 refers to type of hydraulic connectors of hydraulic power unit (HPU) at hydraulic input and hydraulic output of the HPU, which will be used to connect the HPU to the test rig. These connectors must have G type thread, which is Whitworth parallel pipe thread (equivalent designation is BSPP).

Q3: Page 4 Item 1.6 This requests that we install the hydraulic power pack ? This is a stand alone fabrication only requiring putting into position in the designated place , we currently have no idea where it will be located or connected to ; so we can only allow for delivery to HS Wroclaw for you to off load and position with fork lift truck , is this acceptable ?

A3: Yes. We confirm, that delivery the hydraulic power unit to HS Wroclaw without its installation is acceptable.

Q4: Page 5 Item 9c – Detection of rapid pressure drop ? We can easily detect rapid pressure drop via the pressure transducer ion the circuit , but rapid pressure drop may be a function of the system you are testing , or someone selecting ZERO Pressure mode , how can we differentiate between these and a fluid leak ?

A4: There is no necessity to differentiate described situations. The test rig is design to operate with nominal pressure generated by hydraulic power unit. The hydraulic power unit must be stopped as a result of pressure drop below nominal pressure, in every conditions absolutely and irrespective of any

reasons. The supplier is responsible for determination of pressure drop limit value causes hydraulic power unit shutdown.

Q5: Page 6 Item 24 – Cleanliness sensor – Are you just referring to the clogging switches installed on the filters to indicated filter requires changing , or do you require fluid condition monitoring dynamically by a particle counter ?

A5: Point 24 on page 6 refers to clogging indicators installed on the filters only or other similar solution, which allows to check the filters in simple way. Dynamic fluid condition monitoring by a particle counter should not be used.

Q6: Page 7 Item 2.5 – We read this that the order will be placed before the 14th February 2018 is this correct ? What is the required delivery

A6: Point 2.5 on page 7 refers to time of realization of complete delivery. The contract with supplier will be signed immediately after finish of the tender process. 14th February 2018 determines maximal date of delivery the hydraulic power unit to HS Wroclaw.

Q7: Factory Acceptance Tests – There is no request for FAT at suppliers and no request to supply any quantity of LD4 fluid , therefore do we assume all final testing will be carried out on site HS Wroclaw or are you assuming that we include for Skydrol testing supply in our tender ?

A7: We confirm that final commissioning tests will be carried out in HS Wroclaw. We confirm that delivery of any quantity of hydraulic fluid (Skydrol®) is not required.

Q8: I don,t have any English versions of the following to offer my response ? Page 10 Section 2.10 List of documents / statements required from Tenderer

A8: The documents mentioned above were send at 20-th September 2017 via e-mail.

Q9: Sheet 5, point 2: you ask for the couplings to be of type G, would you mean Gaz thread?

A9: No. Point 2 on page 5 refers to type of hydraulic connectors of hydraulic power unit (HPU) at hydraulic input and hydraulic output of the HPU, which will be used to connect the HPU to the test rig. These connectors must have G type thread, which is Whitworth parallel pipe thread (equivalent designation is BSPP).

Q10: Sheet 5, point 5: you describe 3 different modes. Could you please precise the flowrate needed in case b at 20 bars? Do you need the pressure to be adjusted to 20 bars as weel as the flowrate?

A10: There is no any requirements concerning flow rate during low pressure operation. Our suggestion is realization of low pressure operation in safe way, that is, by generation of low pressure directly on the pump and not by reduction of high pressure by reducing valve. The adjustment of pressure from 0 to 20 bar during hydraulic power unit operation is not required. There is no any requirements concerning hydraulic power unit flow rate during low pressure operation. Our suggestion is application of the variable delivery pump which provides automatic change of flow rate depends on absorbing capacity of hydraulic receiver.

Q11: Sheet 5, point 9 C: do you need a low pressure sensor? Is the objective to detect a pressure breakdown or a problem as leakage or hose breaking?

A11: The purpose of requirement presented in point 9c on page 5 is unconditionally automatic shut-down the hydraulic power unit as a result of nominal pressure drop, irrespective of any reason of this drop. Automatic shut-down of the hydraulic power unit in case of all events causes pressure drop must be provided (eg. hose breaking, leakage, too large hydraulic absorbing capacity of tested system). The supplier is responsible for determination of pressure drop limit value causes hydraulic power unit shutdown.

Q12: Sheet 6: we understand it is possible to be connected to fresh water circuit. Have you got an objective to the temperature to be maintained (for example maintaining a temperature between 40 to 50°C)?

A12: There is no any requirements of maintain of hydraulic fluid temperature. Temperature of hydraulic fluid during operation of hydraulic power unit should be choose in such a way that maximal life of entire hydraulic system will be provide. The supplier is responsible for determination and maintaining the optimum temperature of hydraulic fluid on the hydraulic power unit during its operation.

Q13: Please indicate what is the needed tank capacity? For what use?

A13: We can not present the application of hydraulic power unit at this stage.

Q14: Do you want a manual control command or a PLC?

A14: There is no any requirements concerning type of control of hydraulic power unit. Both mentioned types are allowable.

Q15: What are the maximum dimensions required for the power pack? Is there any constraints in your shops?

A15: The RFQ does not contain any requirements concerning dimensions. Our suggestion is hydraulic power unit should be as small as possible and its height should not exceed 2,5m and its width should not exceed 2,4m.

Q16: Would you want a fixed or a mobile power pack?

A16: There is no any requirements concerning type of hydraulic power unit. Both mentioned types are allowable.

Q17: We understand the power to be single power pack and single feed. How long do you need the hydraulic hoses?

A17: The hydraulic hoses are not in the scope of delivery. The hydraulic power unit must be equipped with input and output hydraulic connectors.