

TEMA TEHNICA DE PROIECTARE

[Signature]
19.07.2019

1. DATE GENERALE:

1.1. Denumirea lucrarii: Montat sistem de filtrare de tip ciclon-coalescer pe conducta aspiratie, compresoare 21/2-K1 si 21/2-K2.

1.2. Instalatia (serviciul) beneficiara: Aria Productie- instalatia RGF

1.3. Amplasament: instalatia – DGRS-TG-SWS-RGF

1.4. Documente si documentatii de referinta: P&ID instalatie RGF, fise tehnice utilaje implicate in proiect, Schema tehnologica de principiu.

2. NECESITATE SI OPORTUNITATE In prezent filtrele din aspiratia compresoarelor nu retin lichidul si impuritatile mecanice, acestea ajung in compresoare si determina uzarea prematura a pieselor de compresie.

3. DESCRIEREA SOLUTIEI PROPUSE:

3.1. Tehnologie:

- Montat sistem de filtrare de tip ciclon-coalescer pe conducta de aspiratie compresoare.
- proiectat si intocmit specificatie tehnica sistem filtrare de tip ciclon-coalescer cu purjare automata in canalizarea industrială.
- elaborarea P&ID in noua configuratie

3.2. Descrierea solutiei propuse pe categorii de lucrari:

(In cazul in care sunt necesare descrieri mai ample – schite privind amplasarea, scheme tehnologica etc – este obligatorie anexarea acestora la tema)

Nr. crt.	Categorii de lucrari	Descriere sumara	Documente existente	Observatii
1	Tehnologii	DA (conform descriere)		
2	Utilaje	DA (conform descriere)		
3	Montaj utilaj si leg. conducte	DA(conform schema tehnologica anexata)		
4	Constructii beton	NU		
5	Constructii metalice	DA(conform descriere)		
6	Instalatii apa-canal	NU		
7	Instalatii electrice ²⁾	DA (conform descriere)		
8	Instalatii AMC ¹⁾	DA (traductor de nivel si ventil regulator)		
9	Utilitati (aer, azot, apa etc)	DA		

10	Instalatii de incalzire	DA		
11	Instalatii de ventilatie	NU		
12	Mecanizare ex:grinda monorai	NU		
13	Alte facilitati	NU		
14	Devize	DA		

1) Reglari, inregistrari, semnalizari, blocari

2) Surse de putere, blocari, iluminat, avertizare P.S.I. si paza, explozometre, telefonie, legaturi echipotentiala etc.

3.3. Dotari:

3.4. Deseuri, noxe si masuri de protectie a mediului: conform normelor in vigoare pentru instalatia Cocsare

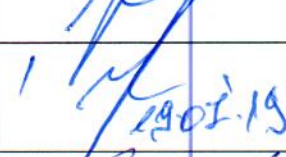
3.5. Factori de risc si propuneri de masuri de tehnica securitatii muncii:
Nu se modifica

4. SURSA DE FINANTARE: Proiect Reutilare Tehnica 2020-2021

6. RESPONSABIL DIN PARTEA BENEFICIARULUI:

- Numele si prenumele: Mitache Iulian
- Functia: ing tehnolog Sector nr.3
- Telefon: 3750
- Termen executie proiect: 30.11.2020

7. AVIZARE:

FUNCTIA	NUMELE SI PRENUMELE	SEMNATURA
DIR. GEN. ADJ. REPARATII SI MENTENANTA UTILAJE	Y. I. EROGOV	
TEHNOLOG SEF	CATALIN NICULESCU	 19.07.2019
ING. SEF ADJ. PRODUCTIE	PIRNAU DANIEL	 19.07.19
INSPECTOR DE SPECIALITATE MECHANIC – SEF BIROU	DENYS MAKUSHEV	 18.07.2019
ING. SEF METROLOG	ION ENE	
ING. SEF INDUSTRIE PRELUCRATOARE - SEF SERVICIU	MAXIM GRECOV	 19.07.19
SEF ARIE PRODUCTIE	NEGOITA ADRIAN	 19.07.19

Date initiale pentru partea Tehnologica

Montat sistem de filtrare de tip ciclon-coalescer pe conducta aspiratie, compresoare 21/2-K1 si 21/2-K2.

Utilaje statice si dinamice.

1.	Utilajele care vor fi implicate in proiect	Conducta aspiratie 21/2-K1,K2
2.	Parametrii de lucru ai utilajelor	Fluid:apa+fractii usoare si impuritati mecanice, greutate specifica:0.720 kg/dm³, presiune: 0.068-0.03, debit: 5000 Nmc/h.
3.	Inlocuirea utilajelor	Nu
4.	Utilajele care necesita inlocuire	Nu se vor inlocui utilaje
5.	Se vor modifica parametrii de lucru ai utilajelor	Nu
6.	Parametrii de lucru ai utilajelor noi	Debit: 5000 Nmc/h, temp: 45°C, presiune: 0.06bar, Δp: 9mBar
7.	Utilaje suplimentare/noi	Ciclon coalescer
8.	Parametrii de lucru ai utilajelor suplimentare/noi	Conform proiect
9.	Echipamente AMC pe utilajele existente	Nu.
10.	Echipamente AMC noi pe utilajele existente	Nu sunt necesare
11.	Racorduri noi pentru echipamente AMC	DA
12.	Parametrii de blocare si alarmare pentru fiecare utilaj in parte	DA, alarma LSH
13.	Caracteristicile sistemelor de siguranta existente.	Nu sunt necesare
14.	Necesitatea calculului componentelor interioare ale utilajului	Nu
15.	Necesitatea inlocuirii componentelor interioare existente	Nu
16.	Utilajele pentru care este necesara refacerea calculului si inlocuirea componentelor interioare.	Nu este cazul
17.	Locul amplasarii utilajelor suplimentare/noi	Nu este cazul

Legaturi Conducte

1.	Necesitatea montajului conductelor noi	Da
2.	Locul conexiunilor conductelor noi	Conform schema tehnologica anexata
3.	Parametrii de lucru ai conductelor existente care fac interconexiune cu cele noi	Conform parametri utilaje ce vor fi implicate in proiect
4.	Parametrii de lucru ai conductelor noi	Conform parametri utilaje ce vor fi implicate in proiect
5.	Necesitatea inlocuirii conductelor existente.	Nu
6.	Specificatiile conductelor care se inlocuiesc	Nu este cazul.
7.	Limitele inlocuirii conductelor	Nu este cazul
8.	Amplasarea conductei	Conform P&ID existent
9.	Traseul conductei	Conform schita
10.	Existenta spatiului liber pe estacada necesar	Da

	amplasarii conductei	
11.	Necesitatea constructiei estacadelor noi	<i>Nu</i>

	<i>Lista documentatiei obligatorii pentru partea de Tehnologie</i>
	<i>- P&ID</i>
	<i>- cartile tehnice ale conductelor existente</i>
	<i>- planul general cu indicarea traseelor noi si existente (subterane si supraterane) sau plan amplasare a utilajelor si a estacadelor existente.</i>
	<i>- plan zonare.</i>

RESPONSABIL DIN PARTEA BENEFICIARULUI:

FUNCTIA	NUMELE SI PRENUMELE	SEMNATURA
SPECIALIST MENTENANTA MECANICA	SPIREA COSTIN	
ING. TEHNOLOG ARIE PRODUCTIE	MITACHE IULIAN	
SEF INSTALATIE DGRS- TG-SWS-RGF	MIHALCEA VASILE	



Date initiale pentru partea Automatizari.

Montat sistem de filtrare de tip ciclon-coalescer pe conducta aspiratie, compresoare 21/2-K1 si 21/2-K2.

1.	Tipul echipamentelor AMC in conformitate cu cerintele tehnologice	Traductor de nivel conectat la PLC compresor+ventil regulator
2.	Necesitatea efectuarii calculelor de verificare a echipamentelor AMC	Nu
3.	Necesitatea inlocuirii echipamentelor	Se vor pastra
4.	Necesitatea si tipul incalzirii echipamentelor AMC	Da
5.	Propunerea schemei logice al alarmelor si blocarilor	Da, alarma LSH
6.	Necesitatea extinderii DCS	Nu
7.	Modalitatea amplasare cabluri AMC	Traseu nou local
8.	Necesitatea extinderii SCADA	Nuu
9.	Modalitatea amplasare cabluri SCADA	Traseu existent+taseu nou local.
10.	Producator SCADA	
	<i>Lista documentatiei obligatorii pentru partea de AMC si Automatizari</i>	
	<i>- Schema traseelor AMC</i>	

Toate campurile evidentiate cu rosu sunt obligatorii.

RESPONSABIL DIN PARTEA BENEFICIARULUI:

- Numele si prenumele: Ene Ion
- Functia: Inginer Sef Metrolog
- Telefon: 3018




Date initiale pentru partea Electrica.

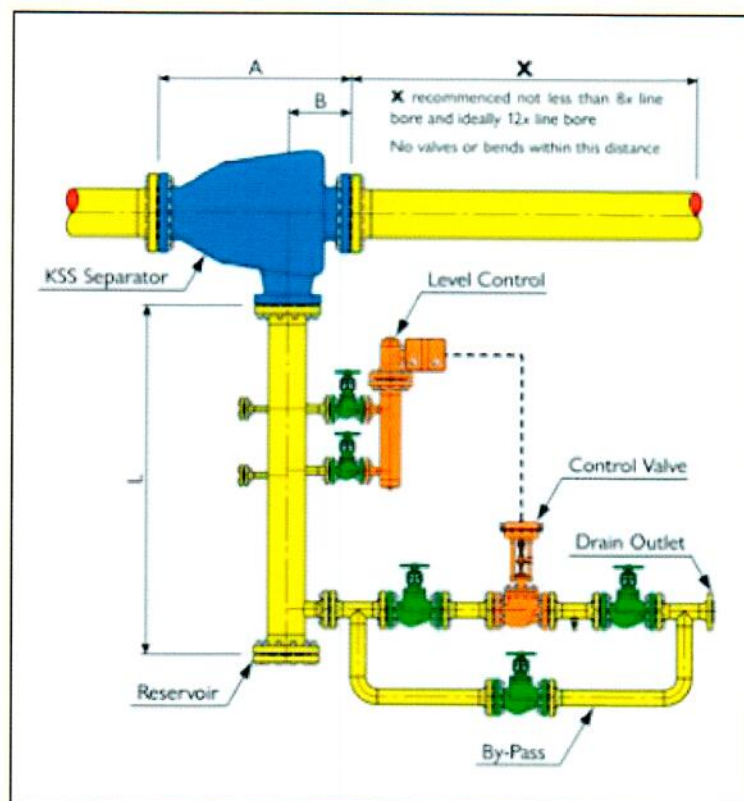
Montat sistem de filtrare de tip ciclon-coalescer pe conducta aspiratie, compresoare 21/2-K1 si 21/2-K2.

1.	Necesitatea conectarii utilajelor noi	<i>Da</i>
2.	Inlocuirea echipamentelor electrice existente va duce la majorarea puterii	<i>Da</i>
3.	Existenta rezervei de putere in statia electrica	<i>Da</i>
4.	Locul conectarii cablului nou in statia electrica	<i>Statia 32/2C</i>
5.	Tip traseu cablu nou	<i>LEA</i>
6.	Necesitatea amentajarii trasee noi pentru montajul cablurilor	<i>Da</i>
7.	Necesitatea inlocuirii motoarelor electrice la utilajele existente	<i>Nu</i>
	<i>Lista documentatiei obligatorii pentru partea Electrica</i>	
	<i>- trasee cabluri existente</i>	
	<i>- scheme electrice</i>	

Toate campurile evidentiate cu rosu sunt obligatorii.

RESPONSABIL DIN PARTEA BENEFICIARULUI:

- Numele si prenumele: Nikiforov Dimitri
- Functia: Manager Energetic
- Telefon: 3225

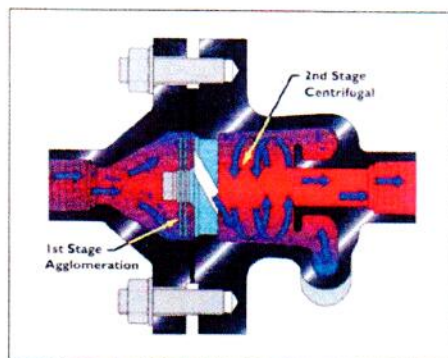


Cyclone Separator c/w Level Control, Drain & Bypass

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Kelburn Engineering Limited are a world leader in liquid from gas separation technology. Producing a complete range of gas separation equipment for the process, power and petrochemical industries. Our separators are designed to cover all gas and compressed air applications.

HIGH EFFICIENCY COALESCENT CYCLONE SEPARATORS



MKII Type KS Cyclone Separator

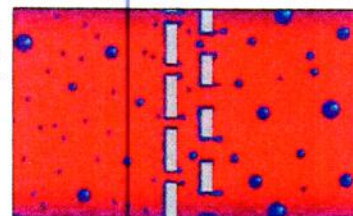
Liquid droplets within the gas flow at both start up and during normal operation may cause the following problems.

- Equipment damage due to erosion and/or corrosion.
- Reduction in process efficiency due to lower heat transfer rates.
- Increased maintenance and downtime.
- Process contamination due to liquid carryover.
- Impact damage to mechanical components.
- Pipeline corrosion.

The Kelburn Engineering Coalescent Cyclone Separator both protects equipment and prevents the problems associated with liquid entrainment in gas or compressed air. The separator range has been proven in service world wide.

OPERATION

The Coalescent Cyclone Separator has a two stage separation design. The first stage agglomerates the fine liquid particles causing them to coalesce by bringing the droplets together, increasing their size and mass. The second stage then utilises profiled deflector blading which imparts powerful centrifugal forces to separate all the liquid droplets from the gas flow. The liquid exits the separator from a volute contoured drain.

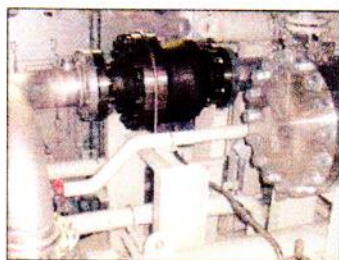


1st Stage Agglomeration

PERFORMANCE

These highly efficient, flow driven separators remove all droplets down to 10 microns in size and 80 - 90% in the range 5 - 10 microns. The separator operates with overall extraction efficiencies of more than 99.5%.

The Kelburn Engineering separator generates a very low pressure drop, typically less than 1% of the system operating pressure.



MKII KS Coalescent Cyclone Separator

DESIGN FEATURES

- Inline inlet and outlet
- Low pressure drop.
- No moving parts.
- Body of cast construction allowing manufacture in all material specifications.
- Internal contoured profile and volute drain for improved flow and separation.
- No maintenance and no spare parts requirement.
- Self clearing of separated liquids and solids.
- Flange and pressure ratings up to ANSI 2500 and PN 160.
- Separators specifically sized for each application, for maximum efficiency.
- Full range of separator sizes DN 10 to DN 1400 (1/4" to 56")

APPLICATIONS GAS

- Liquid removal from all gases - H_2 , N_2 , CO_2 , NH_3 , O_2 , CH_4 , C_2H_6 , ...
- Pressure reducing valve, control valves and flow meter protection.
- Gas compressor inlet protection.
- Liquid hydrocarbon removal from fuel gas lines.
- Gas turbine protection on fuel / air mixing system.
- Oil removal from gas turbine breather systems.

- Oil removal from refrigerant gas.
- Condensate removal from gas cooler outlet.
- Corrosive liquid removal from process gas.
- Reciprocating equipment protection.
- Heat exchanger protection.

APPLICATIONS AIR

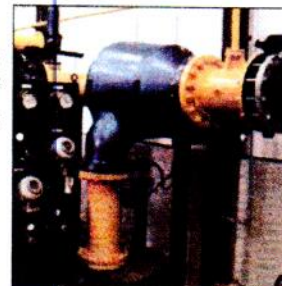
- Air dryer inlet water removal, reducing regeneration costs.
- Liquid removal in primary airlines.
- Air receiver outlet.

- Compressor inter and after coolers.
- Instrument air.

HIGH EFFICIENCY KNOCKOUT CYCLONE GAS SEPARATORS

Process and petrochemical plant systems, compressor stations and other equipment are always vulnerable to the severe loadings imposed by the sudden and/or continuous transmission of large volumes of liquids and/or the ingestion of solid particles. This may result in the following problems within a gas system.

- Shock loadings on rotating equipment.
- Equipment damage due to erosion and/or corrosion.
- Reduction in process efficiency due to lower heat transfer rates.
- Increased maintenance and downtime.
- Process contamination due to liquid carryover.



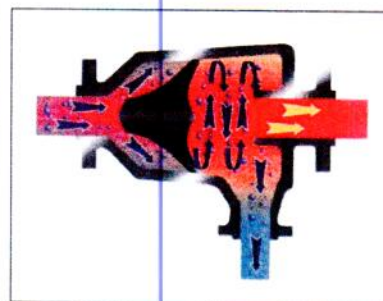
12" KSS Cyclone & Reservoir

Additionally, many processes require the continuous removal of liquid streams to ensure optimum operational efficiencies.

The Kelburn Engineering High Efficiency Knockout Cyclone Gas Separator has been developed to satisfy the dual separation requirement of large volumes of liquids and the removal of solid debris.

OPERATION

Slugs or streams of liquids, pipe scale and other debris enters the separator with the gas flow and hits the coned deflector vane section (designed to withstand the large impact loadings) where the flow is split into several streams. The flow then enters a vortex chamber tangentially from the deflector vanes and is subjected to a powerful centrifugal action. The liquid and solid particles are forced to the cyclone walls and leave the unit via a large area drain. The large bore drain and pipe reservoir provide rapid liquid removal and high capacity storage during a large water carryover event.

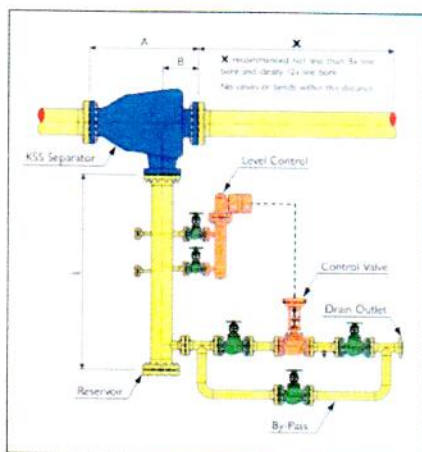


KSS Cyclone Separator

PERFORMANCE

These highly efficient, flow driven separators remove 99% of all droplets down to 15 microns in size.

The Kelburn Engineering separator generates a very low pressure drop, typically less than 1% of the system operating pressure. Separation of sand, pipe scale, swarf and other solid debris down to 15 microns in size. Separation and dispersion of liquid slugs and streams.



Cyclone Separator c/w Level Control, Drain & Bypass

DESIGN FEATURES

- Body of cast construction allowing manufacture in all material specifications.
- Separators specifically sized for each application, for maximum efficiency.
- Strengthened internal vanes for absorption of shock loadings.
- Full range of separator sizes DN 100 to DN 1400 (4" to 56")
- Flange and pressure ratings up to ANSI 2500 and PN 160.
- No maintenance and no spare parts requirement.
- Self clearing of separated liquids and solids.
- Large bore drain for rapid liquid removal.
- Compact in size.
- Inline inlet and outlet
- No moving parts.
- Low pressure drop.

APPLICATIONS

- Replacement of scrubbers and high volume gravity separators.
- Bulk gas liquid separation for metering applications.
- Gas preconditioning to filters or scrubbers.
- Gas compressor station protection.
- Heat exchanger protection.
- De-bottle necking.
- 2 phase separation.



15" KSS Cyclone Separator Natural Gas Application