

<b>Data sheet</b> Rotary compressor				Document No.:			
				Date:		2023/02/28	
				Revision:		0	
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Project: Golden Triangle Polymers (USGCII)			Contractor: Zachry & Daelim Joint Venture.				
Client: DYPNF			Tag number: 20/21-C-6004A/B/C				
Order:							
GENERAL DATA							
Type :	<input checked="" type="checkbox"/> Screw	<input type="checkbox"/> Tooth	N°of compr.stages : 1				
Serialnumber :	APFS 40011801/02/03/04/05/06			Quantity : 6			
Operations:	<input checked="" type="checkbox"/> Continuous	<input type="checkbox"/> Discontinuous					
Compression	<input checked="" type="checkbox"/> Oil free (dry)	<input type="checkbox"/> Oil injected					
Capacity control :	<input type="checkbox"/> 0/100%-ON/OFF	<input checked="" type="checkbox"/> Piped Inlet					
Maximum working pressure:	36.25 psi(g)	2.5 bar(g)					
Gas cooling medium :	<input type="checkbox"/> Oil	<input checked="" type="checkbox"/> Water					
Dryer:	<input type="checkbox"/> included	<input checked="" type="checkbox"/> not included					
Electric equipment:	<input type="checkbox"/> Starter	- V	- Hz	<input checked="" type="checkbox"/> Direct on line	<input type="checkbox"/> Star-Delta	<input type="checkbox"/> Softstarter	
	<input type="checkbox"/> Regulation	120 V	60 Hz	<input checked="" type="checkbox"/> Elektronikon	<input type="checkbox"/> Electro-pneumatic	<input type="checkbox"/> Without regulation	
Driver type :	<input checked="" type="checkbox"/> Squirrel cage induction						
OPERATING CONDITIONS			Cond.1		Cond.2		
			Winter condition		Summer condition		
Process data	Gas handled		Nitrogen		Nitrogen		
	Corrosive compounds		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> NO		
	Toxic compounds		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> NO		
	Gas contamination allowed		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> NO		
	Hexane allowed		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> NO		
Suction	Specific heat ratio	cp / cv	1.4		1.4		
	Molecular weight		28.966		28.966		
	Compressibility factor	Z	1		1		
	Relative humidity	%	0		0		
	Ambient temperature	bar (a) / psi (a)	1/14.5		1/14.5		
	Inlet Pressure	bar (g) / psi (g)	0.05/0.72		0.05/0.72		
	Ambient temperature	°C / °F	-13 / 8.6		40 / 8.6		
	Inlet temperature	°C / °F	50 / 122		50 / 122		
	Volume flow rate (Normal)	Nm3/h	5542		5542		
Discharge	Specific heat ratio	cp / cv	1.4		1.4		
	Compressibility factor	Z	1		1		
	Pressure	bar(g) / psi (g)	2.5 / 37		2.5 / 37		
	Gas temperature discharge compressor	°C / °F	42 / 108		42 / 108		
	Pressure dew point (if dryer is part of the package)	°C / °F	N.A.		N.A.		
Absorbed power at shaft - loaded	(excl cooling fan) kW	346		346			
Absorbed package power-unloaded	(incl cooling fan) kW	N.A.		N.A.			
Water inlet temperature	°C / °F	32 / 90		32 / 90			
Water temp.rise	°C / °F	10 / 50		10 / 50			
Total cooling water consumption	m³/h	35		35			
Speed of drive / compressor	r.p.m.	1780		1780			
Silencers suction / discharge deltaP		N.A.		N.A.			
Safety valves set pressure	psi(g)/ bar(g)	Stage : 87/6					
Sound pressure levels (SPL) at 1 m distance loaded condition	dBA Ref. 2E-5 N/m²	85 +/- 0 dBA					



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### LOCATION, SITE DATA

#### Location

- |   |   |                                      |
|---|---|--------------------------------------|
| <input type="checkbox"/> Indoor                             | <input type="checkbox"/> Heated               | <input type="checkbox"/> Unheated    |
| <input checked="" type="checkbox"/> Outdoor                 | <input checked="" type="checkbox"/> Sheltered | <input type="checkbox"/> Unsheltered |
| <input checked="" type="checkbox"/> Antifreezing protection | <input type="checkbox"/> Tropicalization      |                                      |
| <input checked="" type="checkbox"/> Area classification :   | Non-Hazardous safe area.                      |                                      |

#### Site data

- |  |                            |   |                     |
|--|----------------------------|---|---------------------|
| <input checked="" type="checkbox"/> Ambient pressure:            | 14.5 psi (a)               | <input checked="" type="checkbox"/> Max Altitude: | 1000 m.a.s.l.       |
| <input checked="" type="checkbox"/> Ambient temperature:         | min: 8.6 °F                | max:  | 104 °F              |
| <input checked="" type="checkbox"/> Max relative humidity:       | 0%                         |   |                     |
| <input checked="" type="checkbox"/> Coolwater inlet temperature: | min: 60 °F                 | max:  | 90 °F               |
| <input checked="" type="checkbox"/> Coolwater out temperature:   | max N.A. °C / open circuit | 107 °F  | °C / closed circuit |
| <input checked="" type="checkbox"/> Coolwater inlet pressure:    | max 5.5 bar                | 80 psi  |                     |

### SUPPLY, DESIGN AND TEST CODES

- |                              |   |                                  |
|------------------------------|---|----------------------------------|
| General supply specification | : | Manufacturer standard            |
| Compressor design            | : | Manufacturer standard            |
| Gear design                  | : | AGMA Class 13 DIN Class 5 gears. |
| Coupling design              | : | Manufacturer standard (DIN)      |
| Pressure parts design        | : | ASME Sec VIII Div.1              |
| Safety valves design         | : | API RP520                        |
| Oil cooler design            | : | Manufacturer Standard            |
| After coolers design         | : | Manufacturer standard            |
| Electric motors design       | : | NEMA                             |
| Instrumentation design       | : | Customer specification           |
| Design of electric parts     | : | CSA/UL                           |
| Compressor performance test  | : | Included.                        |
| Noise                        | : | 85 dB(A) @ 1m.                   |
| Painting                     | : | Manufacturer standard Procedure. |



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### DRIVER

Item No.	:	To be defined.	Manufacturer number :	To be defined.
Manufacturer	:	WEG	Type :	W50
Rated power	:	370 kW      500 HP	SF:      1	RPM :      1788
Rated voltage / frequency	:	4.16 kV      60 Hz		Form :      IM 3001 + Support point.
Mechanical protection	:	IP55	KT:      40 °C	Insulation class / util. :      F/B
Coupling	:	<input checked="" type="checkbox"/> Direct	<input type="checkbox"/> By gear	
Rotation viewed from coupling end	:	<input type="checkbox"/> CW	<input checked="" type="checkbox"/> CCW	
Lubrication type	:	<input checked="" type="checkbox"/> Grease	<input type="checkbox"/> Oil	
Connection	:	<input checked="" type="checkbox"/> Terminal box	<input type="checkbox"/> Flying leads	
Options included	:	<input checked="" type="checkbox"/> anti- condensation heater	<input checked="" type="checkbox"/> PT100 2 per phase	<input checked="" type="checkbox"/> PT100 2 per bearing

### CONSTRUCTION FEATURES AND MATERIALS

Moment of inertia J :	Compressor J :	2.25 kgm <sup>2</sup>	Motor J :	11.90 kg m <sup>2</sup>	Coupling J :	1.01 kgm <sup>2</sup>
Rotation viewed from coupling end	<input type="checkbox"/> CW	<input checked="" type="checkbox"/> CCW				
With gear box	<input checked="" type="checkbox"/> Included	<input type="checkbox"/> Excluded				
Starting torque compressor	Nm + 0 % :	310      454      653      685      716      732				
	% speed :	0      20      40      60      80      90				

Casing	Low pressure stage	
Model	OFS Q (SIZE 6)	
Casing split	Vertical	
Material	Grey cast iron EN 1561 - EN-GJL-200	
Thickness / corrosion allow.	<b>inch</b>	<b>0.5/ 0.03</b> mm      12/1
Max. working pressure	bar(g)/ psi(g)	2.5 / 36.2
Max. allowable working pressure	bar(g)/ psi(g)	4 / 58
Test pressure <input type="checkbox"/> Pneumatic <input checked="" type="checkbox"/> Hydrostatic	bar(g) / psi(g)	18 / 261
Max. allowable / min. operating temp.	°C °F	265 / 0 509/32
Max. casing capacity	m3/h	10366.666
Casing cooling medium <input checked="" type="checkbox"/> Water <input type="checkbox"/> Oil		
Cooling jackets max. allow. press.	bar(g) / psi(g)	10 / 145
Cooling jackets hydrotest test. press.	bar(g) / psi(g)	18 / 261

Rotors <input checked="" type="checkbox"/> Screw <input type="checkbox"/> Tooth		
Internally cooled / uncooled	Uncooled	
Pitch diameter (male / female):	<b>inch</b>	<b>12.3 / 10.65</b> mm      313/ 270.5
Lobes no. (male / female):		4 / 6
Length / diameter ratio (male / female):		1,56 / 1,81
Fabrication type:	Machined forging	
Material:	C-st DIN 17200 CK35 PTFE coated	
Max. yield strength:	N / mm <sup>2</sup>	240
Brinell hardness (max./min.)		180 / 140
Rotor clearance	inch	Confidential information
Rated speed (male rotor)	r.p.m.	7962



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Shaft		Low pressure stage	
Material		Integral with rotor	
Shaft end (Tapered / cylindrical)		Cylindrical	
Shaft seals type		Restrictive rings	
Material of Airseal		High alloy steel - X 12 Cr Mo S 17	
Material of Oilseal		Cast iron DIN 1691-64 GG 20	
Diameter at rotor / at shaft end	inch	4.8 / 3.53	mm 122.0/89.8
Bearings housing			
Type (Separate / integral)		Integral	
Split (Horizontal / vertical)		Vertical	
Material		Cast iron DIN 1691-64 GG20	
Bearings			
Radial bearings (Manufacturer / type)		SKF / roller NU	
Actual allowable radial bearings load		Confidential information	
Radial bearings span	inch	30.94	mm 785.9
Thrust bearings	Type	Ball (ACBB)	
	Manufacturer / location	SKF / at shaft end	
Actual allowable thrust bearing load		Confidential information	
Slipping load for coupling in operation		Not applicable	
Balancing piston compensating load		Confidential information	
Timing gear			
Type :		Helical	
Size (male / female) :	inch	7.08 / 10.63	mm 180 / 270
Material		Low alloy steel - X 21 Cr Ni Mo 2	
Quality class		DIN class 6 / AGMA Q12	
<b>Gearbox</b>	<input checked="" type="checkbox"/> Integral <input type="checkbox"/> separate		
Coupling		Installed between : Compressor and electric motor	
Manufacturer:	Stomag	Type :	PGA
Lubrication :	Dry		
<input checked="" type="checkbox"/> Coupling guard	<input checked="" type="checkbox"/> Non sparking protection		
COOLING AND LUBRICATION SYSTEM			
<input checked="" type="checkbox"/> Lubricating pump type :	<input checked="" type="checkbox"/> Gear	<input checked="" type="checkbox"/> Internal teeth	
Driven by :	Compressor shaft		
<input checked="" type="checkbox"/> Oil cooler type :	Plate type heat Exchanger.	Material: Stainless steel AISI 316	
<input type="checkbox"/> Intercooler type :	N.A.		
<input checked="" type="checkbox"/> Aftercooler type :	Shell & Tube Heat Exchanger.	Material: * Shell: Cast Iron (GGG40). - (Water - Cooling Medium). * Tube: Stainless Steel (X2CrMoTi18 2) - (Air - Cooled Medium).	
<input type="checkbox"/> Blow-off cooler :	N.A.		
<input type="checkbox"/> Dryer regeneration cooler type :	N.A.		