



SYNERGY

INNOVATIVE DIVING EQUIPMENT TRADING LLC

INSPIRING • ENGINEERING • INNOVATION

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PRODUCT CERTIFICATE
EC Attestation of Conformity

In Compliance with following Directives:

Machinery Directive
2006/42/EC

Low Voltage Directive
2014/35/EU

Pressure Equipment Directive
2014/68/EU

MACHINERY CONTROL IN AN 20FT DNV 2.7-1 OFFSHORE CONTAINER SPLIT INTO THREE COMPARTMENTS
FIRST COMPARTMENT : 2 X HP COMPRESSORS, 36 X BREATHING AIR CYLINDER RACK AND 1 X ELECTRIC HYDRAULIC POWER PACK
SECOND COMPARTMENT : 12 X OXYGEN CYLINDER RACK (RECESSED EXTERNALLY INTO CONTAINER)
THIRD COMPARTMENT : INSULATED AIR CONDITIONED , WITH WORK BENCH, VICE AND STORAGE CUPBOARD



Description
20FT CONTAINER
Option 1 : DNV Offshore container
Option 2 : ISO Container with modified DNV pad eyes
Divided into three compartments
Primary compartment: Non insulated, installed with below MARINER 320E Bauer Electric High pressure compressor, 380V.50HZ POSEIDON PE550 Bauer High pressure compressor, 400VAC.50HZ Hydraulic power pack, powerful offshore unit, capable of running two tools simultaneously 24 x 50 ltr x 200 bar cylinder breathing air rack for three diver panel 12 x 50 ltr x 200 bar cylinder breathing air rack for diving chamber Slotted louvre for high pressure compressor air flow Forced air fans for air flow Transformer (380v to 220v) step down for lights Penetration plate with all cylinders plumbed for air panel and ddc supply Penetration plate for hydraulic power pack with quick disconnect fittings
Secondary compartment: Non insulated, installed with below 12 cyl Medical Oxygen Rack with Hp regulator recessed externally in to the container
Third compartment: Insulated with air conditioner, installed with below Storage cupboard, work bench with vice, shelves



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BREATHING AIR CYLINDER SPECIFICATIONS



Cylinder	IL1.50.229.200
Manufacturing Standard	ISO 9809-1
Dimensions	229mm OD x 1480 mm Length x 50.0 ltrs
Material	34CrMo4
Manufacturing Process	Hot Spinning of Seamless Steel Tubes
Heat Treatment	Hardened Quenched and Tempered
Working Pressure	200 bar
Hydraulic Test Pressure	300 bar
Minimum Burst Pressure	480 bar
Volumetric Capacity (nominal)	50 Litres
Nominal Gas Capacity	10 cu.m (Approx)
Cylinder Outside Diameter (+_1%)	229mm
Cylinder Length (without valve (+_20MM))	1470mm (Approx)
Tare Weight (+_5%)	54 kg (Approx)
Gas Application	Breathing air
Neck Thread Specification	25E as per EN-629
Valve	Hand wheel Operated Valve with BS3 Outlet
External Finish	Powder coated as per Gas Color Code for Breathing Air Grey (RAL 7035) with white/black neck

OPTION 1 – DNV 2.7-1 EN12079 CERTIFIED OFFSHORE CONTAINER



Container	Specifications
Internal dimensions	L5.896 x B2.346 x H2.352 mm
External dimensions	L6.058 x B2.438 x H2.591 mm
Door opening	B2.338 x H2.253 mm
Volume	32,54 m ³ ,
Tare weight	970 kgs ¹³ ,
Max payload	530 kgs ¹⁶ ,
Max cargo weight	500 kgs
Color	Customized painting to client specifications
Certifications	DNV 2.7.1 / EN 12079 / ISO / CSC
Logo	Client logos done on special request

OPTION 2 – ISO CONTAINER



Container	Specifications
Internal dimensions	L5.898 x W2.350 x H2.393 mm
External dimensions	L6.058 x W2.438 x H2.591 mm
Door opening	W2.342 x H2.280 mm
Volume	33,10 m ³
Tare weight	2.150 kgs
Max payload	28.330 kgs
Max cargo weight	30.480 kgs
Color	Customized painting to client specifications
Certifications	CSC certified
Logo	Client logos done on special request



DIVING INDUSTRY GUIDELINES FOR DIVING CHAMBER AND DIVE PANEL IN CONTAINER

IMCA D023 –DESIGN for Surface Oriented (Air) Diving Systems



Diving Equipment Systems Inspection Guidance Note

DESIGN for Surface Oriented (Air) Diving Systems

IMCA D018 –Code of Practice for The Initial and Periodic Examination, Testing and Certification of Diving Plant and Equipment



Code of Practice for The Initial and Periodic Examination, Testing and Certification of Diving Plant and Equipment

SY BAUER COMPRESSOR-MARINER 320

MARINER320-E | MARINER320-B, 350 bar and 420 bar version



MARINER320-E standard version

General	
Medium	Air
Intake Pressure	atmospheric
Filling pressure	PN200 / PN300 or Pn420
Nominal pressure	225 bar / 330 bar / 350 bar or 420 bar
Working pressure	220 bar / 320 bar / 340 bar or 400bar
Permissible ambient temperaturerange	+5...+45°C
Permissible altitude	0...1,500 m AMSL
Max. permissible tilt	15°
System design	Open
Operating voltage standard	400 V; 50 Hz
Other operating voltage	On request
Compressor oil, standard	Synthetic
Oil change interval	Synthetic : every 2 years / 2,000 h Mineral: annually / 1,000 h
Finish	CYAN / RAL 9006

SY- STATIONARY HIGH PRESSURE COMPRESSOR FOR AIR AND BREATHING AIR COMPRESSION

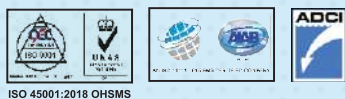
Types:

PE300-VE | PE400-VE | PE550-VE | PE700-VE | PE850-VE



PE 400-VE in open version

General	
Medium	Air
Intake pressure	Atmospheric
Filling pressure	PN200 / PN300
Pressure setting, final pressure SIV	225 bar / 330 bar / 350 bar
Pressure setting, pressure sensor	220 bar / 320 bar / 340 bar
Permissible ambient temperature range	+5...+45°C
Permissible altitude	0...1500 m AMSL
Max. permissible tilt	5°
System type	Open / Super Silent
Standard operating voltage	400 V; 50 Hz
Other operating voltage	On request
Compressor oil, standard	Synthetic
Oil change interval	Synthetic : every 2 years / 2,000 h Mineral: 1x annually / 1,000 h
Finish	RAL 1028 (Front) / RAL 9006 (side panels)


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SY-STATIONARY HIGH PRESSURE COMPRESSOR FOR AIR AND BREATHING AIR COMPRESSION

Compressor system	PE300-VE	PE400-VE	PE550-VE	PE700-VE	PE850-VE
Charging rate 1	300 l/min	400 l/min	550 l/min	700 l/min	850 l/min
Purification system	P42/350	P42/350	P42/350	P61/350	P61/350
Cooling air flow, min.	2,700 m ³ /h	3,960 m ³ /h	3,960 m ³ /h	5,400 m ³ /h	6,660 m ³ /h
Weight (Super Silent) ²	389 kg	394 kg	468 kg	493 kg	506 kg
Weight (open model) ²	299 kg	304 kg	378 kg	403 kg	416 kg
Dimensions (LxWxH) Super Silent ²	1,480 x 830 x 1515 mm				1,600 x 830 x 1515 mm
Dimensions (LxWxH) open ²	1,140 x 830 x 1515 mm				1,260 x 830 x 1515 mm

1 Measured during cylinder filling from 0-200 bar tolerance +/- 5% at + 20°C ambient temperature.

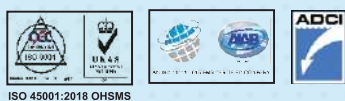
2 Standard model. Weight and dimensions may vary depending on accessories.

Drive system:	PE300-VE	PE400-VE /	PE700-VE	PE850-VE
e-motor		PE550-VE		
Power	7.5 kW	11 kW	15 kW	18.5 kW
Model	132	160	160	160
Type of construction	B3	B3	B3	B3
Type	Three-phase Squirrel-Cage-Motor			
Operating voltage / frequency 1	400 V, 50 Hz	400 V, 50 Hz	400 V, 50 Hz	400 V, 50 Hz
Rated current	ca. 14.2 A	ca. 20.8 A	ca. 28 A	ca. 34.2 A
	(at 400 V/50 Hz)	(at 400 V/50 Hz)	(at 400 V/50 Hz)	(at 400 V/50 Hz)
Speed	ca. 3,000 1/min	ca. 3,000 1/min	ca. 3,000 1/min	ca. 3,000 1/min
Protection class	IP55 (TEFC)a			

1 Other voltages and frequencies available on request against additional price.

OFFSHORE ELECTRIC HYDRAULIC POWER PACK SY-HPU-E-2T





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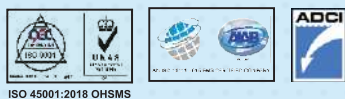
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OFFSHORE ELECTRIC HYDRAULIC POWER PACK SY-HPU-E-2T

Specifications	Powerful offshore hydraulic power pack
Construction	Steel
Number of Hydraulic tools the power pack can run at one time	Two underwater hydraulic tools
Maximum Flow	35 LPM per pump @ 1500 RPM (50Hz) x 2-70 LPM 42 LPM per pump @ 1800 RPM (60Hz) x 2-84 LPM
Operating Pressure	140 Bar with both pumps running / loaded
Maximum Pressure	210 bar
Oil Reservoir Capacity	300 ltrs
Hydraulic Pump	Variable flow axial piston double tandem
Recommended Hydraulic oil	ISO Grade 69 above 30 Deg C, Iso Grade 46 from 7 to 30 deg C
Emergency	Emergency stop button
Painting	Spray painted, yellow
Protection	Offshore stainless steel frame with certified lifting slings
Dimensions of frame	1200mm(L) x 800mm (B) x 1700mm (H)
Lifting provisions	
Pad Eye	4 pad eyes, angled
Ground Transport	Forklift slots provided beneath the quads
Name Plate information	Client name, manufacturing date, serial number
Tubing/Fittings	Stainless steel /hydraulic hoses
Maximum Gross Weight	900 KG
Certifications	with each hydraulic power pack
International	IMCA DO23
Manufacturer	Synergy bell certification
Electrical / Function Test	Provided
Class	Bureau Veritas lifting test certificates (including MPI)

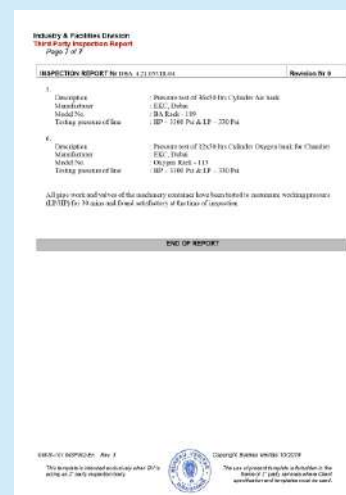


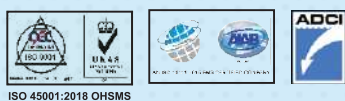


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CERTIFICATES PROVIDED WITH EACH MACHINERY CONTAINER

Container	Dnv offshore container certs / Iso container certs
Lifting Slings	Dnv or BV certified slings
Class	Bureau Veritas pressure test witness for entire system
Bauer compressor	Function /pressure/air purity test
Hydraulic Power Pack	Function /pressure/ test
Hp Breathing Air cylinder quad	Hydrotest /function test/ air purity test
Hp Oxygen Cylinder quad	Hydrotest /function test/ oxygen purity test
Imca	D018 / D023
Fmea	As built by Synergy
Fmea stamped by class	As built by Synergy and reviewed by Class (optional)
Warranty	One year Synergy manufacturing warranty





ORDERING INFORMATION

MACHINERY CONTROL IN AN 20FT DNV 2.7-1 OFFSHORE CONTAINER SPLIT INTO THREE COMPARTMENTS

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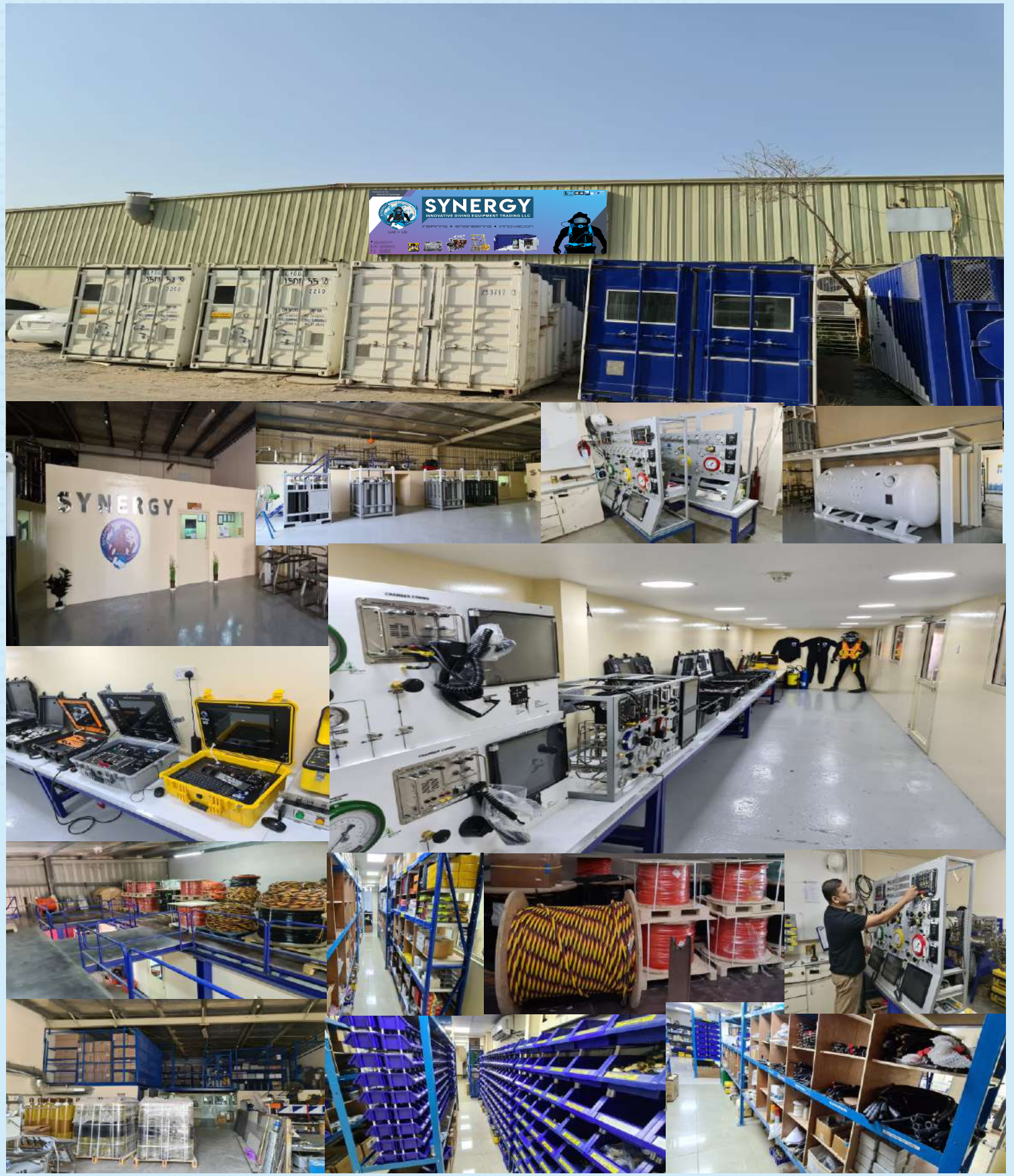
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THIRD COMPARTMENT : INSULATED AIR CONDITIONED , WITH WORK BENCH, VICE AND STORAGE CUPBOARD

SY	CONTAINER	MC	HP	HYDRAULIC POWERPACK	BREATHING AIR QUAD	OXYGEN QUAD	TECHNICIAN / STORE ROOM
SYNERGY	DNV / ISO	MACHINERY CONTAINER	BAUER HIGH PRESSURE COMPRESSOR	HYDRAULIC POWERPACK, ELECTRIC 68 LPM AT 140 BAR, CAPABLE OF RUNNING TWO HYDRAULIC TOOLS SIMULTANEOUSLY PLUMBED TO PENETRATION PLATE	2 X BREATHING AIR CYLINDER RACKS INSTALLED AS BELOW 12 CYLINDER RACK FOR DDC 24 CYLINDER RACK FOR DIVE PANEL ALL PLUMBED TO PENETRATION PLATE CAN BE USED IN TANDEM OR SEPERATELY	12 CYLINDER OXYGEN CYLINDER RACK FULLY PLUMBED, RECESSED EXTERNALLY INTO THE CONTAINER, COMPLETELY ISOLATED FROM CONTAINER WITH MESH GATE FOR EASY ACCESS	INSULATED AIR CONDITIONED ROOM WITH WORK BENCH, VICE AND STORAGE CUPBOARDS (TO BE USED AS TECH ROOM AND STORAGE)

Sr.	Part Number	Description
1	SY-DNV-MC-HP-BA-O2-STR	<p>DNV OFFSHORE CONTAINER SEGREGATED INTO THREE COMPARTMENTS</p> <p>FIRST COMPARTMENT : INSTALLED WITH 2 X HIGH PRESSURE COMPRESSORS, 36 X HIGH PRESSURE 50 LTR X 200 BAR BREATHING AIR CYLINDER RACK PLUMBED TO PENETRATION PLATE, 1 X HYDRAULIC POWER PACK ELECTRIC , CAPABLE OF RUNNING TWO STANLEY HYDRAULIC TOOLS SIMULTANEOUSLY</p> <p>SECOND COMPARTMENT : 12 X HIGH PRESSURE 50 LTR X 200 BAR MEDICAL OXYGEN CYLINDER RACK RECESSED EXTERNALLY (COMPLETELY INDEPENDENT FROM REST OF THE CONTAINER) WITH MESH GATE FOR EASY ACCESS</p> <p>THIRD COMPARTMENT : INSULATED WITH AIR CONDITION, TECHNICIAN ROOM AND STORAGE CUPBOARDS</p>
2	SY-ISO-MC-HP-BA-O2-STR	<p>ISO CONTAINER WITH MODIFIED LIFTING POINTS SEGREGATED INTO THREE COMPARTMENTS</p> <p>FIRST COMPARTMENT : INSTALLED WITH 2 X HIGH PRESSURE COMPRESSORS, 36 X HIGH PRESSURE 50 LTR X 200 BAR BREATHING AIR CYLINDER RACK PLUMBED TO PENETRATION PLATE, 1 X HYDRAULIC POWER PACK ELECTRIC , CAPABLE OF RUNNING TWO STANLEY HYDRAULIC TOOLS SIMULTANEOUSLY</p> <p>SECOND COMPARTMENT : 12 X HIGH PRESSURE 50 LTR X 200 BAR MEDICAL OXYGEN CYLINDER RACK RECESSED EXTERNALLY (COMPLETELY INDEPENDENT FROM REST OF THE CONTAINER) WITH MESH GATE FOR EASY ACCESS</p> <p>THIRD COMPARTMENT : INSULATED WITH AIR CONDITION, TECHNICIAN ROOM AND STORAGE CUPBOARDS</p>

SYNERGY INFRASTRUCTURE





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