Overview
The Ex(p)-Radome is a self-regulating system designed primarily for X-band radar, both with respect to physical dimensions and frequency but may be used for all kinds of surveillance equipment needing an Ex(p)-protected enclosure for harsh weather conditions.

Benefits:
- Ideally suits housing sensitive equipment (radars, etc.) in potentially explosive atmospheres
- Allows radar use during gas leakages
- Protects equipment from harsh weather conditions
- Increases equipment lifetime and durability
- Does not affect electromagnetic equipment performance
- Allows remote monitoring of temperature, pressure and operational status of the system.

Areas of use:
- Oil platform, FPSO / FSO surveillance radar systems
- Ship surveillance radars
- Oil field surveillance vessels
- Harbour radar / radio surveillance
- Coastal zone radar surveillance
- VTMS - Vessel Traffic Management Systems

How the radome works
1. Initialization phase
When the power is turned on the Radome flushing / purging starts. This is used to expel gas that might have intruded the Radome if it has been without power or out of use. Air is normally purged at 1470 litres per minute.

2. Ready for turn on the equipment inside the Radome
Once the purging is finished the vent is closed and the radar equipment is powered on.

3. Operation phase
Feedback from pressure and temperature sensors controls a maintenance vent. This operates at no more than 37 litres per minute.

4. Shut down
Normal operating pressure is between 13mBar and 17mBar. Lower than 8mBar the power is cut to the equipment inside.

Remote monitoring system
Pressure, temperature and operational status parameters are logged in a database. The data is accessible through a web browser either locally or remotely. This performance history is available for 12 months.
### Radar Dome specification

<table>
<thead>
<tr>
<th>Radar</th>
<th>Sperry Marine Vision Master, model 6592STAR, 8 foot antenna, model 65608/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>10000 litres</td>
</tr>
<tr>
<td>Weight</td>
<td>1100 kg</td>
</tr>
<tr>
<td>Material dome</td>
<td>gas and dust-proof fiberglass optimized for 9.4GHz</td>
</tr>
<tr>
<td>Material support frame</td>
<td>stainless steel</td>
</tr>
<tr>
<td>Mounting</td>
<td>20 bolts M35, standard 24° ANSI flange</td>
</tr>
<tr>
<td>Wind tolerance</td>
<td>designed for 350 km/hr (225mph)</td>
</tr>
<tr>
<td>Seal tolerance (ATEX)</td>
<td>air tight, max leakage 37 lit/min</td>
</tr>
<tr>
<td>Interfaces</td>
<td>radar video: 75 Ohm coaxial cable, radar pre-trig: 75 Ohm, power: 230 VAC/10A, radar control: 8x2x0.75 mm² cable supplied air: 1/2&quot; pipe</td>
</tr>
<tr>
<td>Optional</td>
<td>internal ex-heaters, microwave absorption kit, shielding panel kit</td>
</tr>
<tr>
<td>Compressed air</td>
<td>dry air pressurized @ 6 Bar at radar dome released air 1470 lit/min (24.5 lit/sec) oil and particles class 2</td>
</tr>
</tbody>
</table>

### Radar specification

#### Transceiver specification

<table>
<thead>
<tr>
<th>Magnetron frequency</th>
<th>9410 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetron peak power</td>
<td>25 kW</td>
</tr>
<tr>
<td>Pulse length/PRF</td>
<td>0.05 µs/3000 Hz (short) 0.25 µs/1760 Hz (medium) 0.75 µs/785 Hz (long)</td>
</tr>
<tr>
<td>Pulse generator</td>
<td>solid-state with pulse forming network driving the magnetron</td>
</tr>
</tbody>
</table>

#### Receiver specification

<table>
<thead>
<tr>
<th>Type</th>
<th>logarithmic, with low noise front end</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuning</td>
<td>AFC/manual</td>
</tr>
<tr>
<td>IF (intermediate frequency)</td>
<td>centered at 60 MHz</td>
</tr>
<tr>
<td>IF bandwidth</td>
<td>20 MHz (short/medium pulses) 3 MHz (long pulse)</td>
</tr>
<tr>
<td>Noise factor</td>
<td>5.0 dB</td>
</tr>
</tbody>
</table>

#### Antenna specification

<table>
<thead>
<tr>
<th>Frequency</th>
<th>9430 MHz (X-band)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenna aperture length (L)</td>
<td>8 ft (2.4m)</td>
</tr>
<tr>
<td>Horizontal beamwidth</td>
<td>1.0° max</td>
</tr>
<tr>
<td>Vertical beamwidth</td>
<td>24° nom</td>
</tr>
<tr>
<td>Sidelobes within 10° (min)</td>
<td>-23 dB</td>
</tr>
<tr>
<td>Sidelobes outside 10° (min)</td>
<td>-30 dB</td>
</tr>
<tr>
<td>Gain (nominal)</td>
<td>31 dB</td>
</tr>
<tr>
<td>Polarization</td>
<td>horizontal</td>
</tr>
<tr>
<td>Rotation rate (standard/high)</td>
<td>28/45rpm</td>
</tr>
</tbody>
</table>

### Certificates and standards

EN 50014, EN 50016, EN 50018, EN 50019
ATEX II 2 G Ex d[ib] IIC T3
ISO 8573-1:2001(E)

### Non-ex version of Radar Dome

Radome in non-ex version is used for protection of nearby personnel from being accidentally struck by quickly rotating antennas and for protection of equipment from harsh weather conditions: wind, ice, freezing rain, UV rays etc.