

For cooling in the ARU system, liquid ammonia is used as the refrigerant.

The ARU operates as follows:

- The compressor (1) draws in ammonia vapor and compresses it to 2.6 MPa, heating the liquid ammonia to 65°C (max 105°C).
- The heated ammonia enters the condenser (2), where it is cooled by circulating water to 40°C.
- Oil pressure in the oil system is 1.2 bar.
- Operating oil temperature in the compressor lubrication system is 45°C (min 20°C, max 65°C).

Table 1.1.1. Hazard card of the ammonia refrigeration unit

Equipment name	Equipment type	Position number on block diagram (see section 2.2.1 of chapter 3)	Equipment purpose (typical technological operation performed in the apparatus)
Cylinders for refilling the ARU system	Portable metal cylinders	Not stored on-site; delivered and used by the ARU manufacturer on separate order	Refilling the ARU system with ammonia after draining during maintenance, or when ammonia is insufficient
Compressor unit	Screw compressor SAB 163 Hf	1	Screw compressor designed to create high pressure in the ARU system

Table 1.1.2. Characteristics of hazardous substances in ammonia refrigeration units

■	Hazardous substance	Hazard class	MAC (mg/m³)	Quantity (m³)	Quantity (tons)
1	Ammonia	4	20	0.36	0.085

1.1.1. Description of the technological process in ammonia refrigeration units

