

CASE STUDY

Product	Suction and Discharge Valves
Segment	Chemical Industry
Case n°	2016.005



| Situation

A high pressure reciprocating pump, operating with ammonia (NH_3) at a fertilizer production plant, presented frequent suction and discharge valve failures.

The failures were caused by the ammonium carbonate corrosive action, an intermediate product of the urea synthesis. Besides limiting valve life span to approximately 7 months, the corrosion, mainly of the sealing areas, made valve reconditioning impossible.

In view of losses related to reciprocating pump stops, and to costs with the constant acquisition of new valves, the client turned to Selco for an innovative solution.

| Reciprocating Pump

Manufacturer	Uracá
Model	KD815
Fluid	Ammonia
Rotation	169 rpm
Final Pressure	200 bar



| Solution

Taking into consideration the reciprocating pump operational conditions, as well as the ammonium carbonate chemical properties, Selco developed a material able to simultaneously resist mechanical wear, and corrosive action.

Besides a valve life span increment, the new project also optimized the ammonia flow, with a subsequent increase in productivity.

| Results

The new project led to an approximate increment of 250% in valve life span, going from 7 to 24 months. Besides, the reduction in maintenance stops increased the reciprocating pump operational availability to 18,000 hours.

Valve reconditioning became viable with the elimination of the corrosive effect, while enabling the client to merely exchange the sealing elements. The reconditioned valve costs less than 20% of a new valve, generating significant savings for the client.

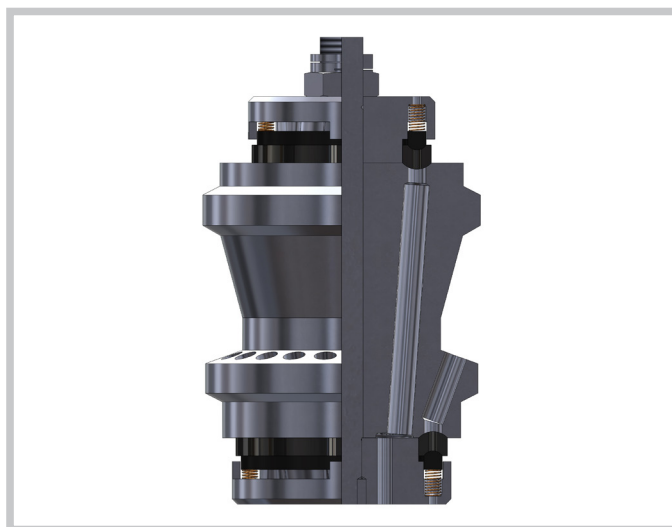
| Selco Solution



| Assembly Outlook



| Cross Section



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