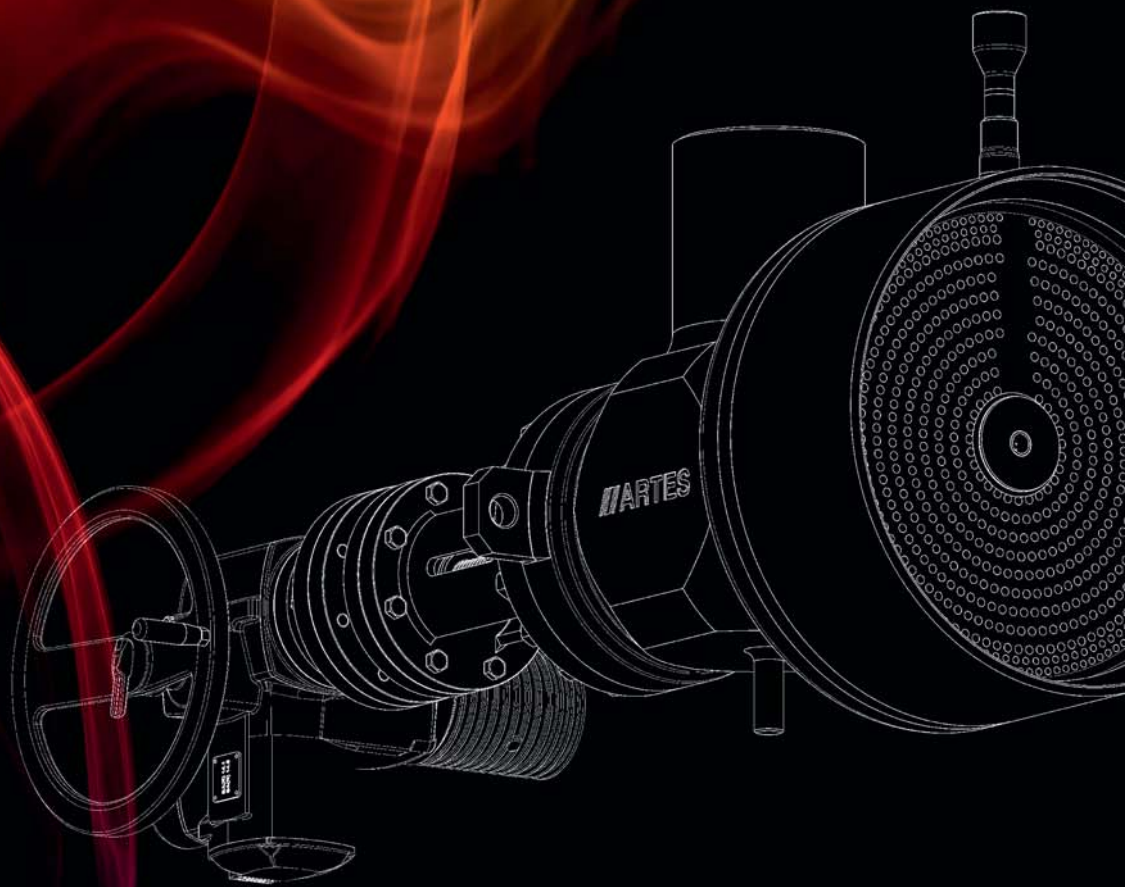


Steam Converting Station



Purpose & Advantages

The ARTES steam converting station is a control valve for reduction of the steam pressure or regulation of the steam volume as well as for steam cooling. Characteristic for the pressure and quantity regulation of the ARTES steam converting station is multi-stage, sub-critical pressure relief. The following integrated steam cooling is separate and independent of the pressure and quantity regulation. For this purpose we use the ARTES steam-atomising desuperheater or the ARTES injection type desuperheater.



Typical applications:

- ▶ Steam pressure reduction valve
- ▶ HP/MP/LP bypass station
- ▶ Transfer station
- ▶ Reheater safety station

Advantages:

- ▶ Optimal steam conversion across all application ranges
- ▶ Individual adaptation of the throttle levels
- ▶ Fast steam cooling in all application ranges
- ▶ Low noise due to sub-critical pressure relief
- ▶ Wear parts can be replaced on site



Function

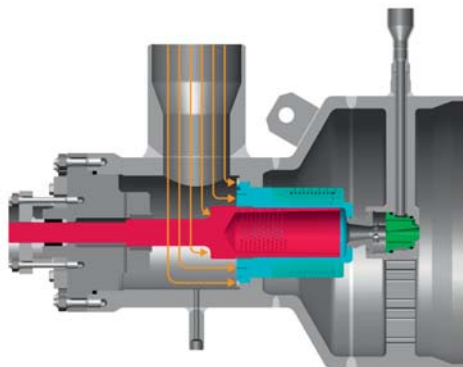
The pressure reduction is performed in the ARTES steam converting station sub-critically in all application ranges. This is made possible by the combination of perforated cone, perforated cages and outlet-side perforated discs. If the perforated cone is moved out of the seat by the actuator, the first holes of the perforated cone are uncovered. The relief of the hot steam occurs via defined flow cross-sections in the perforated cone, perforated cages and perforated discs. The stem travel determines the

uncovered cross-section in the perforated cone and in the perforated cages and thus the resulting steam quantity or steam pressure

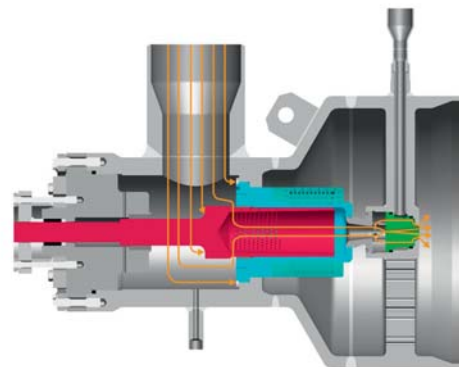
The outlet-side perforated discs effect an additional pressure reduction and the homogenisation of the hot steam flow.

The function of the ARTES injection type desuperheater and the ARTES steam-atomising desuperheater is described in detail in the respective brochures.

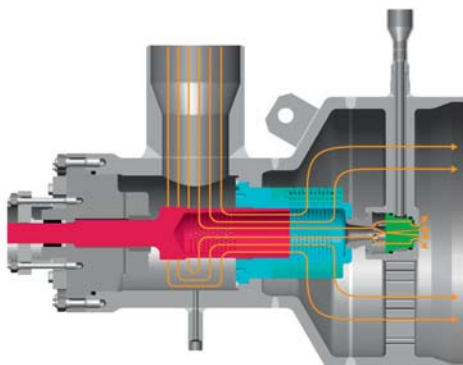
Function of a steam converting station with integrated extraction of motive steam



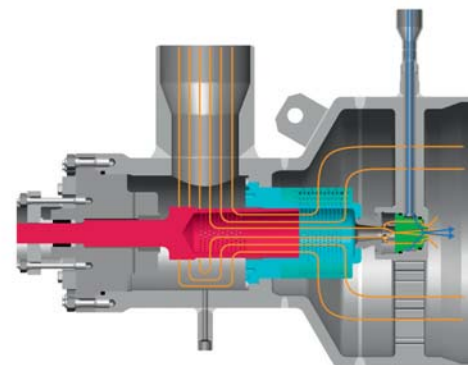
Perforated cone closed:
Motive steam extraction and pressure reduction closed



Perforated cone slightly opened:
Motive steam extraction open, pressure reduction closed



Perforated cone opened:
Motive steam extraction open,
pressure reduction open, no cooling



Perforated cone opened:
Motive steam extraction open, pressure
reduction open, cooling water supply open

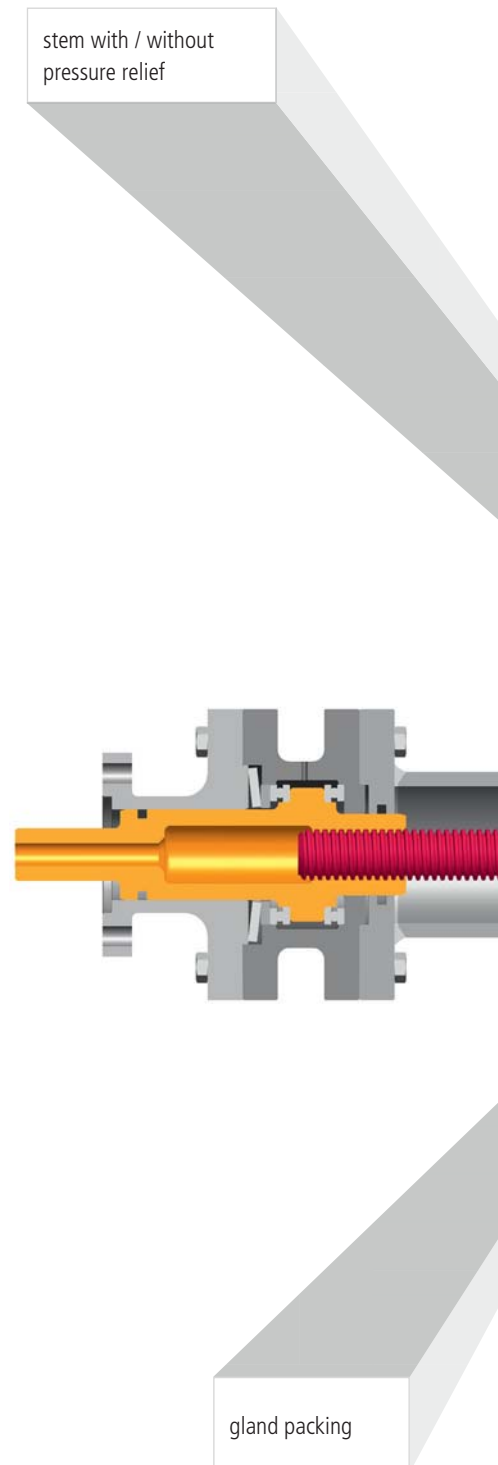
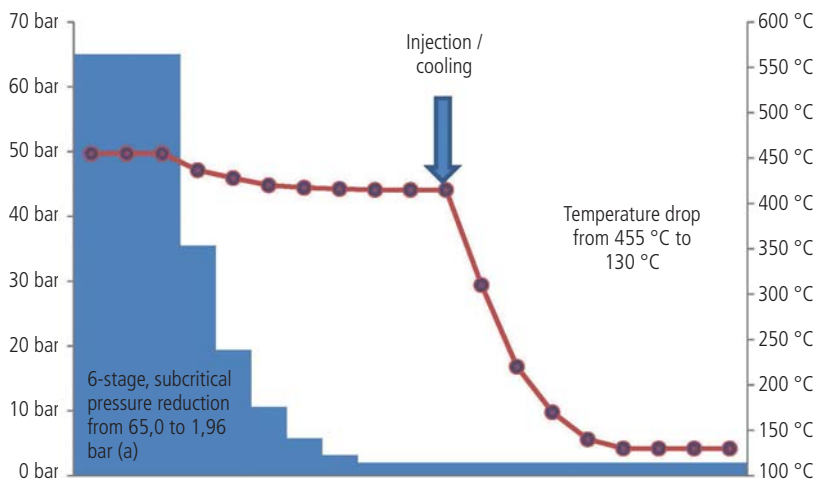
Design

The basic design of the ARTES steam converting station corresponds to an angle valve design.

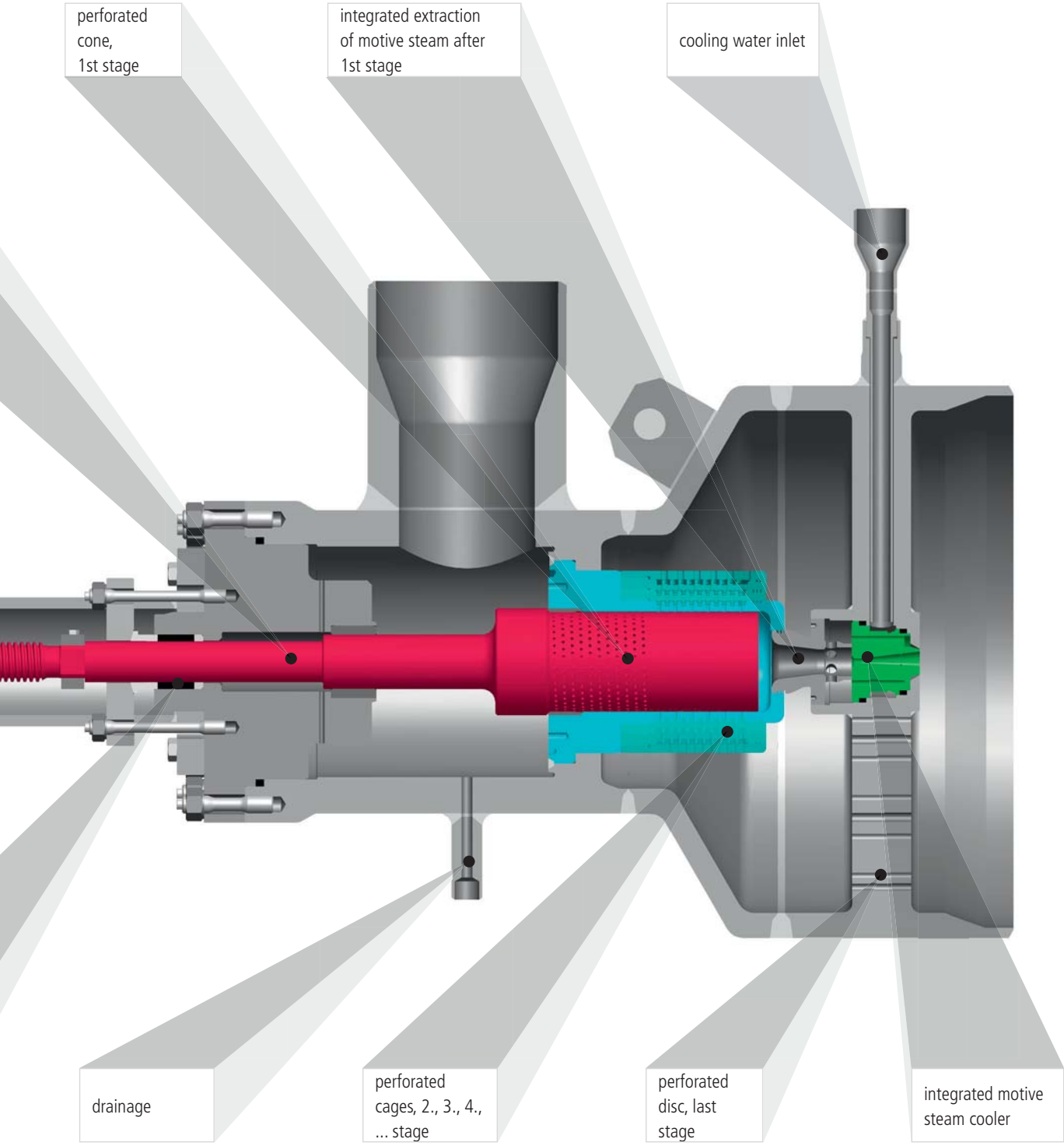
The valve housing is made of forged steel. Inlet and outlet of the valve can be delivered either as weld-on or as flange version. The weld-on ends are made out of the identical material as the customer piping material.

The type and number of holes in the perforated cone and perforated cages determine the regulating characteristics of the ARTES steam converting station. Depending on the customer's wishes, linear or equal percentage control regulating characteristics can be provided.

Behavior of pressure and temperature in HP-Bypass-station (schematic)



Design

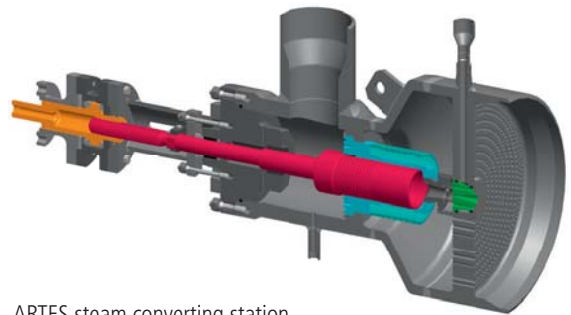


Examples / Applications

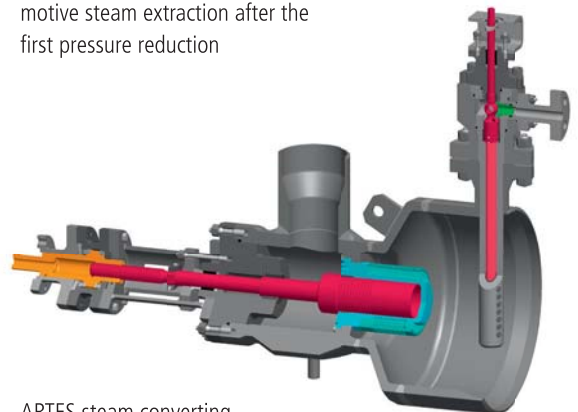
For the cooling function, different designs are available that provide different advantages depending on the application.

This includes the ARTES steam-atomising desuperheater, with which hot steam can be quickly cooled to the saturated steam temperature. The steam-atomising desuperheater can be integrated in the outlet of the steam converting station or installed as a separate valve at the outlet of the steam converting station. For cooling outside of saturated steam applications, desuperheaters are used.

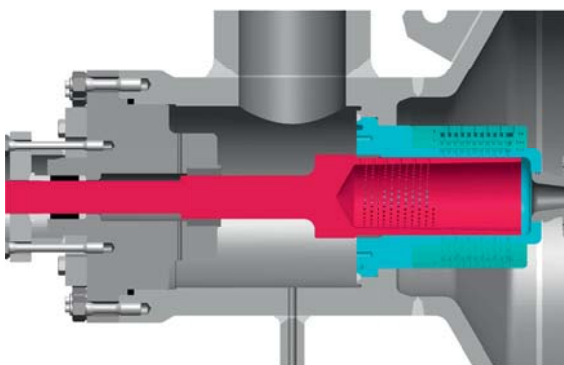
For the option of using relatively small drives, the perforated cone is manufactured with a pressure relief that makes possible significantly smaller actuating forces.



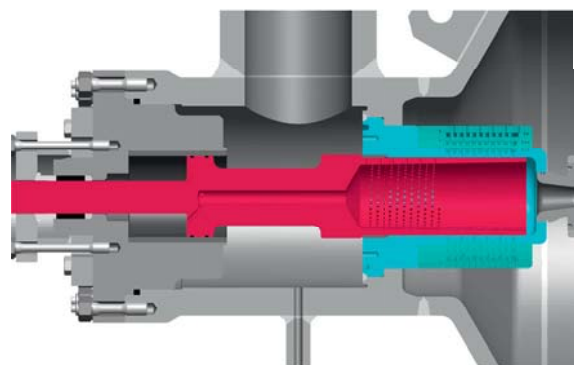
ARTES steam converting station with multi-stage pressure relief and steam-atomising desuperheater integrated in the perforated disc, motive steam extraction after the first pressure reduction



ARTES steam converting station with multi-stage pressure relief and subsequent ARTES desuperheater



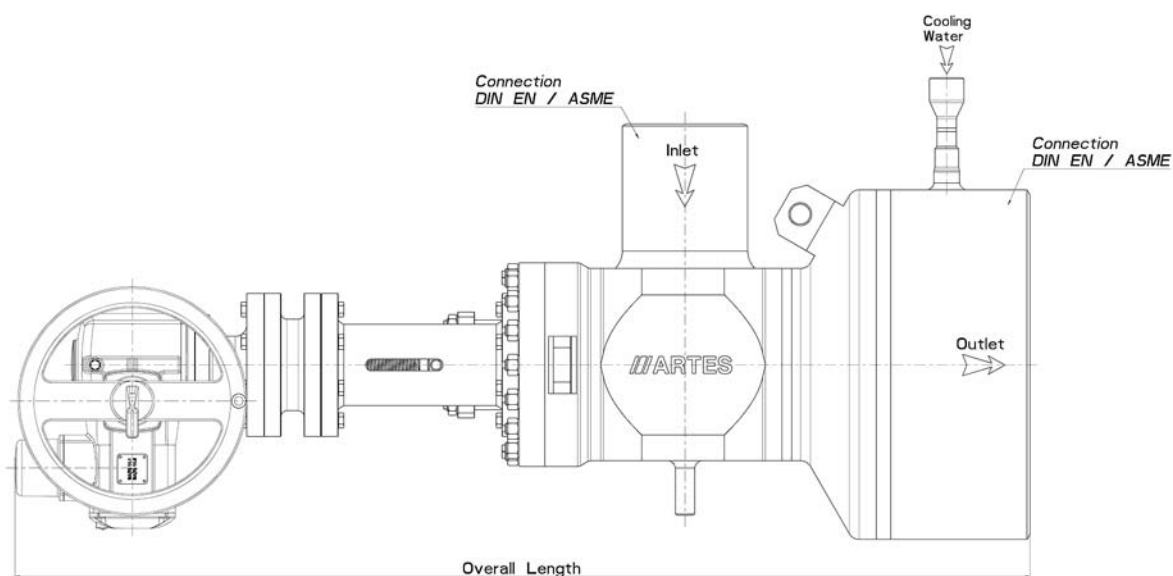
Perforated cone without pressure relief



Perforated cone with pressure relief

Facts

Inlet/outlet dimensions:	DN 50 ... DN 800 or 2" ... 32"
Pressure class:	up to PN 400 bzw. ANSI-class 2500
Temperatures:	up to 600 °C
Body material:	1.0460, 1.5415, 1.7335, 1.7380, 1.4903 and equivalent international materials
Material perforated cone / cages:	1.4122, 1.4923
Gaskets:	Graphite
Connections to pipeline:	flanges (EN1092-1, ASME B16.5 and others), weld ends



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