TECHNICAL DATA SHEET



DUST SUPPRESSION DURING BULK MATERIAL HANDLING
BY MEANS OF WATER MISTING

DUSTGUARD

E-CRANE® QUILIBRIUM

Using high-pressure water mist technology, a fine mist is generated that efficiently captures dust particles and causes them to settle. E-Crane offers this solution to customers in the recycling industry (scrap handling) and to customers where dust emissions pose environmental risks.

An efficient approach requires very fine atomization. Only with such fine misting can dust particles attach themselves to the microdroplets in the water mist and subsequently settle.

The mist is generated by means of nozzles installed above the grab. The number of nozzles depends on the size of the grab. These nozzles are mounted on the housing of the E-Crane grab rotator. The nozzles can be adjusted at an angle relative to the vertical axis in order to direct the mist perfectly and optimize the required number of nozzles.

E-CRANE DUSTGUARD

The E-Crane DUSTGUARD dust suppression system can either be connected directly to a water supply line or supplied by a water tank mounted on the crane. In the latter case, an additional booster pump must be provided alongside the water reservoir and customer specific engineering is required

The water is first filtered and then fed to the high-pressure water pump. This high-pressure pump is integrated into the crane's hydraulic system and supplies water to the nozzles at approximately 100 bar (1450 psi).
At this pressure, the nozzles generate a fine water mist.

The installation can easily be switched on and off using a switch within reach of the crane operator (manual activation). Activation of the misting system can also be automatic (for example when closing or opening the grapple or grab), as it is linked to the grab operation.

Note: In freezing conditions, the system cannot be used for obvious reasons and the necessary precautions must be taken. The high-pressure side is equipped with a compressed air connection so that the lines between the pump and the nozzles can be blown empty before water is frozen. A (small) compressor is not included in the E-Crane standard scope.





SYSTEM DESCRIPTION AND OPERATION
FOR A 700-SERIES E-CRANE

The installation concerns an E-Crane 700 Series. Water is supplied at the center of the crane (pipe connection: typical DN25/DN50 – 1"/2"). The E-Crane low-pressure (LP) piping will be connected here. At the bottom, a manually operated brass shut-off valve is provided. This shut-off valve is also equipped with a vent.

Note: If the customer provides their own fire-fighting installation, E-Crane and the customer will jointly determine how and where E-Crane can connect to the larger fire-water piping.

Inside the E-Crane column
At the level of the service platform in the column, a water swivel will be installed. This will be combined with the installed electrical swivel.

The piping inside the crane column, as well as the water swivel, will be equipped with frost protection (electric heating). A hose connects the top side of the water swivel to the suction side of the filter and pump unit in the chassis.

Note: Optionally, an additional branch connection with a 1"1/2 shut-off valve can be provided underneath the water swivel for a possible future connection of a fire hose (to be used on the circular platform, the so-called catwalk).

Inside the E-Crane chassis
Inside the crane chassis, the pressure filter and high-pressure pump are installed. The pump is hydraulically driven and connected to the standard E-Crane load-sensing hydraulic system. The assembly is compact, robust, service-friendly, and highly reliable. An electrically operated shut-off valve is also installed in the chassis.

On the E-Crane boom and stick
A high-pressure hose connects the nozzles to the pressure side of the high-pressure pump. Each nozzle is equipped with its own filter (so-called "strainer" or "last chance" filter) to prevent possible clogging of the nozzles. All couplings are executed in stainless steel.



WATER CONSUMPTION

About daily water consumption, we provide estimates, as this depends on several factors such as the number of grab cycles, the duration of operation, the number of installed nozzles, the setting for post-spraying, etc.

Good results are obtained with **4 nozzles only for grabs/ grapples that fit a 700 Series E-Crane.**

For very prolonged and intensive use, consumption is approximately 100 liters/hour/nozzle.

For highly intermittent crane operation (700 Series), such as feeding a shear, consumption can be estimated at approximately
2 m^3 / 3 yd^3 (per shift).

For continuous operation, the data below applies:

E-Crane high-pressure DUST GUARD			
# Nozzles	**Water Pressure (bar)**	**Water Flow (L/min)**	**Water Consumption - Continous (L/Hr)**
6	80	75.0	4.500
5	100	77.7	4.663
4	150	26.1	1.565
3	190	18.8	1.125
2	200	15.0	900
1	200	7.7	462

INSTALLATION

The complete system is pre-assembled at the factory in the column, chassis, crane arms, and rotator. During installation on site, only the interconnections still need to be completed.

Note: Nozzles are installed on E-Crane rotators only.







WARNING: DUST GUARD is intended for dust suppression only!

It is not designed, rated, or approved for firefighting applications.