

GW THERMOCOOL NOZZLE STRUCTURAL STEEL PROTECTION

DESCRIPTION

The GW Thermocool nozzle is a reverse action open nozzle. It is designed for fire protection of structural steel, and the specially developed water distribution pattern provides protection (cooling) by direct impingement, without the excessive water wastage that is seen when conventional nozzles are used.

The narrow "stand-off" distance from nozzle to target (min. 200mm) allows the GW Thermocool nozzle to be installed in densely packed areas typically seen on offshore platforms, process areas and warehousing.


Although the GW Thermocool nozzle is used primarily for cooling of structural steel, it is equally well suited to provide exposure protection on other flat surfaces which must be isolated from the damaging effects of heat.

The GW Thermocool nozzle produces a medium velocity water spray, which is fully developed in the operating pressure range of 2 to 6 bar. The nozzle can be operated at pressure up to 12 bar, but will generate finer droplets (mist) as the pressure increases.

APPLICATION

Fire & heat protection of structural steel girders - in both **horizontal** and **vertical** positions (see page 2 and 3).

TECHNICAL SPECIFICATION

Standard Nozzle Range				
K-Factor (Metric) Tol. ± 5%	K-Factor (US) Tol. ± 5%	Thread (Male)	Approval	Brass (Part no.)
14	0,97	1/2" BSPT	 1)	D36D00B-FM
26	1,8	1/2" BSPT	No approval	D36E00B
41	2,83	1/2" BSPT	No approval	D36F00B



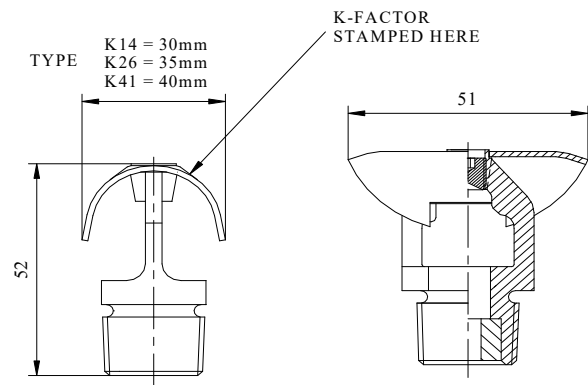
1) Only Brass and Brass/ENP is approved by FM.

Options:

For applications where improved corrosion resistance is called for, the GW Thermocool nozzle can also be supplied in ENP (electroless nickel plated) brass – or stainless steel alloys: SS316 or SMO (6Mo).

Recommended operating pressure		
Min.	2 bar	29 PSI
Max.	6 bar	87 PSI
Max. design pressure		
	12 bar	175 PSI

Weight: ~ 80 grams (brass)



The right is reserved to vary or modify any specifications without prior notice.

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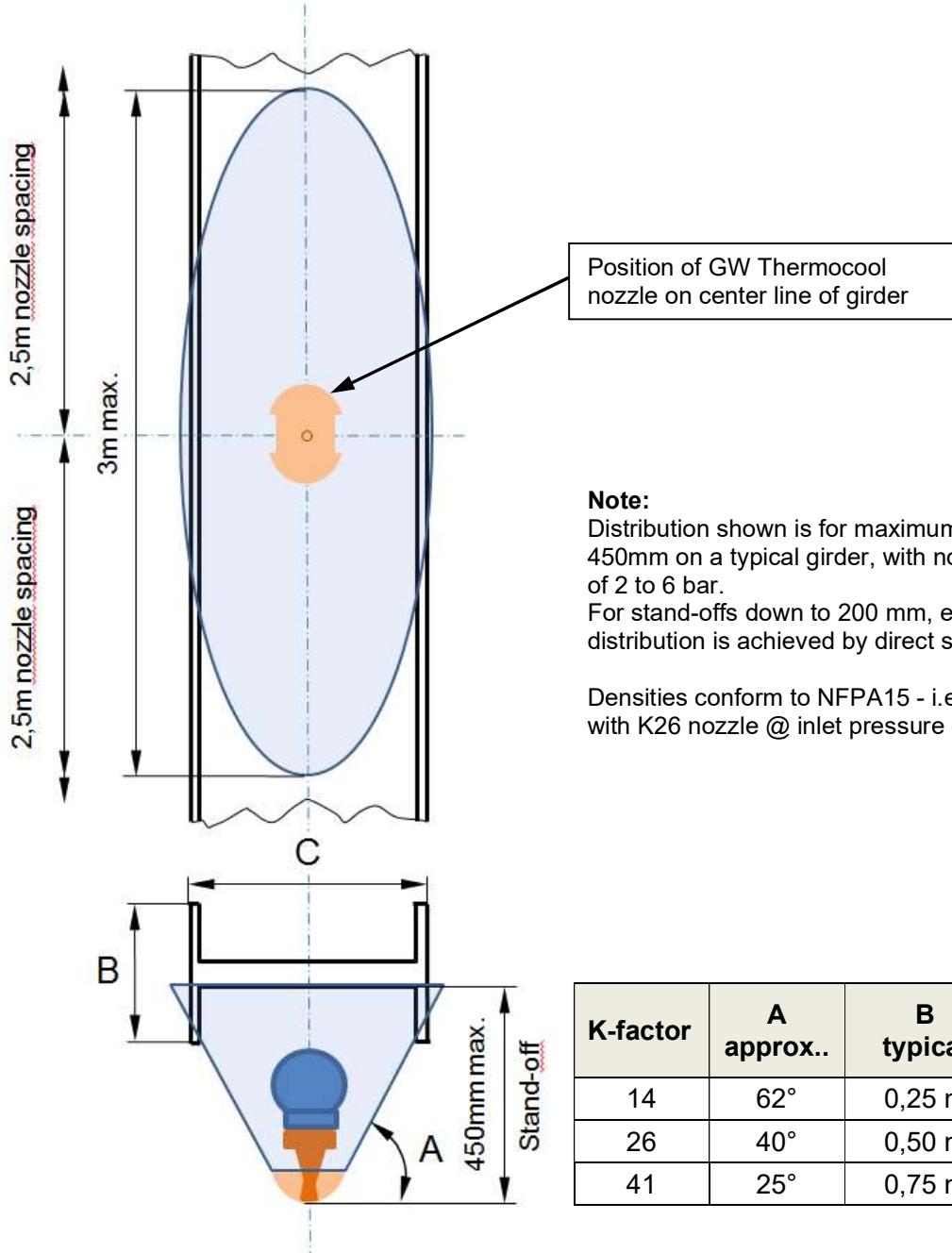
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Date: 2nd November 2016

Spray coverage on VERTICAL girder (not to scale)



Note:
 Distribution shown is for maximum stand-off of 450mm on a typical girder, with nozzle inlet pressure of 2 to 6 bar.
 For stand-offs down to 200 mm, equivalent distribution is achieved by direct spray and slippage
 Densities conform to NFPA15 - i.e. 10,2 l/min/m² with K26 nozzle @ inlet pressure of 2 barg.

K-factor	A approx..	B typical	C typical wide girder
14	62°	0,25 m	0,5 m
26	40°	0,50 m	1,0 m
41	25°	0,75 m	1,5 m

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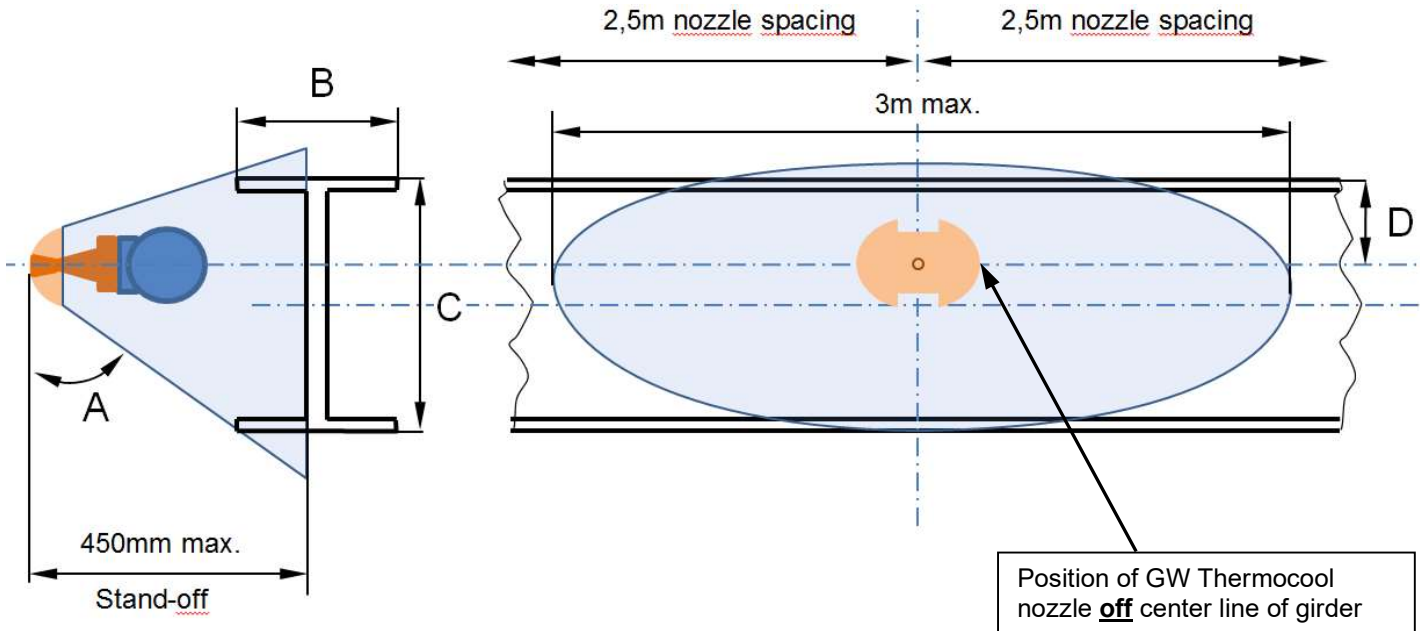
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Spray coverage on HORIZONTAL girder (not to scale)



Note:

Distribution shown is for maximum stand-off of 450mm on a typical girder, with nozzle inlet pressure of 2 to 6 bar.

For stand-offs down to 200 mm, equivalent distribution is achieved by direct spray and slippage

Densities conform to NFPA15 - i.e. 10,2 l/min/m² with K26 nozzle @ inlet pressure of 2 barg.

K-factor	A approx..	B typical	C typical wide girder	D
14	62°	0,25 m	0,5 m	0,15 m
26	40°	0,50 m	1,0 m	0,40 m
41	25°	0,75 m	1,5 m	0,50 m

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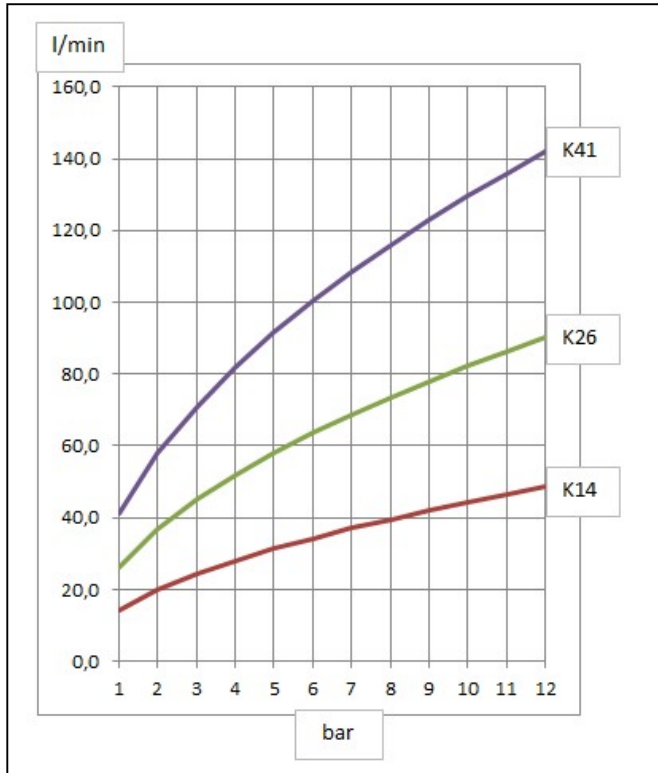
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PRESSURE / FLOW



The pressure / flow relation is calculated based on the formula: $Q = K \times \sqrt{P}$

Q = flow (l/min)

K = nozzle K-factor

P = water pressure at nozzle (barg)

INSTALLATION

The GW Thermocool nozzle is installed in dry pipe systems – typically as part of a deluge system, or branched off a wet sprinkler system where the dry pipe section is controlled by zone valves, e.g. GW MJC (multiple jet control) valves. The GW Thermocool is a reverse action nozzle, and shall be installed with the orifice directed perpendicularly away from the surface to be protected. It is to be installed along the steel structure (girder) to provide an uninterrupted coverage of water spray. The nozzle spacing (center to center) must not exceed 2,5 m and the “stand-off” distance must be in the range of 200 to 450 mm. (depending on the application and geometry of the girder).

The GW Thermocool nozzle must be orientated such that the deflector “cut-outs” are pointing perpendicularly towards the girder sides (see page 2 and 3).

Before installation, make sure that appropriate nozzle model and style, with correct K-factor, spray angle and material is selected for the job.

Apply a small amount of pipe joint compound or tape to the external threads of the nozzle, taking care not to allow a build-up of compound inside the inlet. Hand-tighten the nozzle into the fitting. **Do not** use the deflector to start or thread the nozzle into a fitting.

Use a suitable wrench to finally install and tighten the nozzle, applying a min. to max. torque of 9,5 to 19 Nm. Higher levels of torque can distort the nozzle inlet with consequent impairment of the nozzle.

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GW

THERMOCOOL NOZZLE

STRUCTURAL STEEL PROTECTION



INSPECTION, TEST AND MAINTENANCE

The owner is responsible for maintaining the fire protection system in proper operating condition. For minimum maintenance and inspection requirements, refer to relevant standards – e.g. NFPA 25, that describes maintenance and inspection of sprinkler / water spray systems. In addition the AHJ may have additional maintenance, testing and inspection requirements that must be followed.

1. Spray nozzles must be inspected on a regular basis for corrosion, mechanical damage, obstructions (plugging of water way), paint, etc. The frequency of inspections may vary due to corrosive atmospheres, water supplies and activity around the nozzles.
2. Spray nozzles that have been painted or mechanically damaged must be replaced immediately. Nozzles showing signs of corrosion shall be tested for proper operation, and/or replaced immediately as required. Care must be taken to ensure that the replacement nozzle has the proper model, style and K-factor. A cabinet should be provided and stocked with a suitable wrench and extra spray nozzles of each variety used for replacement purposes.
3. The spray nozzle discharge pattern is critical for proper fire protection. Hence, nothing should be hung from, attached to, or otherwise obstruct the discharge pattern. All obstructions must be immediately removed or, if necessary, additional nozzles installed.
4. Fire protection systems that have been subject to a fire must be returned to service as soon as possible. The entire system must be inspected for damage and repaired or replaced as necessary. Spray nozzles that have been exposed to corrosive products of combustion or high ambient temperatures, should be replaced.

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