# D SERIES

## Dosing & Metering Gear Pumps

### Nitrided Cast Iron (G25)

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2008

ULTRA POMPE Srl

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## GENERAL FEATURES

***+Application:*** *D-series gear pumps are precision metering pumps, particullary small and compact, that have been projected for the metering and dosing of great variety of fluids for chemical and plastic industries. D-series gear pumps are expressly projected for the of your products.*

***+Clock Wise Rotation:*** *D-series gear pumps have only one pumping sense, standard clock wise.*

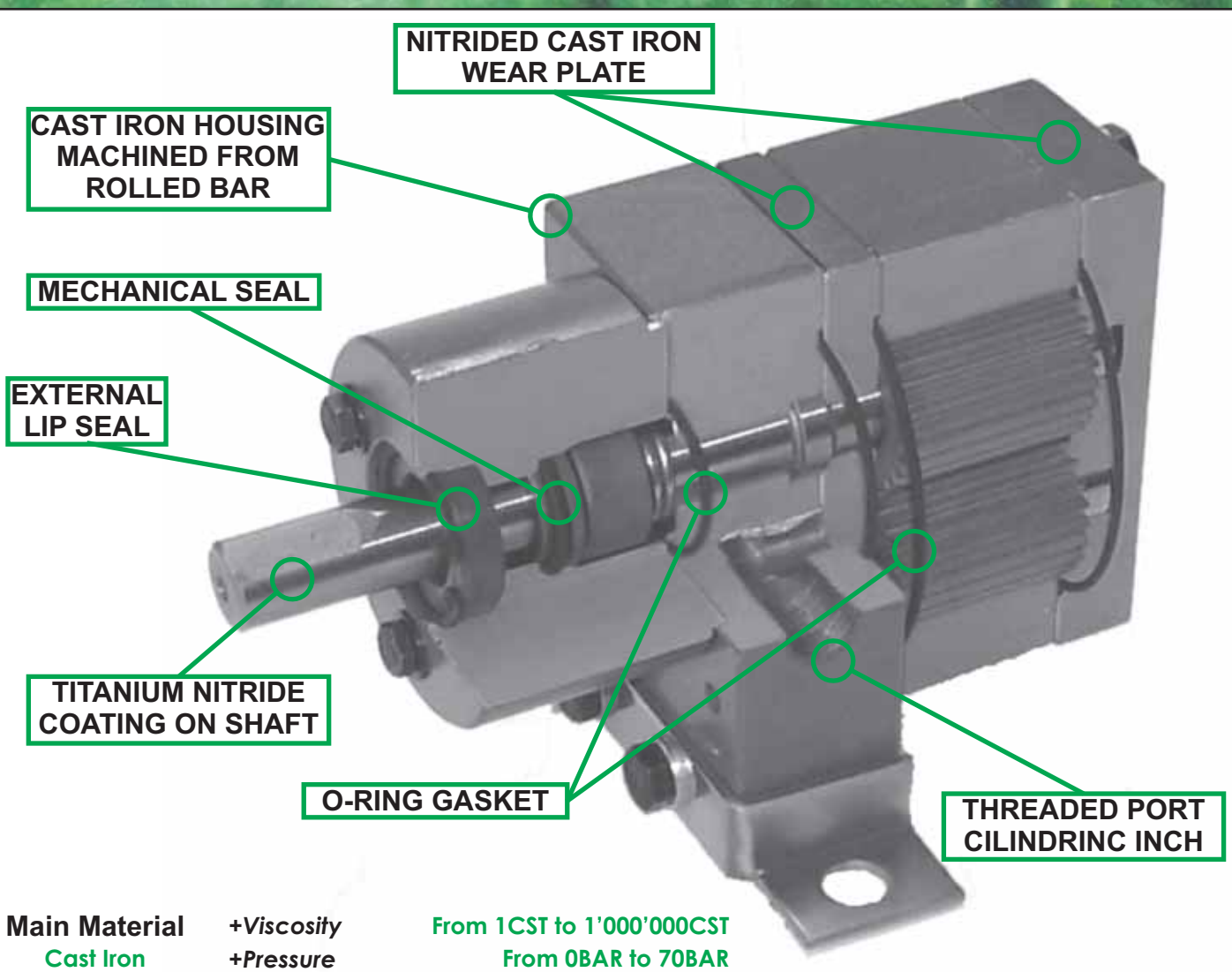
***+Ports:*** *The D-series inlet and outlet ports are threaded, are of the same diameter and are in-line (share the same axis). The flanges can be screwed.*

***+Hard materials:*** *D-series housing, covers and rotors are machined from rolled-bar that is cut, turned, machined or toothed and in the end grinded to final shape. Using parts machined from rolled-bar instead of parts from casting, guarantee the maximum hardness allowed by the material.*

***+ Complete Unit:*** *The D-series can be supplied in different coupling configurations. Complete units consisting of a base-plate (not necessary for flange mounted motors), flexible coupling with guard and electric motor are available. 8-pole, 6-pole and 4-pole electric motors are available. Explosion proof motors, gear reducers, and variable speed drives are also available on request.*

***+Seals and Options:*** *The D-series uses a simple and versatile mechanical seal design or magnetic coupling system.*

***+Custom design:*** *One strong point of our company is the capacity of develop custom solutions, especially couplings solutions, in few works days. For every custom designs are available section and outline drawing, realised with latest and updated CAD systems. In this way we can develop* ***heating options*** *that include electric or fluid (oil or steam) heating. If our standard product can't satisfy you request, we should project for you a special pumps!*




**Main Material**
Cast Iron
**G25**

| | |
|---|---|
| *+Viscosity* | From 1CST to 1'000'000CST |
| *+Pressure* | From 0BAR to 70BAR |
| *+Size* | From 1.2cc to 18cc |
| *+Temperature* | From -10°C to +240°C |

## TECHNICAL FEATURES

***Housing (1,4,5)*** **Cast iron G25**

*The housing is machined from rolled bar forging that is cut, turned, machined and ground into its' final shape, thus ensuring maximum hardness as apposed to using cast parts.*

***Wear plate (2,3)*** **Nitrided Cast iron G25**

*Wear plate are machined from rolled-bar that is cut, turned, machined and grinded to final shape. Using parts machined from rolled-bar instead of parts from casting, guarantee the maximum hardness allowed by the material. To ensure extra resistance to wear, the plates are* ***Nitrurated****.*

***Gear & Shaft (6,7,8,9)*** **Steel 39NiCrMo3+TiN coating**

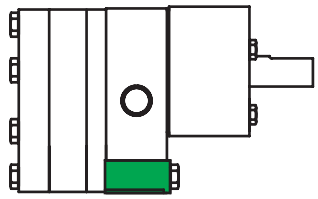
*Gear and shaft are machined from rolled-bar that is cut, turned, toothed and grinded to final shape. Using parts machined from rolled-bar instead of parts from casting, guarantee the maximum hardness allowed by the material. As standard, shafts receive extra resistance to wear and decreased friction via a* ***Titanium Nitride coating*** *on all surface.*

***Sealing Elements (10,11,12)*** **FPM**

*To prevent leakage, any parts of the pump housing match the other with O-Rings seated between the two faces to guarantee sealing also in presence of low viscosity medium. Note that on D18 seal cover are used Plane gasket (13). According to API610 and PLAN13, shaft seal is ensured by one external lip seal and one mechanical seal.*

## D

Foot



*The pump is provided with feet for mounting on a baseplate.*
*Projected to be coupled to drive units form B3.*

***+Foot*** **Steel**

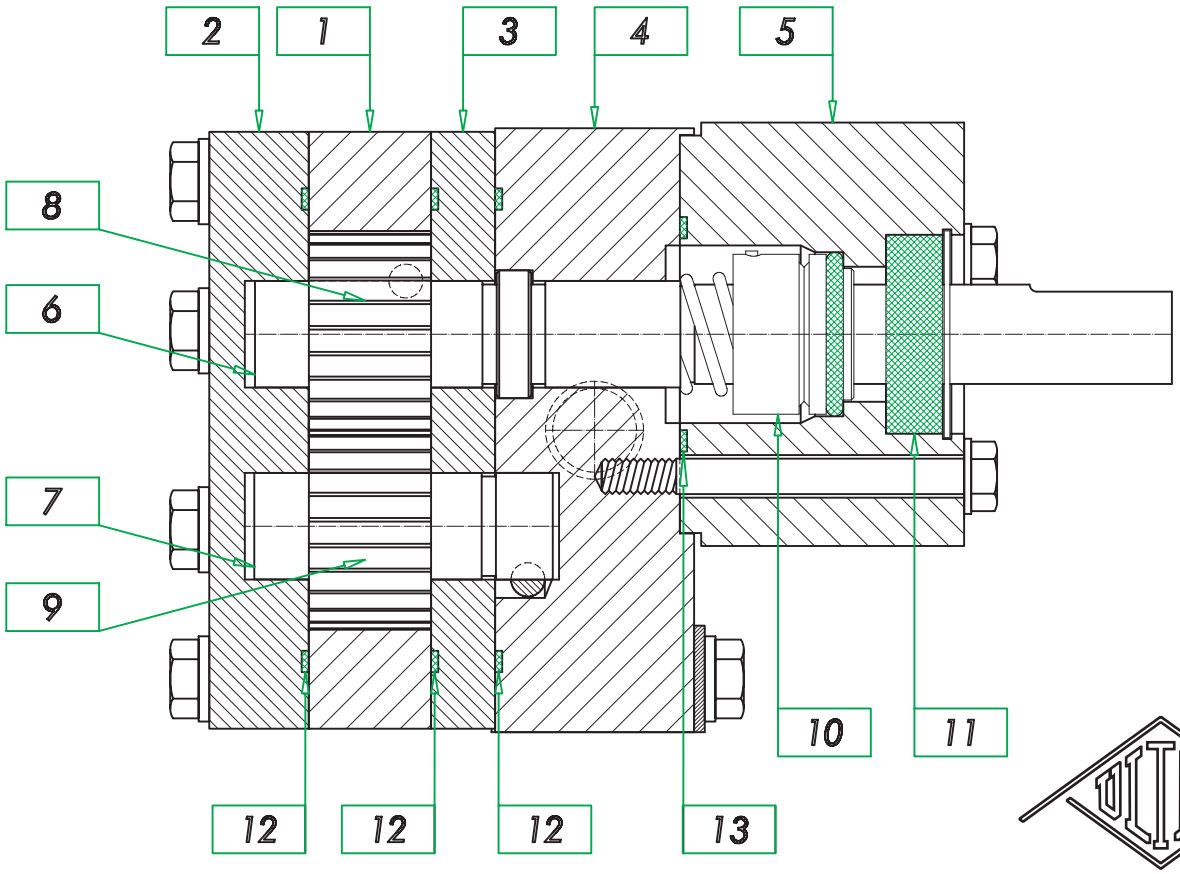
## NITRIDING PROCESS

*Objective of nitriding is to increase the hardness of the component's surface by enriching it with the diffuson of nitrogen atoms into the metal's surface. Nitrogen is a colorless, odorless, tasteless and inert diatomic gas, constituting 78.1% by volume of Earth's atmosphere.*

## TITANIUM NITRIDE (TiN) COATING

*Titanium Nitride (TiN) is the most common hard coating in use today. TiN has an excellent combination of performance properties as:*
*+Wear resistance and extreme hardness, is harder than carbide.*
*+Maintaining sharp edges or corners*
*+Prevent galling, and decreases friction.*
*+Resistant to nearly all chemicals and also withstands high temperatures.*

***TiN coated Gear & Shaft***



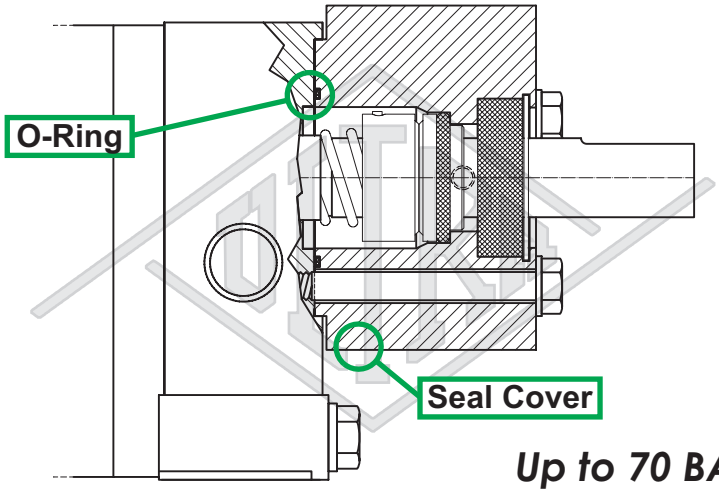
# SHAFT SEAL

## MECHANICAL SEAL "K" (Standard)

**KV** *Sealing elements made of* **FPM**

***Features:*** *According to API610 and PLAN13,* ***external lip seal*** *and* ***mechanical seal.***
***SOLID CORROSION RESISTANT CARBIDES*** *and* ***SILICON CARBIDES*** *mechanical seals are for general uses, such as food, chemical product and so on. Particularly versatile and of easy mounting can be used when pumped fluids require the use of anticorrosion materials or work temperature is up to 240°C.*

***Maximum prussure:*** *70 BAR*
***Temperature:*** *-10/+240°C*
***Work Sense:*** *Clock wise*



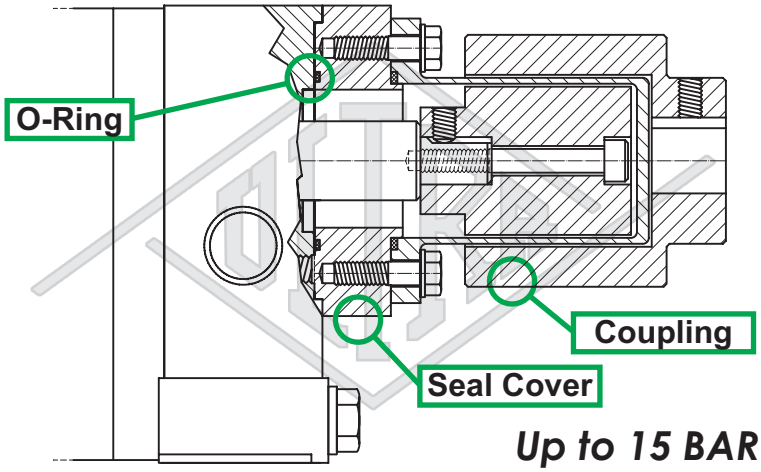

***Up to 70 BAR***

## MAGNETIC COUPLING (Optional)

**MV** *Sealing elements made of* **FPM**

***Features:*** *The standard mechanical seal can be replaced by a* ***magnetic coupling*** *system that definitively eliminates seal leakage and wear in particularly harsh conditions.*
*Magnetic coupling are synchronous coupling that transmits torque through magnetic forces between the internal and external rotor, but ensures a hermetic separation of the drive and the driven side via* ***STAINLESS STEEL*** *bell.*

***Maximum prussure:*** *15 BAR*
***Temperature:*** *-30/+240°C*
***Work Sense:*** *Bidirectional*



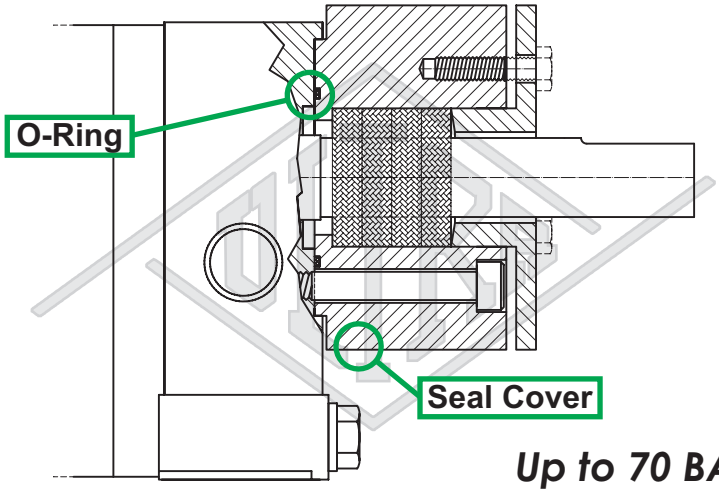

***Up to 15 BAR***

## PACKED GLAND SEAL (Optional)

**DV** *Sealing elements made of* **FPM**

***Features:*** *The* ***packed gland*** *is composed of 4* ***packing gland rings*** *seated on the seal cover. This type of seal requires a high level of maintenance and is therefore discouraged in pump applications. Ultra strongly recommends the use of mechanical seals instead.*

***Maximum prussure:*** *70 BAR*
***Temperature:*** *-10/+240°C*
***Work Sense:*** *Bidirectional*



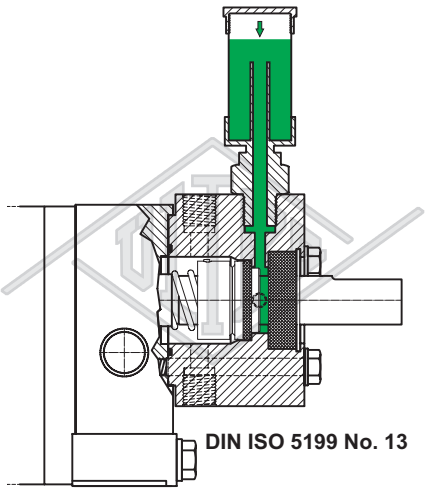

***Up to 70 BAR***

# OPTIONAL

## Quench dead end system

*The pump is supplied with a transparent and ventilated reservoir positioned directly above the seal casing. Used when pumped fluid reacts with atmospheric oxygen, the quench medium stops the leakage making contact with the atmosphere. Quench applies a pressure less external fluid to mechanical seal's faces on the atmosphere side.*

+Q

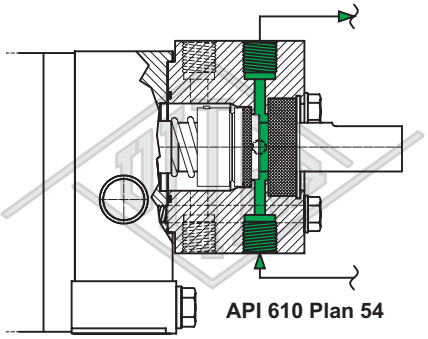


DIN ISO 5199 No. 13

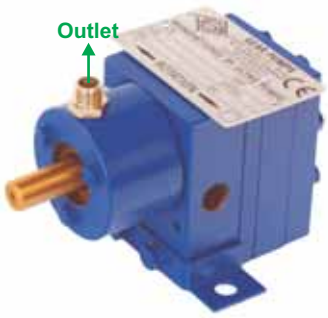
## Plan 54 circulation system

*The pump is supplied with two threaded holes on a seal casing that allows the circulation of a quenching medium from an external system. The system absorbs the mechanical seal leakage by the quenching*

+P



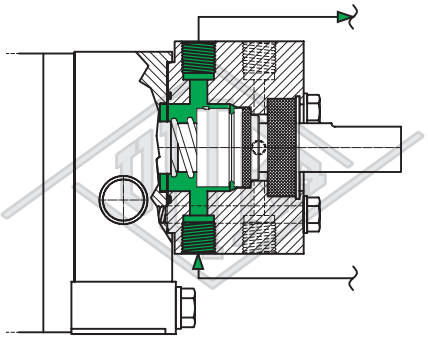
API 610 Plan 54

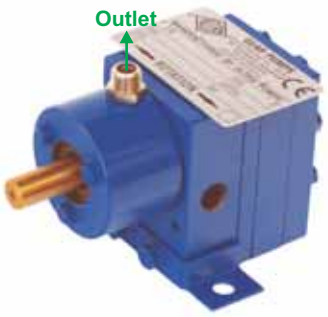



## Flushing system

*The pump is supplied with flushing holes. The seal washing can be ensured by a "CIP cycle," that through internal channels and with an appropriate solvent pumped from an external system, removes pumped fluid residue.*

+F

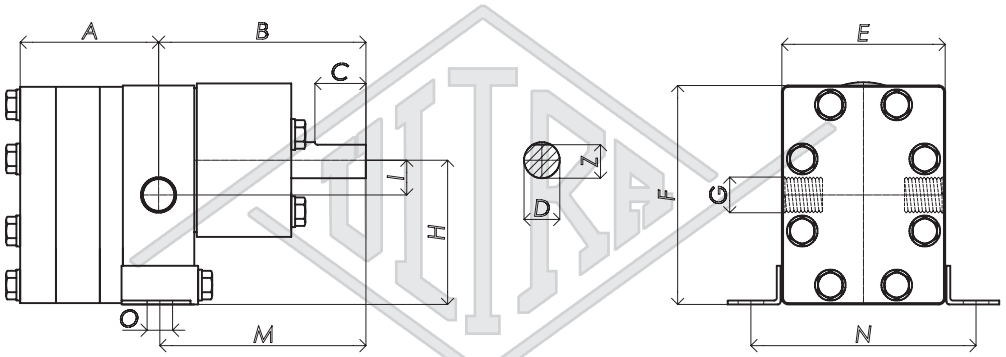





*Many combinations of options are available limited by the pump material and pump series. Note that some options change the envelope dimensions of the pump. Options can be combined, such as a quench system and oil heating system.*

# OUTLINE DRAWINGS

**D-(Standard)**



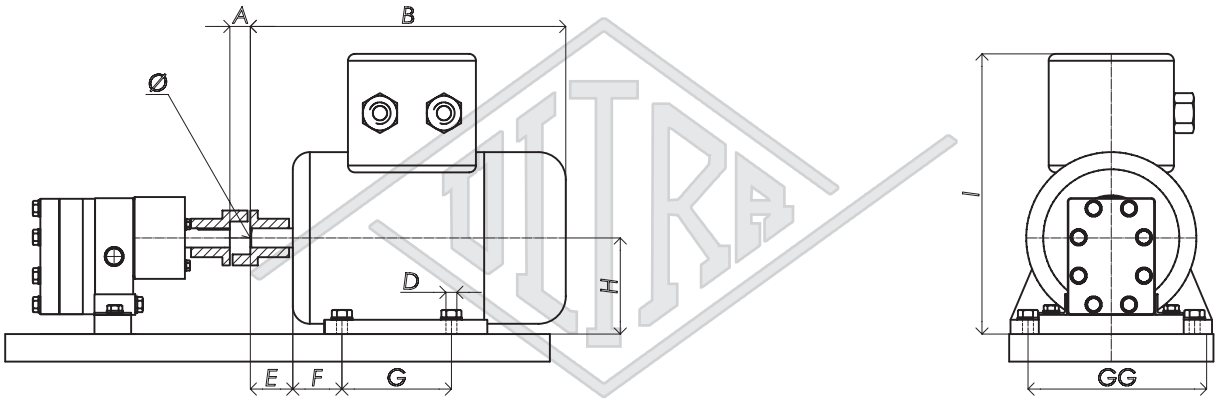

| Size | A | B | C | D | E | F | G | H | I | M | N | O | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.2 | 53 | 80 | 25 | 14 | 64 | 85 | ¼" | 56 | 13 | 80 | 85 | 9 | 13 |
| 3 | 65 | | | | | | | | | | | | |
| 6 | 83 | | | | | | | | | | | | |
| 18 | 50 | 132 | 25 | 14 | 96 | 146 | ½" | 102 | 24 | 80 | 135 | 12 | 13 |

## IMPORTANT NOTE

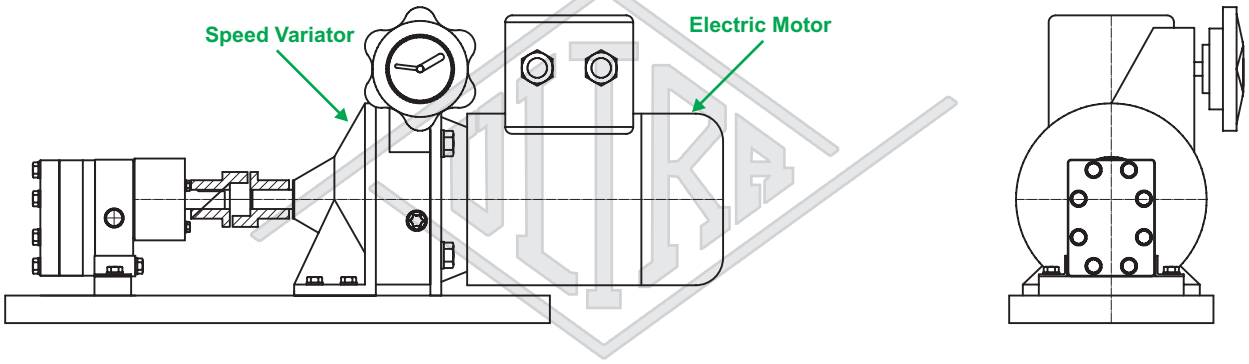
***+Chosen dimensions:*** *During the design phase we have tried to use dimensions that can easily match with standard components such as IEC motor dimensions.*

***+ Disclaimer:*** *Please not that all dimensions contained in this catalog are not binding. Please contact our office for detailed drawings.*

## Complete Unit D



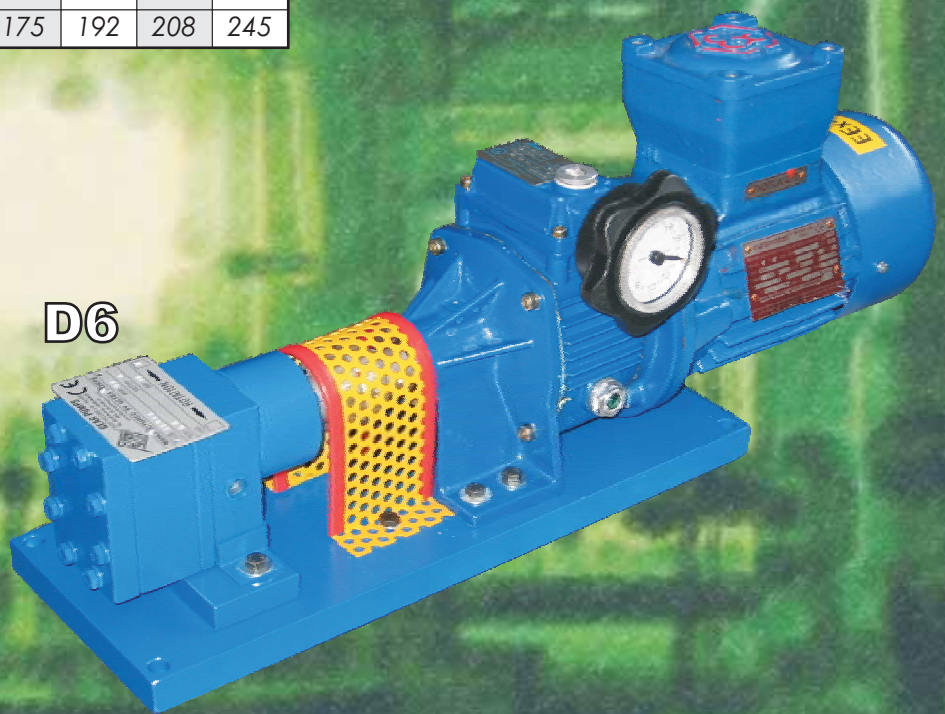

## Special Complete Unit D




| SIZE | Gr 56 | Gr 63 | Gr 71 | Gr 80 | Gr 90 | Gr 100 |
|---|---|---|---|---|---|---|
| A | 16 | 16 | 16 | 16 | 16 | 18 |
| B | 198 | 206 | 234 | 264 | 302 | 367 |
| D | 6 | 7 | 7 | 10 | 10 | 12 |
| E | 20 | 23 | 30 | 40 | 50 | 60 |
| Ø | 9 | 11 | 14 | 19 | 24 | 28 |
| F | 36 | 40 | 45 | 50 | 56 | 63 |
| G | 71 | 80 | 90 | 100 | 125 | 140 |
| GG | 90 | 100 | 112 | 125 | 140 | 160 |
| H | 56 | 63 | 71 | 80 | 90 | 100 |
| I | 155 | 162 | 175 | 192 | 208 | 245 |

## TORSIONALLY FLEXIBLE COUPLINGS

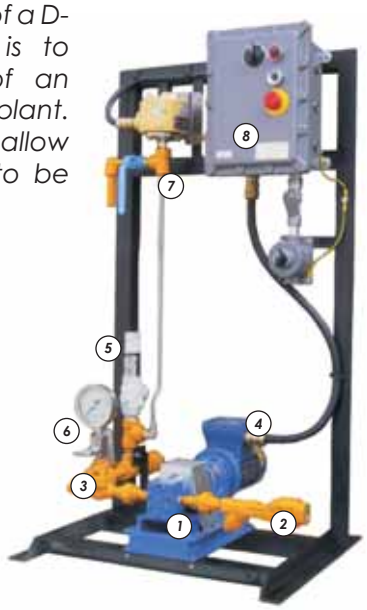
*When pump is connected to the electric motor via a coupling, the dimension "**A**" is based on the size of the coupling model.*
*This is determined by each coupling manufacturer. See manufacturer brochure for details.*



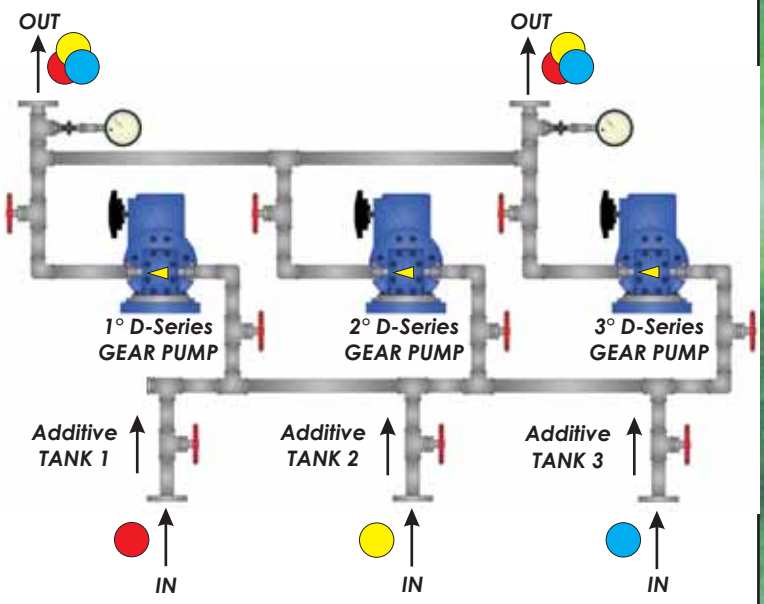
# APPLICATIONS

## Installation on Ink/Paint Metering Plant (D6V)

*One of the best use of a D-series gear pump is to control the flow of an additive in a fuel plant. The small dimension allow this type of pump to be mounted in battery.*




*1-ULTRA gear pump*
*2-Suction line*
*3-Discharge line*
*4-Motor*
*5-Relief valve*
*6-Pressure gauge*
*7-Pressure switch*
*8-Control unit*

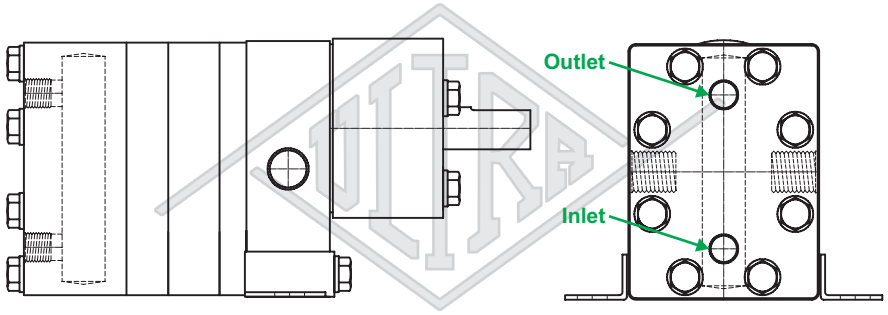



# CUSTOM HEATING OPTION

## Oil Heating system

*The pump is supplied with an integrated heating system to provide the heating of the entire pump with hot oil or steam. Heating fluid is pumped by an external pump in the internal channels of the gear pump.*

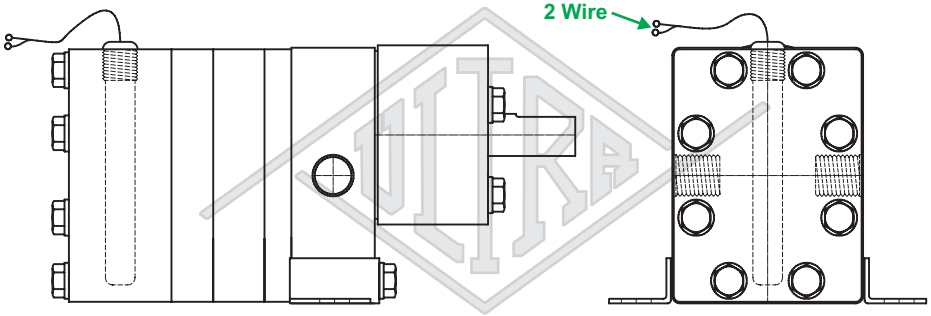
**+OH**




## Electric Heating system

*The pump is supplied with an integrated electric cartridge heating system to provide the heating of the entire pump.*
***PT100 Probes** are probes which show a change in resistance with a change of temperature.*

**+EH**



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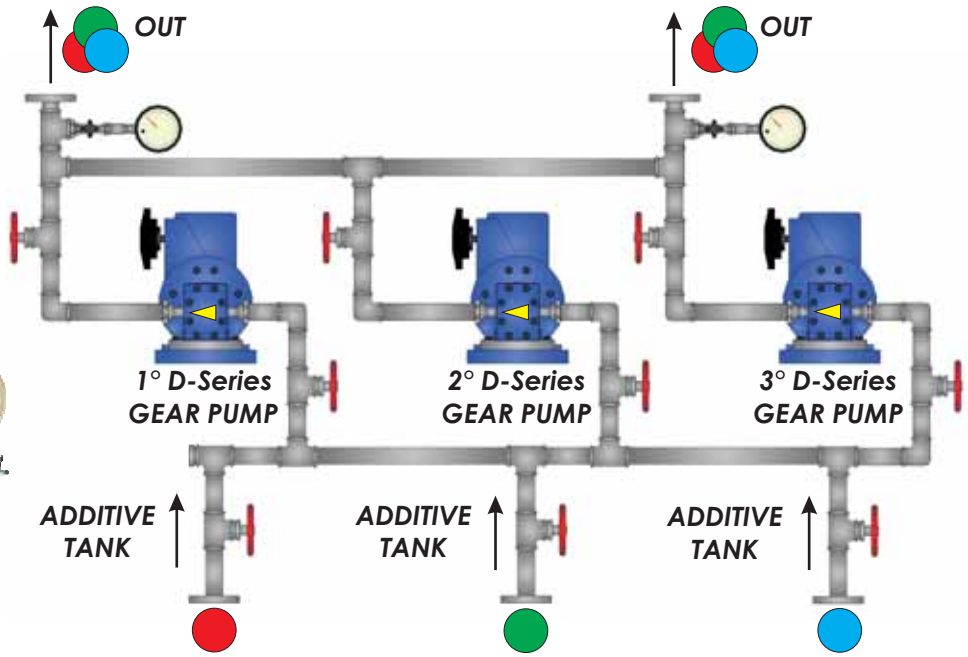


## Installation on Metering Unit (D6V)


*1-ULTRA gear pump*
*2-Suction line*
*3-Discharge line*
*4-Motor*
*5-Relief valve*
*6-Pressure gauge*
*7-Pressure switch*
*8-Control unit*