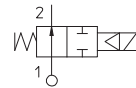
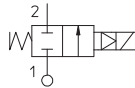


# 21HT-HF-IH SERIES

## General Purpose, 2-way, Combined Acting

**21HT, 21HF and 21IH** are combined acting solenoid valves which do not require a minimum operating pressure differential. These valves are suitable for vacuum operations. A large selection of seal materials provides wide chemical compatibility. 21HT series is provided with fiber reinforced diaphragms for optimized durability. AC/DC interchangeability of the coil is possible for both NC and NO configurations.



### TECHNICAL DATA

| PORT CONNECTION                    | G 3/8 ÷ G 1 1/2                               |                        |                                         |                         |                        |
|------------------------------------|-----------------------------------------------|------------------------|-----------------------------------------|-------------------------|------------------------|
| SEALING MATERIALS                  | 21HF Series                                   |                        |                                         | 21HT-IH Series          |                        |
|                                    | NBR                                           | FKM                    | EPDM                                    | NBR+PA                  | FKM+PA                 |
| FLUID TEMPERATURE                  | -10°C +90°C                                   | -10°C +140°C           | -10°C +140°C                            | -10°C +90°C             | -10°C +140°C           |
| FLUIDS                             | air, inert gases, water                       | oils, gasoline, diesel | water, steam                            | air, inert gases, water | oils, gasoline, diesel |
| VISCOSITY                          | Max. 12 cSt                                   |                        |                                         |                         |                        |
| TUBE Ø -<br>COIL WIDTH -<br>SERIES | ø 13 mm - 30 mm                               |                        | BDA08, BVA08 (class F), BDV08 (class H) |                         |                        |
|                                    | ø 13 mm - 36 mm                               |                        | UDV16 (class H)                         |                         |                        |
|                                    | ø 13 mm - 52 mm                               |                        | GDV14 (class H)                         |                         |                        |
| INSTALLATION                       | as required, preferably with actuator upright |                        |                                         |                         |                        |
| PROTECTION DEGREE                  | IP65 EN 60529 (DIN 40050) with plug connector |                        |                                         |                         |                        |

■ MOPD values are referred to "standard power" coil range. Please refer to coil chapter.

### MATERIALS

| BODY, ORIFICE           | Brass UNI EN 12165 CW617N or stainless steel AISI 316 |
|-------------------------|-------------------------------------------------------|
| ARMATURE TUBE           | Stainless steel AISI Series 300                       |
| FIXED CORE              | Stainless steel AISI Series 400                       |
| PLUNGER                 | Stainless steel AISI Series 400                       |
| PHASE DISPLACEMENT RING | Copper (Cu 99,9%) or gold plated copper               |
| SPRING                  | Stainless steel AISI Series 300                       |
| SEALING                 | B=NBR, V=FKM or FKM+PA, E=EPDM, Y=NBR+PA              |

#### ■ CE

- 2014/35/EU (LVD)  
- 2014/30/EU (EMC)  
- 2014/68/EU (PED)  
art. 4.3 up to 1",  
cat. I module A above 1"

#### ■ INDUSTRIAL OXYGEN

Special versions suitable for contact with industrial oxygen are available. Please refer to codification options.

#### ■ UL recognized and VDE

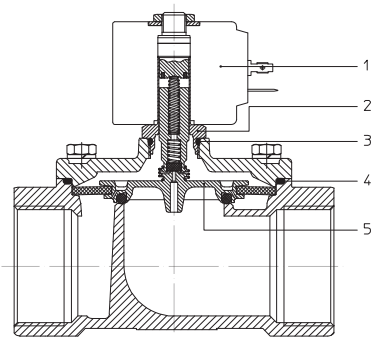
approved coils are available for this series, please refer to coil section.

#### ■ EXPLOSION PROOF COILS

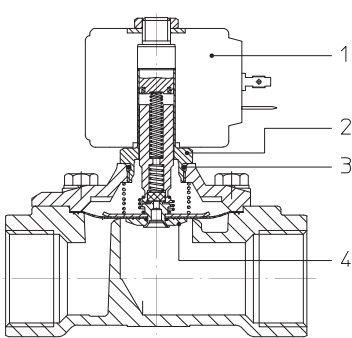
suitable for zone 2-22 are available for this series. Please refer to ATEX coil section for further details.

- The fluids listed in the "technical data" tables should be considered as a recommendation. Please check the chemical compatibility of the fluids with the materials of the valve at RFQ stage.
- Suitable for vacuum service if applied from port #2. Please contact ODE for further details.
- For spare parts list, please refer to the dedicated chapter.

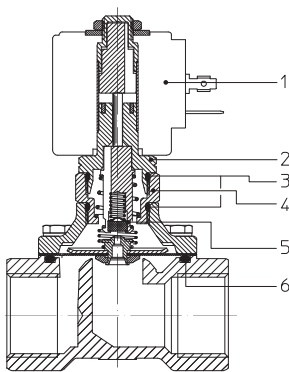
NC, BRASS, ABOVE 1"



NC, BRASS, UP TO 1"

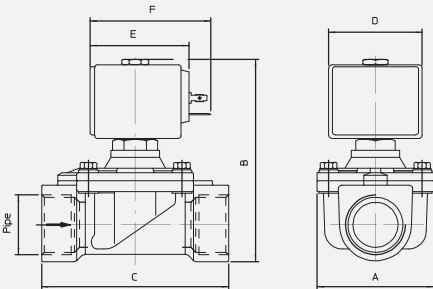


NO BRASS



Solenoid Valves ■ General purpose ■ 2-way ■ Combined Acting ■ **21HT-21IH SERIES**

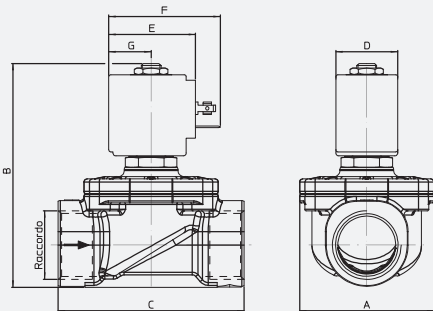
DRAWING 1



| PIPE      | DIMENSIONS [mm] |     |     |
|-----------|-----------------|-----|-----|
| ISO 228/1 | A               | B   | C   |
| G3/8      | 50              | 89  | 56  |
| G1/2      |                 | 100 | 70  |
| G3/4      |                 |     |     |
| G1        | 65              | 112 | 104 |

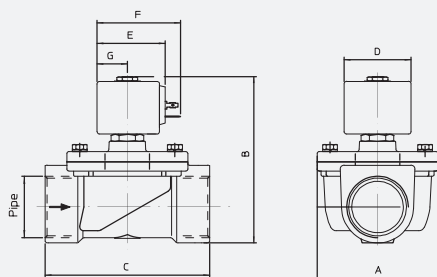
| COIL SERIES | DIMENSIONS [mm] |    |    |
|-------------|-----------------|----|----|
|             | D               | E  | F  |
| B**08       | 30              | 42 | 54 |
| UDV16       | 36              | 48 | 60 |
| GDV14       | 52              | 55 | 67 |

DRAWING 2



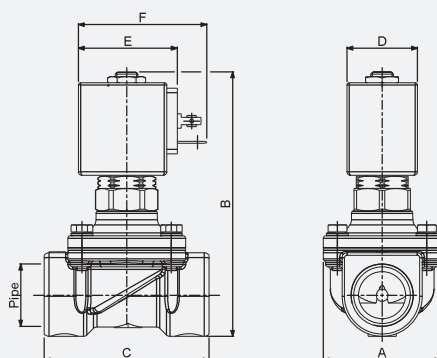
| PIPE      | DIMENSIONS [mm] |     |     |
|-----------|-----------------|-----|-----|
| ISO 228/1 | A               | B   | C   |
| G3/8      | 52              | 92  | 68  |
| G3/4      |                 | 100 | 75  |
| G1/2      |                 |     |     |
| G1        | 65              | 109 | 90  |
| G1 1/4    | 94              | 126 | 128 |
| G1 1/2    |                 |     |     |

| COIL SERIES | DIMENSIONS [mm] |    |    |
|-------------|-----------------|----|----|
|             | D               | E  | F  |
| B**08       | 30              | 42 | 54 |
| UDV16       | 36              | 48 | 60 |
| GDV14       | 52              | 55 | 67 |

**DRAWING 3**


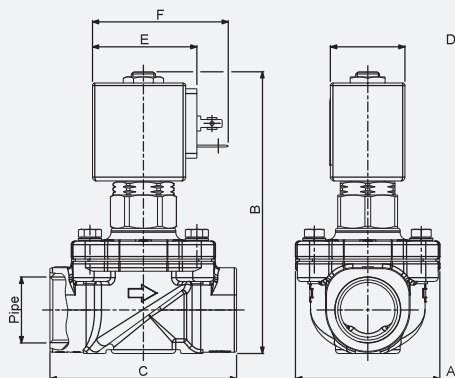
| PIPE      | DIMENSIONS [mm] |     |     |
|-----------|-----------------|-----|-----|
| ISO 228/1 | A               | B   | C   |
| G1 1/4    | 94              | 130 | 128 |
| G1 1/2    |                 |     |     |

| COIL SERIES | DIMENSIONS [mm] |    |    |
|-------------|-----------------|----|----|
|             | D               | E  | F  |
| B**08       | 30              | 42 | 54 |
| UDV16       | 36              | 48 | 60 |
| GDV14       | 52              | 55 | 67 |

**DRAWING 4**


| PIPE      | DIMENSIONS [mm] |     |    |
|-----------|-----------------|-----|----|
| ISO 228/1 | A               | B   | C  |
| G3/8      | 50              | 101 | 56 |
| G1/2      |                 | 112 | 70 |
| G3/4      |                 |     |    |

| COIL SERIES | DIMENSIONS [mm] |    |    |
|-------------|-----------------|----|----|
|             | D               | E  | F  |
| B**08       | 30              | 42 | 54 |
| UDV16       | 36              | 48 | 60 |
| GDV14       | 52              | 55 | 67 |

**DRAWING 5**


| PIPE      | Dimensions [mm] |     |    |
|-----------|-----------------|-----|----|
| ISO 228/1 | A               | B   | C  |
| G3/8      | 52              | 92  | 68 |
| G1/2      |                 |     |    |
| G3/4      | 58              | 100 | 75 |

| COIL SERIES | DIMENSIONS [mm] |    |    |
|-------------|-----------------|----|----|
|             | D               | E  | F  |
| B**08       | 30              | 42 | 54 |
| UDV16       | 36              | 48 | 60 |
| GDV14       | 52              | 55 | 67 |

2/2 NC

| PIPE         | ORIFICE<br>SIZE | Kv      | COIL<br>SERIES | PRESSURE [bar] |      |               |               | CODE          |                 | DRAWING<br>REFERENCE |
|--------------|-----------------|---------|----------------|----------------|------|---------------|---------------|---------------|-----------------|----------------------|
| ISO<br>228/1 | Ø [mm]          | [l/min] |                | MIN            | MOPD |               | PS            | BRASS         | STAINLESS STEEL |                      |
|              |                 |         |                |                | AC   | DC            |               |               |                 |                      |
| G3/8         | 11              | 20      | B**08          | 0              | 14   | 5             | 16            | 21HT3KOY110   | -               | 1                    |
|              |                 |         | UDV16          | 0              | 14   | 14            | 16            | 21HT3KOY110   | -               | 1                    |
|              |                 |         | GDV14          | 0              | 14   | 14            | 16            | 21HT3KOY110   | -               | 1                    |
|              | 15              | 40      | B**08          | 0              | -    | 14            | 16            | 21HT3KOY110-S | -               | 1                    |
|              |                 |         | B**08          | 0              | 14   | 6             | 16            | -             | 21IH3K1V150     | 2                    |
|              |                 |         | UDV16          | 0              | -    | 14            | 16            | -             | 21IH3K1V150     | 2                    |
| G1/2         | 16              | 40      | B**08          | 0              | 14   | 2,5           | 16            | 21HT4KOY160   | -               | 1                    |
|              |                 |         | UDV16          | 0              | 14   | 11            | 16            | 21HT4KOY160   | -               | 1                    |
|              |                 |         | GDV14          | 0              | 14   | 14            | 16            | 21HT4KOY160   | -               | 1                    |
|              |                 | 30      | B**08          | 0              | -    | 10            | 16            | 21HT4KOY160-S | -               | 1                    |
|              |                 |         | B**08          | 0              | 14   | 6             | 16            | -             | 21IH4K1V160     | 2                    |
|              |                 |         | UDV16          | 0              | -    | 14            | 16            | -             | 21IH4K1V160     | 2                    |
| G3/4         | 16              | 40      | B**08          | 0              | 14   | 1,5           | 16            | 21HT5KOY160   | -               | 1                    |
|              |                 |         | UDV16          | 0              | 14   | 11            | 16            | 21HT5KOY160   | -               | 1                    |
|              |                 |         | GDV14          | 0              | 14   | 14            | 16            | 21HT5KOY160   | -               | 1                    |
|              |                 | 30      | B**08          | 0              | -    | 10            | 16            | 21HT5KOY160-S | -               | 1                    |
|              |                 |         | UDV16          | 0              | -    | 14            | 16            | 21HT5KOY160-S | -               | 1                    |
|              | 20              | 60      | B**08          | 0              | 14   | 6             | 16            | -             | 21IH5K1V200     | 2                    |
|              |                 |         | UDV16          | 0              | -    | 14            | 16            | -             | 21IH5K1V200     | 2                    |
| G1           | 25              | 120     | B**08          | 0              | 8    | -             | 16            | 21HT6KOY250   | -               | 1                    |
|              |                 |         | UDV16          | 0              | 14   | 1,5           | 16            | 21HT6KOY250   | -               | 1                    |
|              |                 |         | GDV14          | 0              | 14   | 6             | 16            | 21HT6KOY250   | -               | 1                    |
|              |                 | 90      | B**08          | 0              | -    | 1             | 16            | 21HT6KOY250-S | -               | 1                    |
|              |                 |         | UDV16          | 0              | -    | 6             | 16            | 21HT6KOY250-S | -               | 1                    |
|              |                 |         | GDV14          | 0              | -    | 12            | 16            | 21HT6KOY250-S | -               | 1                    |
|              |                 | 140     | B**08          | 0              | 14   | 3             | 16            | -             | 21IH6K1V250     | 2                    |
|              |                 |         | UDV16          | 0              | -    | 8             | 16            | -             | 21IH6K1V250     | 2                    |
| GDV14        | 0               | -       | 14             | 16             | -    | 21IH6K1V250   | 2             |               |                 |                      |
| G1 1/4       | 35              | 270     | B**08          | 0              | 16   | -             | 16            | 21HF7KOV350   | -               | 3                    |
|              |                 |         | UDV16          | 0              | 16   | -             | 16            | 21HF7KOV350   | -               | 3                    |
|              |                 |         | GDV14          | 0              | 16   | 6             | 16            | 21HF7KOV350   | -               | 3                    |
|              |                 | 300     | B**08          | 0              | 8    | -             | 16            | -             | 21IH7K1V350     | 2                    |
|              |                 |         | UDV16          | 0              | 14   | -             | 16            | -             | 21IH7K1V350     | 2                    |
|              |                 |         | GDV14          | 0              | -    | 2             | 16            | -             | 21IH7K1V350     | 2                    |
|              |                 | 250     | B**08          | 0              | -    | 1             | 16            | -             | 21IH7K1V350-S   | 2                    |
|              |                 |         | UDV16          | 0              | -    | 4             | 16            | -             | 21IH7K1V350-S   | 2                    |
|              |                 |         | GDV14          | 0              | -    | 7             | 16            | -             | 21IH7K1V350-S   | 2                    |
| G1 1/2       | 40              | 280     | B**08          | 0              | 16   | -             | 16            | 21HF8KOV400   | -               | 3                    |
|              |                 |         | UDV16          | 0              | 16   | -             | 16            | 21HF8KOV400   | -               | 3                    |
|              |                 |         | GDV14          | 0              | 16   | 6             | 16            | 21HF8KOV400   | -               | 3                    |
|              |                 | 320     | B**08          | 0              | 8    | -             | 16            | -             | 21IH8K1V400     | 2                    |
|              |                 |         | UDV16          | 0              | 14   | -             | 16            | -             | 21IH8K1V400     | 2                    |
|              |                 |         | GDV14          | 0              | -    | 2             | 16            | -             | 21IH8K1V400     | 2                    |
|              |                 | 250     | B**08          | 0              | -    | 1             | 16            | -             | 21IH8K1V400-S   | 2                    |
| UDV16        | 0               |         | -              | 4              | 16   | -             | 21IH8K1V400-S | 2             |                 |                      |
| GDV14        | 0               | -       | 7              | 16             | -    | 21IH8K1V400-S | 2             |               |                 |                      |

■ For sealing different from NBR+PA, FKM+PA or FKM replace the letter "Y" and "V" with the ones corresponding to the other materials.  
Y = NBR+PA, V = FKM + PA (for brass body up to 1" and for stainless steel body).  
B = NBR, V = FKM, E = EDPM (for brass body 1 1/4" and 1 1/2").

2/2 NO

| PIPE      | ORIFICE SIZE | Kv      | COIL SERIES | PRESSURE [bar] |      |    |    | CODE        |                 | DRAWING REFERENCE |
|-----------|--------------|---------|-------------|----------------|------|----|----|-------------|-----------------|-------------------|
| ISO 228/1 | Ø [mm]       | [l/min] |             | MIN            | MOPD |    | PS | BRASS       | STAINLESS STEEL |                   |
|           |              |         |             |                | AC   | DC |    |             |                 |                   |
| G3/8      | 11           | 20      | B**08       | 0              | 10   | 10 | 16 | 21HT3Z0Y110 | -               | 4                 |
|           | 15           | 30      | B**08       | 0              | 10   | 10 | 16 | -           | 21IH3Z1V150     | 5                 |
| G1/2      | 16           | 40      | B**08       | 0              | 10   | 10 | 16 | 21HT4Z0Y160 | -               | 4                 |
|           |              |         |             |                |      |    |    | -           | 21IH4Z1V160     | 5                 |
| G3/4      | 16           | 40      | B**08       | 0              | 10   | 10 | 16 | 21HT5Z0Y160 | -               | 4                 |
|           | 20           | 50      | B**08       | 0              | 10   | 10 | 16 | -           | 21IH5Z1V200     | 5                 |

■ For sealing different from NBR+PA or FKM+PA replace the letter "Y" and "V" with the ones corresponding to the other materials.  
Y = NBR+PA, V = FKM + PA.

CODIFICATION

| I | II | III | IV | V | VI | VII | VIII | IX  |   | X |
|---|----|-----|----|---|----|-----|------|-----|---|---|
| 2 | 1  |     | HT | 3 | K  | 0   | Y    | 110 | - |   |

**I. NUMBER OF WAYS**

2 - 2 - way

**II. NUMBER OF ELEMENTS**

1 - 1 element

**III. ARMATURE TUBE MATERIAL**

Blank - std

6 - AISI 316 (optional, valid for NC versions, brass body only)

**IV. SERIES**

HT - G3/8 to G1, brass body

HF - above G1, brass body

IH - StSt body

**V. CONNECTIONS**

3 - G3/8

4 - G1/2

5 - G3/4

6 - G1

7 - G1 1/4

8 - G1 1/2

**VI. CORE TUBE TYPE**

K - for 2/2 NC valves

Z - for 2/2 NO valves

**VII. PHASE DISP. RING MATERIAL**

0 - copper

1 - gold plated copper

**VIII. SEALING MATERIAL**

for HT and IH series

Y - NBR+PA

V - FKM+PA

for HF series

B - NBR

V - FKM

E - EPDM

**IX. ORIFICE Ø [mm] MULTIPLIED BY 1****X. OPTIONS**

N - nickel plated body

S - DC version

OX - degreasing for industrial oxygen use

OPTIONS AVAILABILITY

| OPTION | VALVE TYPE | BODY MATERIAL | SEALING MATERIAL | VALVE SIZE/CONNECTIONS |      |      |    |        |        | NOTES                                                           |
|--------|------------|---------------|------------------|------------------------|------|------|----|--------|--------|-----------------------------------------------------------------|
|        |            |               |                  | G3/8                   | G1/2 | G3/4 | G1 | G1 1/4 | G1 1/2 |                                                                 |
| N      | 2/2 NC     | BRASS         | Y, V             | X                      | X    | X    | X  |        |        |                                                                 |
| S      | 2/2 NC     | BRASS         | Y, V             | X                      | X    | X    | X  |        |        |                                                                 |
|        |            | STST          | Y, V             |                        |      |      |    | X      | X      |                                                                 |
| OX     | 2/2 NC, NO | BRASS & STST  | V                | X                      | X    | X    | X  | X      | X      | PS & MOPD LIMITED TO 25 BAR. SHALL NOT BE USED AS SAFETY VALVES |

■ Please contact ODE if you wish to combine more options.

