

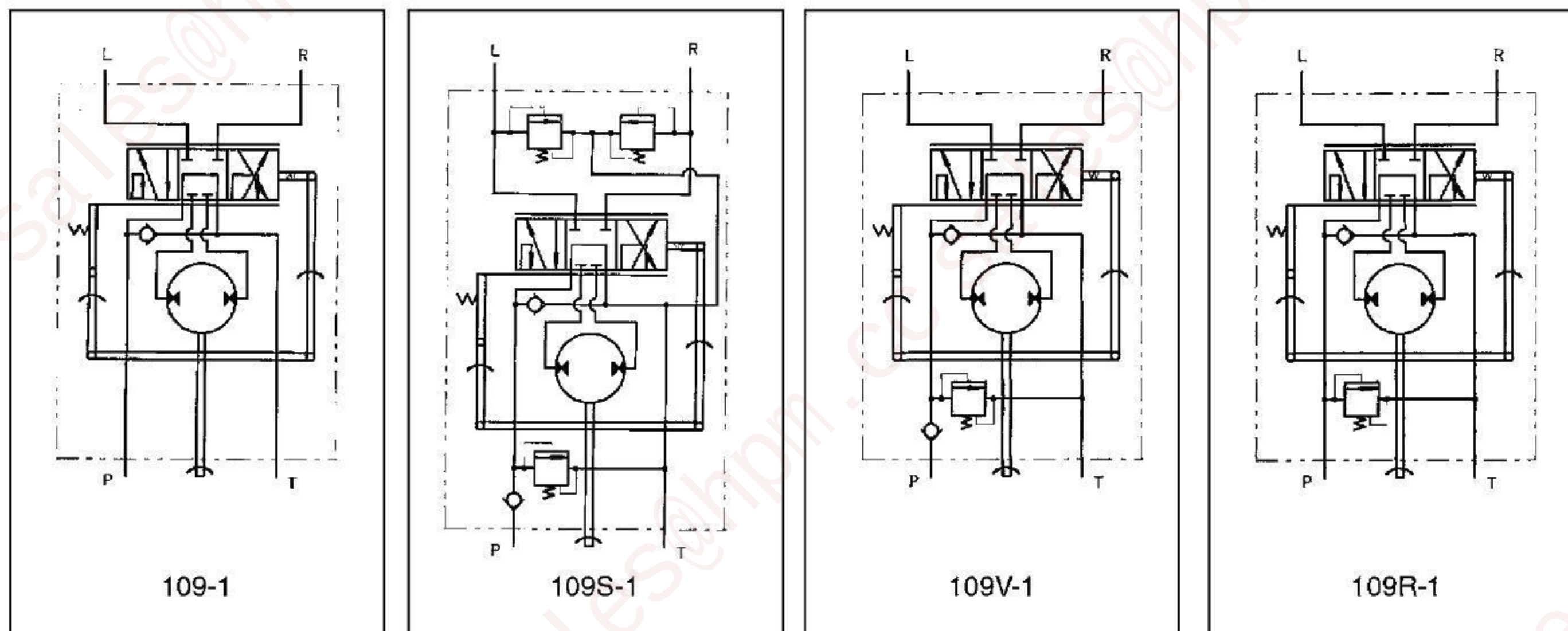
# Hydraulic steering units

## 109(S) Series hydraulic steering units

### Parameters

| HPM Model   | Danfoss Model | Displacement (ml/r) | Rated Flow(L/min) | Rated Pressure (Mpa) | Steering Torque (N.m) | Length |
|-------------|---------------|---------------------|-------------------|----------------------|-----------------------|--------|
| 109(S)-1-20 | OSPM 20 ON    | 20                  | 3-20              | 12.5                 | <1.8                  | 87     |
| 109(S)-1-32 | OSPM 32 ON    | 32                  |                   | 12.5                 | <1.8                  | 92     |
| 109(S)-1-40 | OSPM 40 ON    | 40                  |                   | 12.5                 | <1.8                  | 96     |
| 109(S)-1-50 | OSPM 50 ON    | 50                  |                   | 12.5                 | <1.8                  | 100    |
| 109(S)-1-63 | OSPM 63 ON    | 63                  |                   | 12.5                 | <1.8                  | 105    |
| 109(S)-1-80 | OSPM 80 ON    | 80                  |                   | 12.5                 | <1.8                  | 113    |

### Function



### Order Code

|     |       |   |       |   |       |   |       |   |       |
|-----|-------|---|-------|---|-------|---|-------|---|-------|
| 109 | Pos.1 | — | Pos.2 | — | Pos.3 | — | Pos.4 | — | Pos.5 |
|-----|-------|---|-------|---|-------|---|-------|---|-------|

|       |   |                            |
|-------|---|----------------------------|
| Pos.1 | — | Integrated Valve Parameter |
|-------|---|----------------------------|

Omit: Without valve  
S: With Relief Valve, Check Valve, Shock Valves  
V: With Relief Valve, Check Valve  
R: With Relief Valve

|       |   |               |
|-------|---|---------------|
| Pos.2 | — | Function Code |
|-------|---|---------------|

1: 1: Open Center Non-Reaction

|       |   |                   |
|-------|---|-------------------|
| Pos.3 | — | Displacement mL/r |
|-------|---|-------------------|

20、32、40、50、63、80

|       |   |                            |
|-------|---|----------------------------|
| Pos.4 | — | Integrated Valve Parameter |
|-------|---|----------------------------|

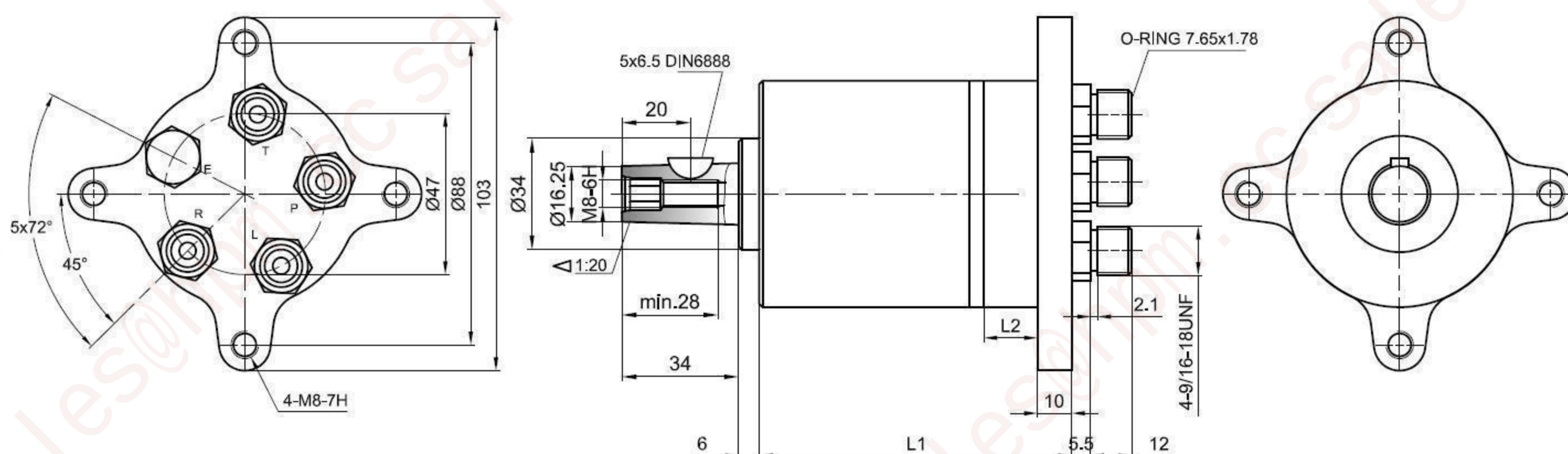
Relief Valve Pressure Settings(MPa): 06、07、08、09、10

|       |   |               |
|-------|---|---------------|
| Pos.5 | — | Mounting Data |
|-------|---|---------------|

A: Tapered 1:20, Key 5x6.5, Ports: 9/16-18UNF;  
B: Tapered 1:12, With 11/16 In-40 Serrations and 5/8-18UNF, Ports: 9/16-18UNF;  
C: DIN 5482 B17x14, Ports: 9/16-18UNF ; D: Tapered 1:20, Key 5x6.5, Ports: M14x1.5;  
E: Tapered 1:12, With 11/16 In-40 Serrations and 5/8-18UNF, Ports: M14x1.5; F: DIN 5482 B17x14, Ports: M14x1.5.



109S-1-x-x-A



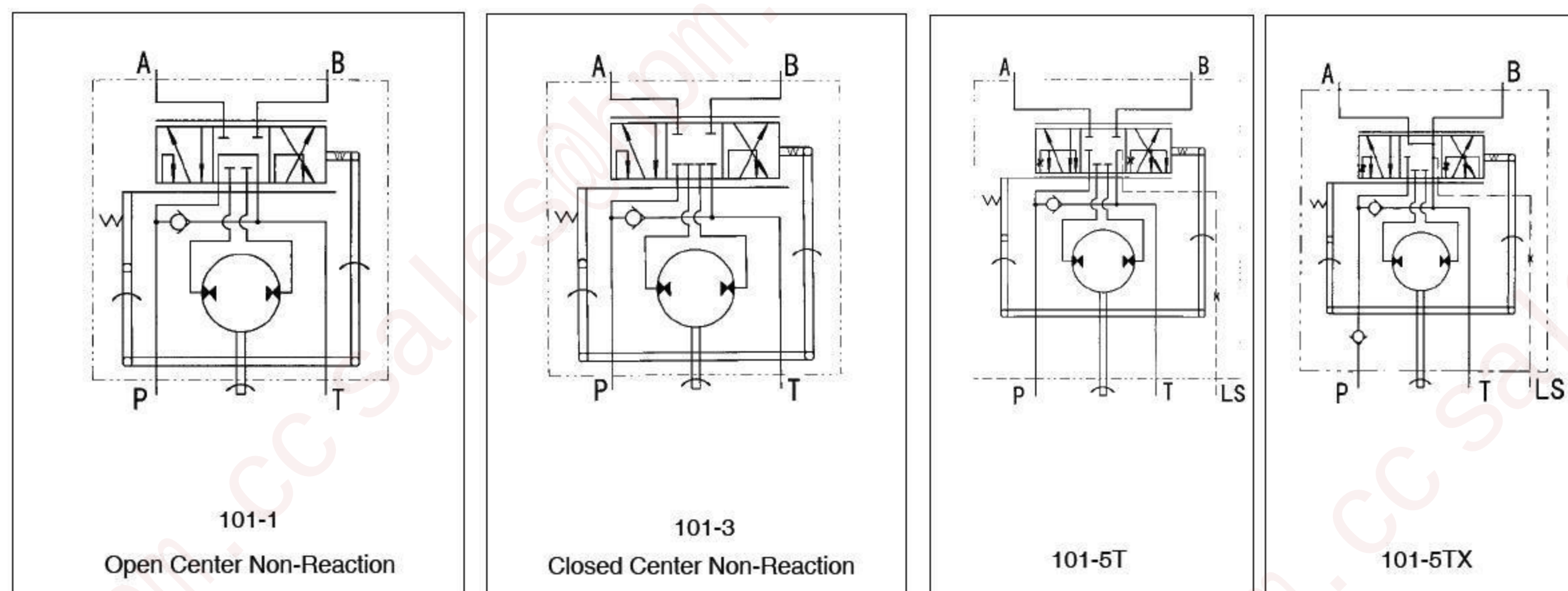
**101-Replace with Danfoss OSPB Series (without build-in valve function)**  
**101S-Replace with Danfoss OSPC Series (with build-in valve function)**

## 101(Danfoss OSPB)

| HPM Model--Danfoss Model<br>Open center non-reaction |            | HPM Model--Danfoss Model<br>Closed center non-reaction |            | HPM Model--Danfoss Model<br>Loading sensing |            | Displace<br>ment | Rated<br>Flow | Max.input<br>Pressure | Max.Cont.Back<br>Pressure | Length | Weight |
|------------------------------------------------------|------------|--------------------------------------------------------|------------|---------------------------------------------|------------|------------------|---------------|-----------------------|---------------------------|--------|--------|
| 101-1-50                                             | OSP 50 ON  | 101-3-50                                               | OSP 50 CN  | 101-5T(X)-50                                | OSP 50 LS  | 50               | 5             | 17.5                  | 2.5                       | 131    | 5.7    |
| 101-1-63                                             | OSP 63 ON  | 101-3-63                                               | OSP 63 CN  | 101-5T(X)-63                                | OSP 63 LS  | 63               | 6             | 17.5                  | 2.5                       | 133    | 5.76   |
| 101-1-80                                             | OSP 80 ON  | 101-3-80                                               | OSP 80 CN  | 101-5T(X)-80                                | OSP 80 LS  | 80               | 8             | 17.5                  | 2.5                       | 135    | 5.84   |
| 101-1-100                                            | OSP 100 ON | 101-3-100                                              | OSP 100 CN | 101-5T(X)-100                               | OSP 100 LS | 100              | 10            | 17.5                  | 2.5                       | 138    | 5.91   |
| 101-1-125                                            | OSP 125 ON | 101-3-125                                              | OSP 125 CN | 101-5T(X)-125                               | OSP 125 LS | 125              | 13            | 17.5                  | 2.5                       | 141    | 6.05   |
| 101-1-160                                            | OSP 160 ON | 101-3-160                                              | OSP 160 CN | 101-5T(X)-160                               | OSP 160 LS | 160              | 16            | 17.5                  | 2.5                       | 146    | 6.25   |
| 101-1-200                                            | OSP 200 ON | 101-3-200                                              | OSP 200 CN | 101-5T(X)-200                               | OSP 200 LS | 200              | 20            | 17.5                  | 2.5                       | 151    | 6.45   |
| 101-1-250                                            | OSP 250 ON | 101-3-250                                              | OSP 250 CN | 101-5T(X)-250                               | OSP 250 LS | 250              | 25            | 17.5                  | 2.5                       | 157    | 6.68   |
| 101-1-280                                            | OSP 280 ON | 101-3-280                                              | OSP 280 CN | 101-5T(X)-280                               | OSP 280 LS | 280              | 28            | 17.5                  | 2.5                       | 162    | 6.86   |
| 101-1-315                                            | OSP 315 ON | 101-3-315                                              | OSP 315 CN | 101-5T(X)-315                               | OSP 315 LS | 315              | 32            | 17.5                  | 2.5                       | 167    | 7.06   |
| 101-1-400                                            | OSP 400 ON | 101-3-400                                              | OSP 400 CN | 101-5T(X)-400                               | OSP 400 LS | 400              | 40            | 17.5                  | 2.5                       | 177    | 7.45   |

# Hydraulic steering units

## Function



## Order Code

| Pos.1 |   |   | Pos.2 |     | Pos.3 |   |
|-------|---|---|-------|-----|-------|---|
| 101   | — | * | —     | *** | —     | * |

|       |   |               |
|-------|---|---------------|
| Pos.1 | — | Function Code |
|-------|---|---------------|

1:Open Center Non-Reaction  
3:Closed Center Non-Reaction

2:Open Center Reaction  
5 T :Load Sensing Type Pipe Mounting

5 TX :Load Sensing Type Pipe Mounting

(X: When the 101-5TX series SCU is in neutral position, both of its left and right cavity are connected with T port. )

|       |   |                   |
|-------|---|-------------------|
| Pos.2 | — | Displacement mL/r |
|-------|---|-------------------|

50、63、80、100、125、160、200、250、280、315、400

|       |   |            |
|-------|---|------------|
| Pos.3 | — | Ports Code |
|-------|---|------------|

A B C D E U G Q M F I N

## Ports and Mounting

| Code | Ports P, T, A, B | Column Mounting<br>C | Column Mounting<br>V | Post LS           | Ports LL, EL |
|------|------------------|----------------------|----------------------|-------------------|--------------|
| A    | M20×1.5          | M10                  | M12                  | M12×1.5           |              |
| B    | M20×1.5 O-ring   |                      |                      | M12×1.5 O-ring    |              |
| C    | M18×1.5          |                      |                      | M12×1.5           |              |
| D    | M18×1.5 O-ring   |                      |                      | M12×1.5 O-ring    |              |
| E    | G1/2             |                      | M10×1                | G1/4              | M10×1        |
| U    | G1/2 O-ring      |                      |                      | G1/4 O-ring       | M10×1 O-ring |
| M    | 3/4-16UNF O-ring |                      | M12                  | 7/16-20UNF O-ring |              |
| F    |                  | 3/8-16 UNC           | 3/8-24 UNF           |                   |              |
| I    |                  | M10                  | M10                  |                   |              |
| N    |                  | M10×1.25             |                      |                   |              |
| W    | ϕ 18.5           | M10                  | M12                  | M12×1.5           |              |
| H    | ϕ 18.5           | M10                  | M10                  | M12×1.5           |              |

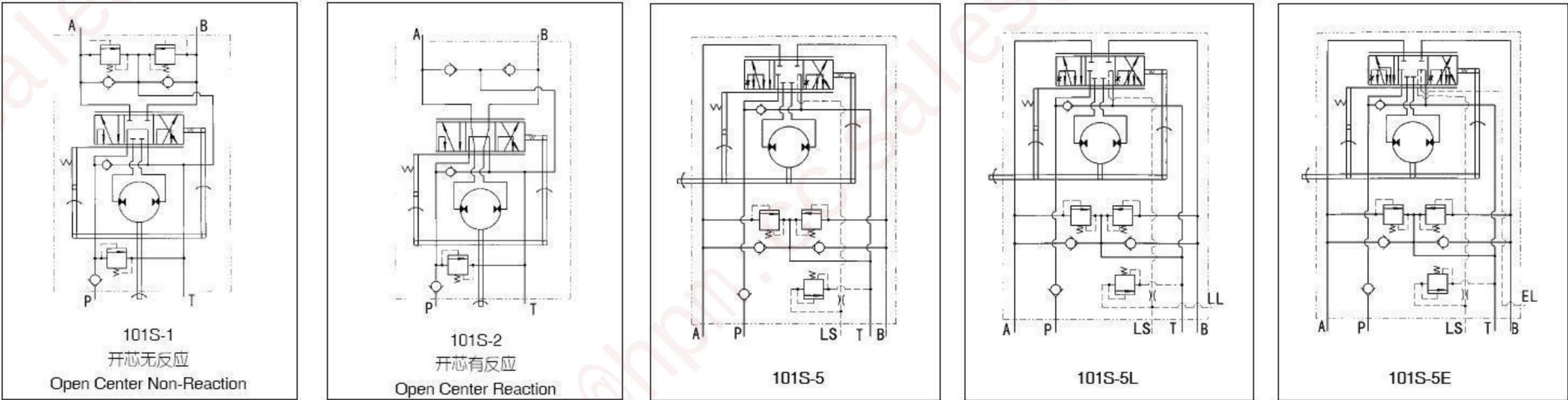
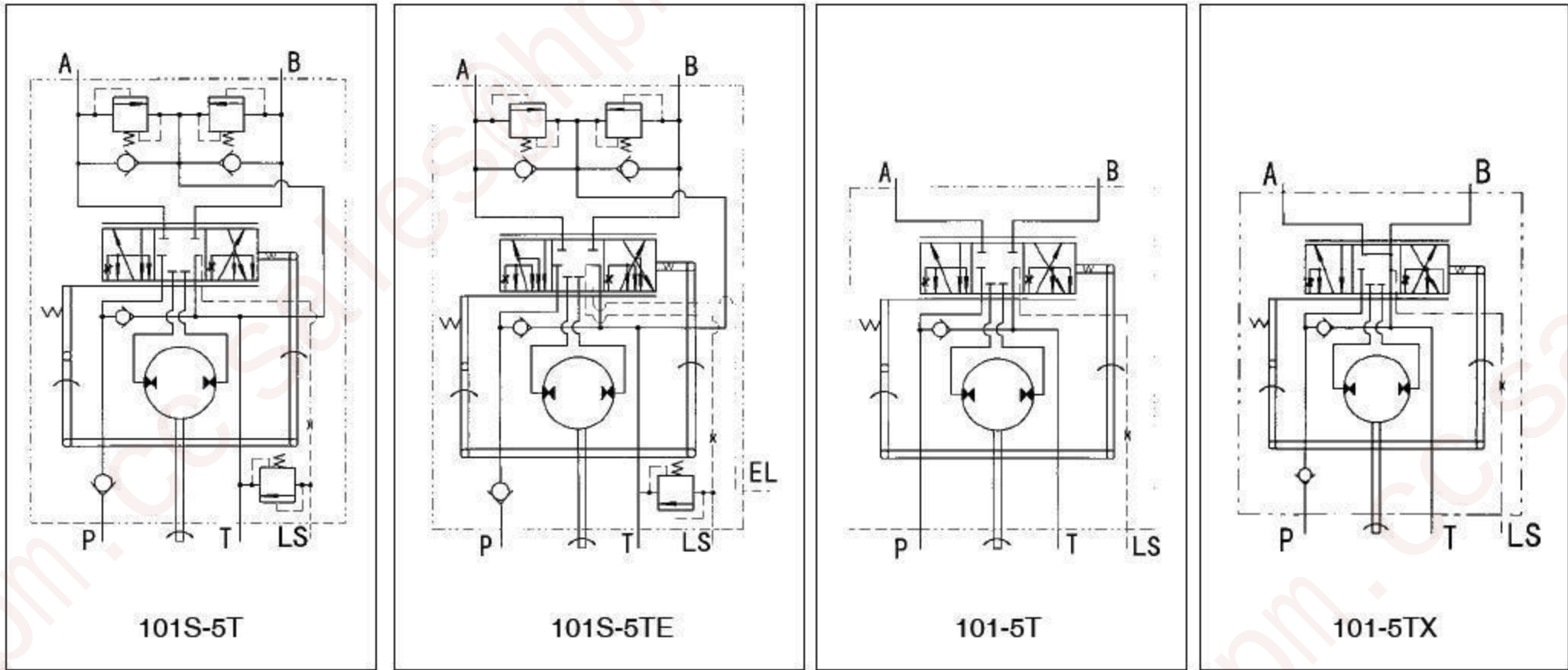
# Hydraulic steering units

## 101S(Danfoss OSPC)

### Parameters

| HPM Model--Danfoss Model<br>Open center non-reaction |             | HPM Model--Danfoss Model<br>Closed center reaction |             | HPM Model--Danfoss Model Loading<br>sensing |             | Displacement | Max.input<br>speed | Max.input<br>Pressure | Max.Cont.<br>Back<br>Pressure |
|------------------------------------------------------|-------------|----------------------------------------------------|-------------|---------------------------------------------|-------------|--------------|--------------------|-----------------------|-------------------------------|
| 101S-1-50                                            | OSPC 50 ON  | 101S-2-50                                          | OSPC 50 OR  | 101S -5/-5L/-5E/-5T(E) -50                  | OSPC 50 LS  | 50           | 100 rpm            | 17.5                  | 2.5                           |
| 101S-1-63                                            | OSPC 63 ON  | 101S-2-63                                          | OSPC 63 OR  | 101S -5/-5L/-5E/-5T(E) -63                  | OSPC 63 LS  | 63           |                    | 17.5                  | 2.5                           |
| 101S-1-80                                            | OSPC 80 ON  | 101S-2-80                                          | OSPC 80 OR  | 101S -5/-5L/-5E/-5T(E) -80                  | OSPC 80 LS  | 80           |                    | 17.5                  | 2.5                           |
| 101S-1-100                                           | OSPC 100 ON | 101S-2-100                                         | OSPC 100 OR | 101S -5/-5L/-5E/-5T(E) -100                 | OSPC 100 LS | 100          |                    | 17.5                  | 2.5                           |
| 101S-1-125                                           | OSPC 125 ON | 101S-2-125                                         | OSPC 125 OR | 101S -5/-5L/-5E/-5T(E) -125                 | OSPC 125 LS | 125          |                    | 17.5                  | 2.5                           |
| 101S-1-160                                           | OSPC 160 ON | 101S-2-160                                         | OSPC 160 OR | 101S -5/-5L/-5E/-5T(E) -160                 | OSPC 160 LS | 160          |                    | 17.5                  | 2.5                           |
| 101S-1-200                                           | OSPC 200 ON | 101S-2-200                                         | OSPC 200 OR | 101S -5/-5L/-5E/-5T(E) -200                 | OSPC 200 LS | 200          |                    | 17.5                  | 2.5                           |
| 101S-1-250                                           | OSPC 250 ON | 101S-2-250                                         | OSPC 250 OR | 101S -5/-5L/-5E/-5T(E) -250                 | OSPC 250 LS | 250          |                    | 17.5                  | 2.5                           |
| 101S-1-280                                           | OSPC 280 ON | 101S-2-280                                         | OSPC 280 OR | 101S -5/-5L/-5E/-5T(E) -280                 | OSPC 280 LS | 280          | 75 rpm             | 17.5                  | 2.5                           |
| 101S-1-315                                           | OSPC 315 ON | 101S-2-315                                         | OSPC 315 OR | 101S -5/-5L/-5E/-5T(E) -315                 | OSPC 315 LS | 315          |                    | 17.5                  | 2.5                           |
| 101S-1-400                                           | OSPC 400 ON | 101S-2-400                                         | OSPC 400 OR | 101S -5/-5L/-5E/-5T(E) -400                 | OSPC 400 LS | 400          |                    | 17.5                  | 2.5                           |

### Function



# Hydraulic steering units



## Order Code

|      | Pos.1 |   | Pos.2 |     | Pos.3 |    | Pos.4 |   | Pos.5 |    | Pos.6 |   |
|------|-------|---|-------|-----|-------|----|-------|---|-------|----|-------|---|
| 101S | —     | * | —     | *** | —     | ** | —     | * | —     | ** | —     | * |

Pos.1 — Function Code

1:Open Center Non-Reaction    2:Open Center Reaction    5:Load Sensing Type (Modulary Mounting)

5 T: Load Sensing Type (T:Pipe Mounting)

Pos.2 — Displacement mL/r

50、63、80、100、125、160、200、250、280、315、400

Pos.3 — Electrohydraulic Control Signal Connection

Only for Loading sensing type(101S-1、2 type Omit Pos.3)

Omit : No electrohydraulic signal.

L:The pressure signal at LS connection drawn forth from the LL connection.

E:The pressure signal at the port A or B drawn forth from the EL connection.

Pos.4 — Displacement mL/r

50、63、80、100、125、160、200、250、280、315、400

Pos.5 — Integrated Valve Parameters

Relief valve pressure settings (MPa):06、07、08、10、12、14、15、16、17.5

Shock valves pressure settings is 6 MPa higher than relief valve

Pos.6 — Ports Code

A、B、C、D、E、U、M、F、I、N、W、H

Ports and mounting see page 108 101 Series

### Order code

For example: 101S-5TE - 125 - 10 - E

Ports: P, T,A,B G1/2;  
Column Mounting Thread C M10;  
Port: LS G1/4; Port: EL M10x1  
Relief Valve Pressure Settings :10MPa;  
Shock Valves Pressure Settings:16MPa  
Displacement: 125 mL/r  
Pipe Mounting,with an Electrohydraulic Signal

# Hydraulic steering units

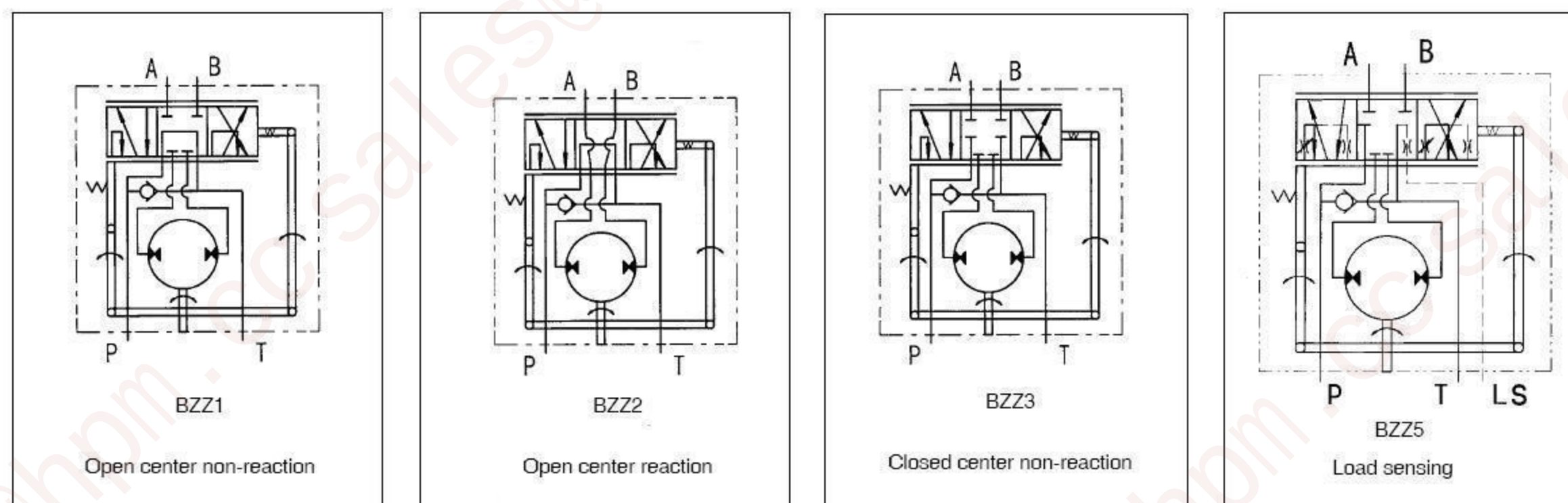
## BZZ(Danfoss OSPB OSPL)

Seperated structure, Sizes a little bigger than 101 series, big displacement feasible

## Parameters

| HPM Model      | Displacement (ml/r) | Flow(L/min) | Max.input Pressure(Mpa) | Max.Cont.Back Pressure(Mpa) | Weight(kg) |
|----------------|---------------------|-------------|-------------------------|-----------------------------|------------|
| BZZ-1 2 3 50   | 50                  | 4           | 16                      | 2.5                         | 4.72       |
| BZZ-1 2 3 63   | 63                  | 5           |                         |                             | 4.85       |
| BZZ-1 2 3 80   | 80                  | 6           |                         |                             | 5.00       |
| BZZ-1 2 3 100  | 100                 | 7.5         |                         |                             | 5.27       |
| BZZ-1 2 3 125  | 125                 | 9.5         |                         |                             | 5.43       |
| BZZ-1 2 3 160  | 160                 | 12          |                         |                             | 5.75       |
| BZZ-1 2 3 200  | 200                 | 15          |                         |                             | 6.08       |
| BZZ-1 2 3 250  | 250                 | 19          |                         |                             | 6.48       |
| BZZ-1 2 3 280  | 280                 | 21          |                         |                             | 6.78       |
| BZZ-1 2 3 315  | 315                 | 24          |                         |                             | 7.13       |
| BZZ-1 2 3 400  | 400                 | 30          |                         |                             | 7.78       |
| BZZ-1 2 3 500  | 500                 | 38          |                         |                             | 8.67       |
| BZZ-1 2 3 630  | 630                 | 48          |                         |                             | 9.72       |
| BZZ-1 2 3 800  | 800                 | 60          |                         |                             | 11.18      |
| BZZ-1 2 3 1000 | 1000                | 75          |                         |                             | 12.80      |

## Function



## Order Code

| Pos.1 |   |   | Pos.2 |     | Pos.3 |    | Pos.4 |   |
|-------|---|---|-------|-----|-------|----|-------|---|
| BZZ   | — | * | —     | *** | —     | ** | —     | * |

|       |   |               |
|-------|---|---------------|
| Pos.1 | — | Function Code |
|-------|---|---------------|

1:Open Center Non-Reaction    2:Open Center Reaction    3:Closed center non-reaction    5: Load Sensing Type

# Hydraulic steering units



Pos.2 – Displacement mL/r

50、63、80、100、125、160、200、250、280、315、400、500、630、800、1000、

Pos.3 – Mounting Data

A:Long spigot, cross-block mounting

B:SAE involute spline mounting

C:Short spigot, cross-block mounting

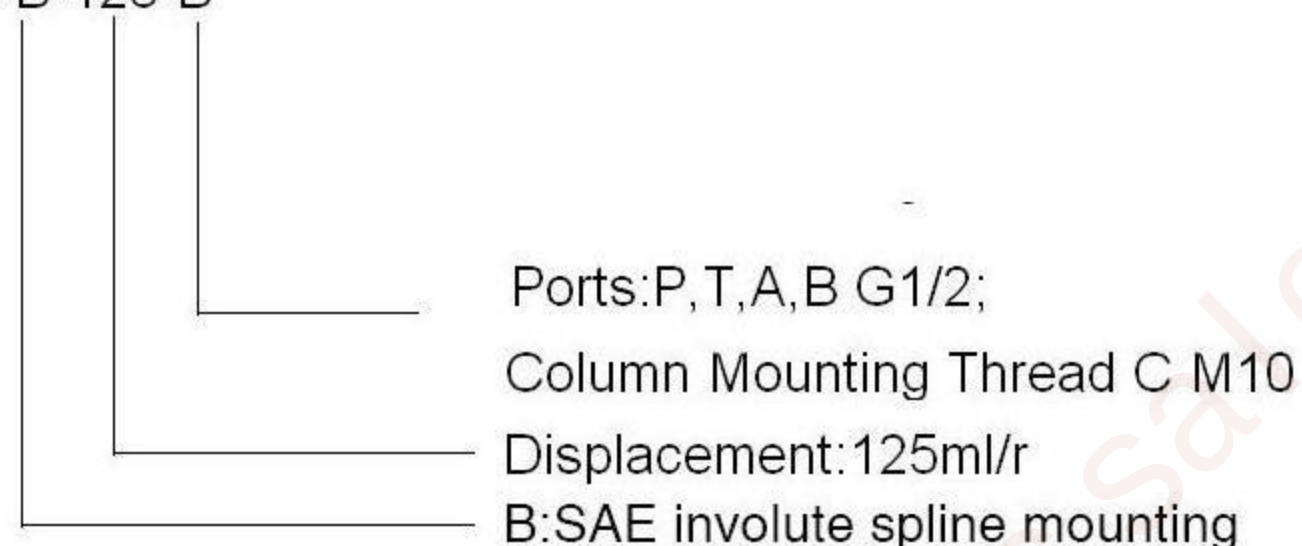
Pos.4 – Ports Code

| Category   | Code   | Ports P, T, A, B                             | Column Mounting C | Valve Mounting V | Port LS           |
|------------|--------|----------------------------------------------|-------------------|------------------|-------------------|
| Ports Code | (omit) | M20×1.5                                      | M10               | M12              | M12×1.5           |
|            | A      | M18×1.5                                      | M10               | M12              | M12×1.5           |
|            | B      | G1/2                                         | M10               | M10×1            | G1/4              |
|            | C      | 3/4-16UNF O-ring                             | 3/8-16UNC         | 3/8-24UNF        | 7/16-20UNF O-ring |
|            | D      | M20×1.5 O-ring                               | M10               | M12              | M12×1.5 O-ring    |
|            | E      | M18×1.5 O-ring                               | M10               | M12              | M12×1.5 O-ring    |
|            | G      | M22×1.5                                      | M10               | M12              | M12×1.5           |
|            | Q      | M22×1.5 O-ring                               | M10               | M12              | M12×1.5 O-ring    |
|            | U      | G1/2 O-ring                                  | M10               | M10×1            | G1/4 O-ring       |
|            | M      | 3/4-16UNF O-ring                             | M10               | M12              | 7/16-20UNF O-ring |
|            | I      | 3/4-16UNF O-ring                             | M10               | M10              | 7/16-20UNF O-ring |
|            | N      | 3/4-16UNF O-ring                             | M10×1.25          | M10              | 7/16-20UNF O-ring |
|            | R      | P, T: M22×1.5<br>A, B: M18×1.5               | M10               | M12              | M12×1.5           |
|            | S      | P, T: M22×1.5 O-ring<br>A, B: M18×1.5 O-ring | M10               | M12              | M12×1.5           |

Note 1: Ports P, T, A, B Depth : 14 mm; Column Mounting C & V Depth: 16 mm; Port LS Depth: 12mm.

Order code

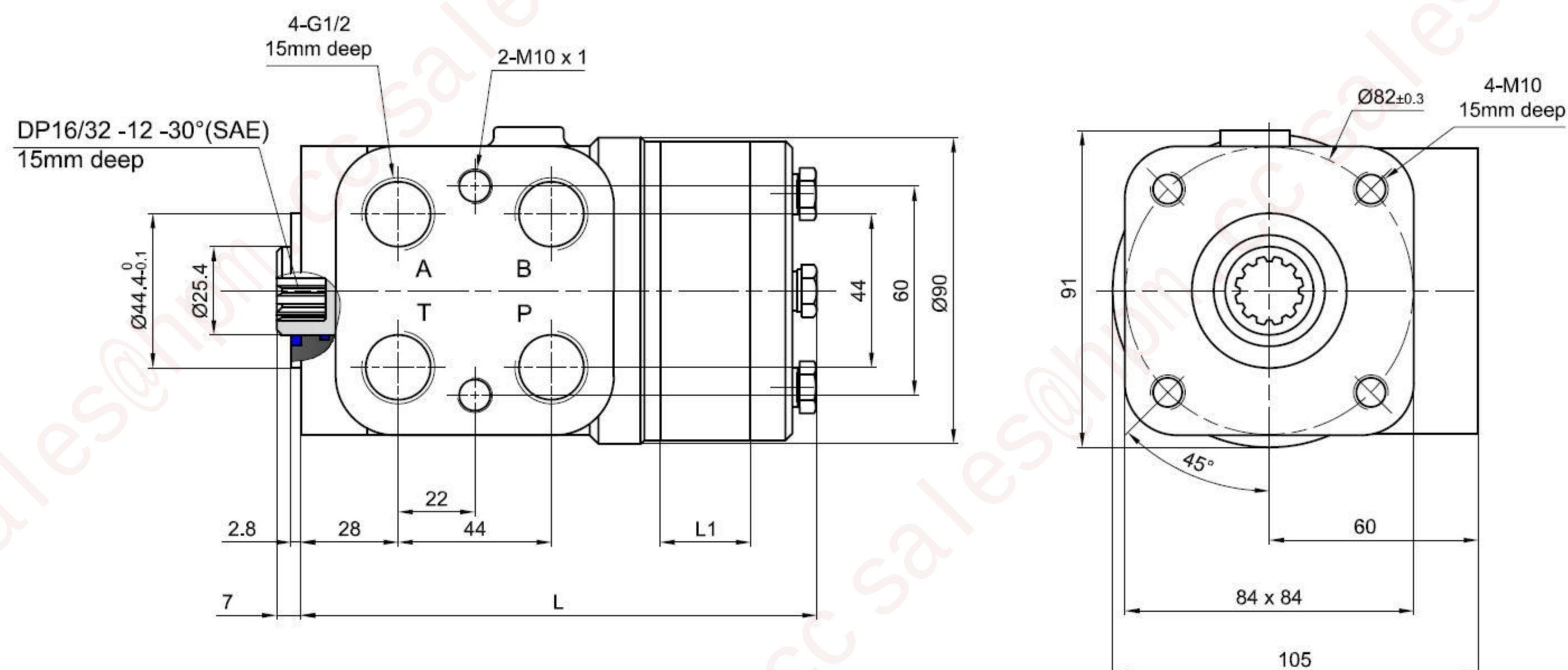
For example: BZZ1-B-125-B



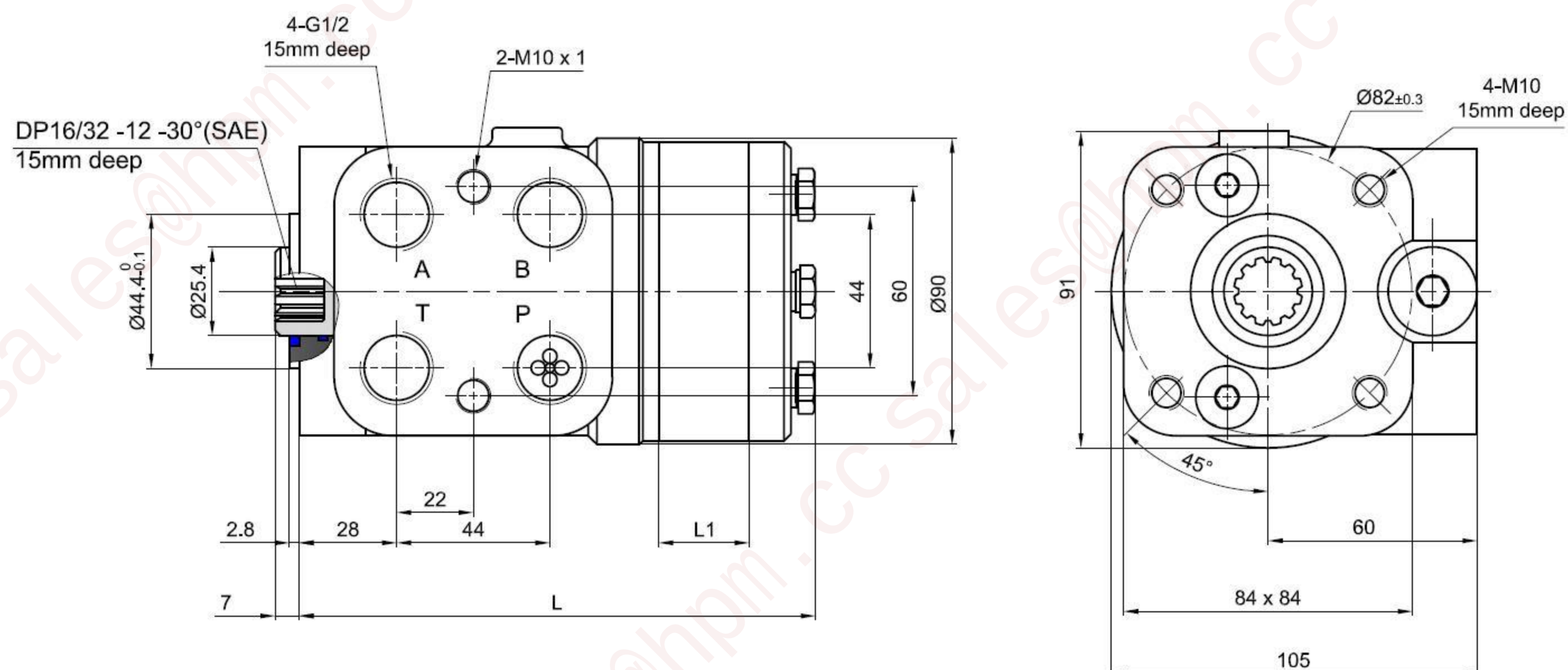
# Hydraulic steering units

## Drawing example

### 101-1-x-x-E



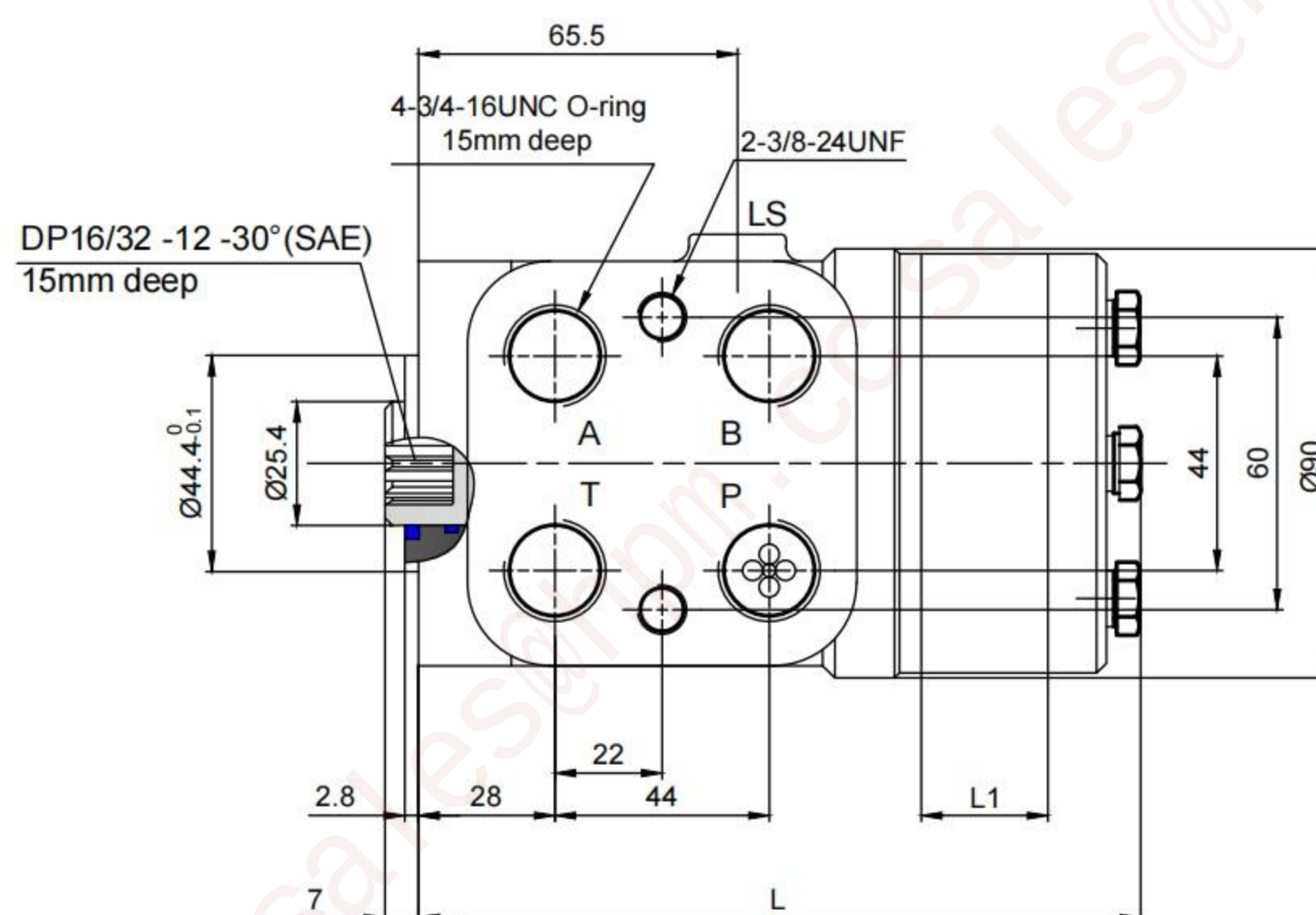
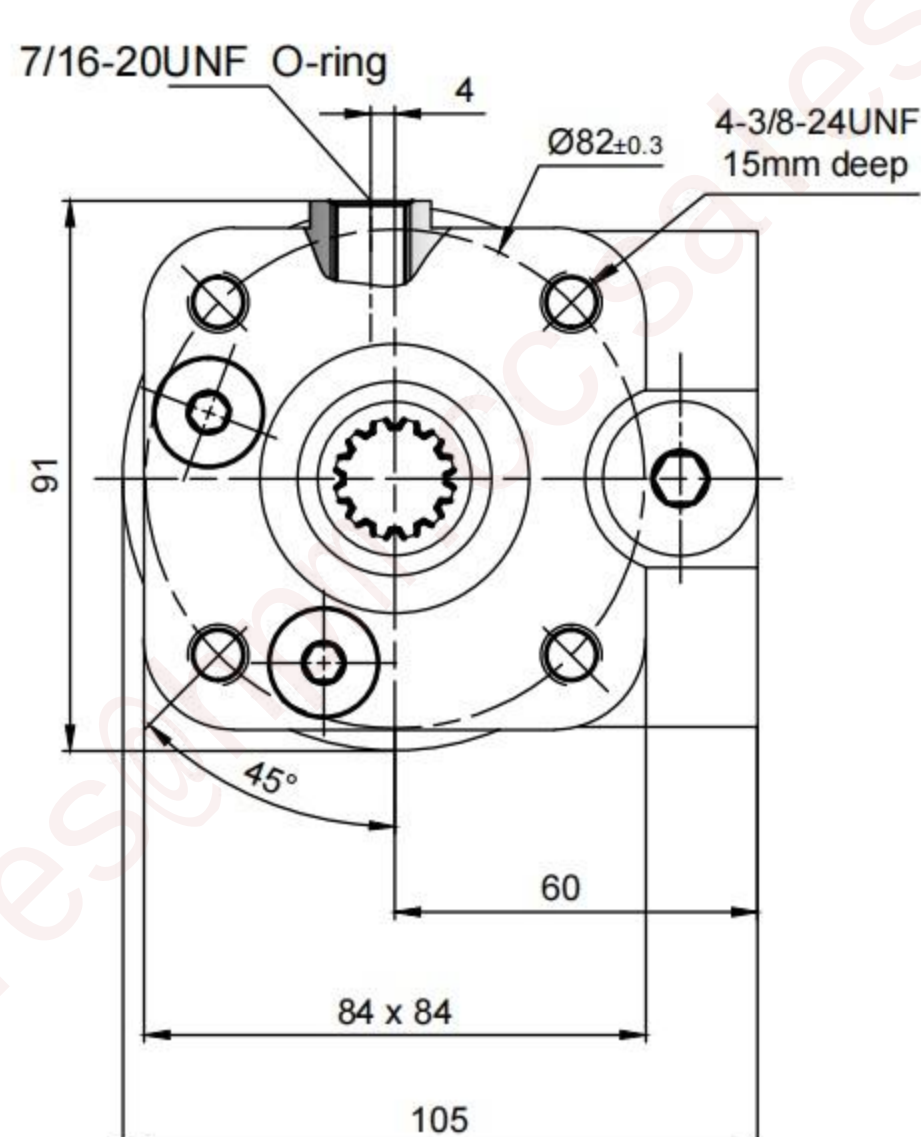
### 101S-1-x-x-E



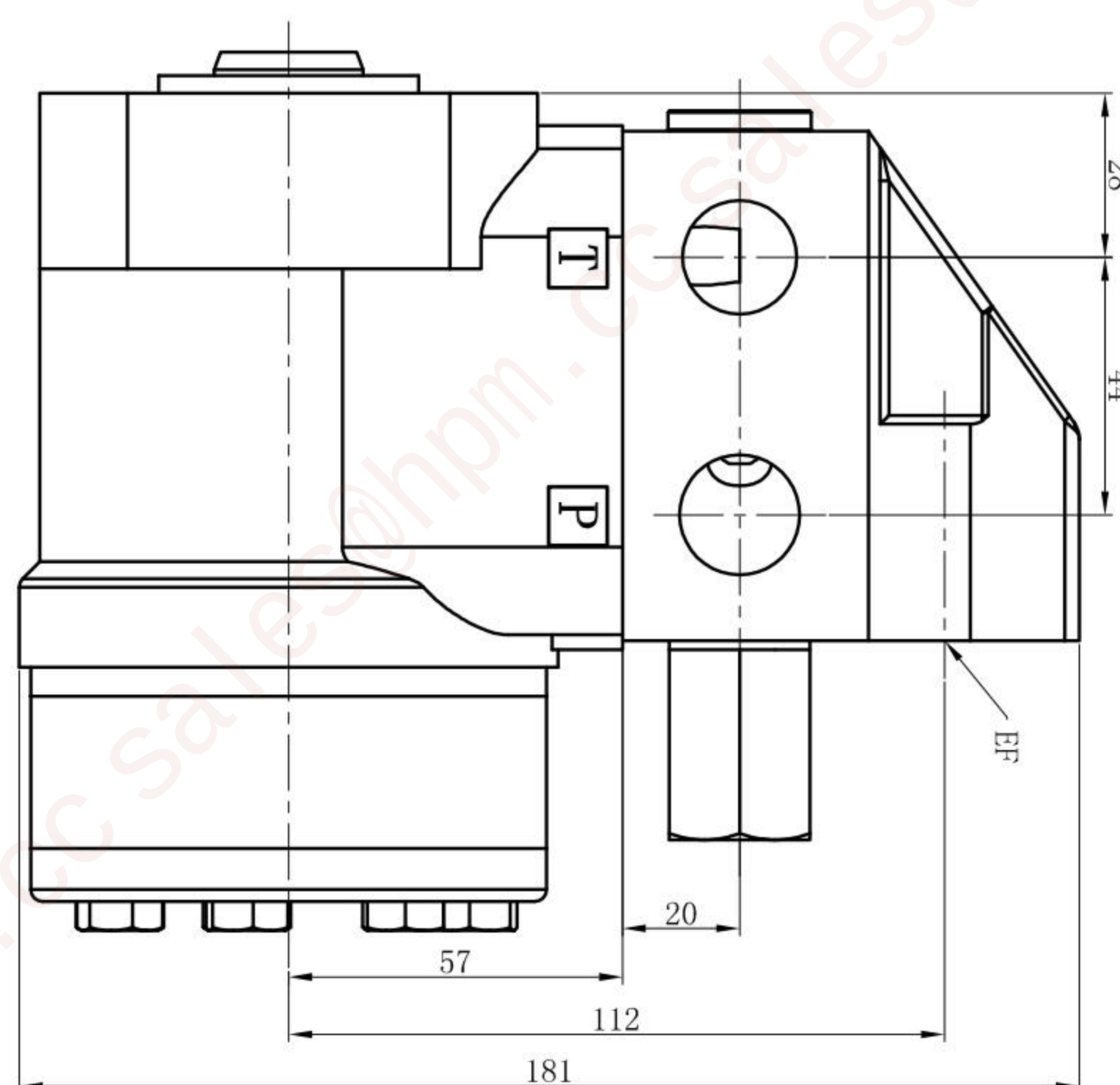
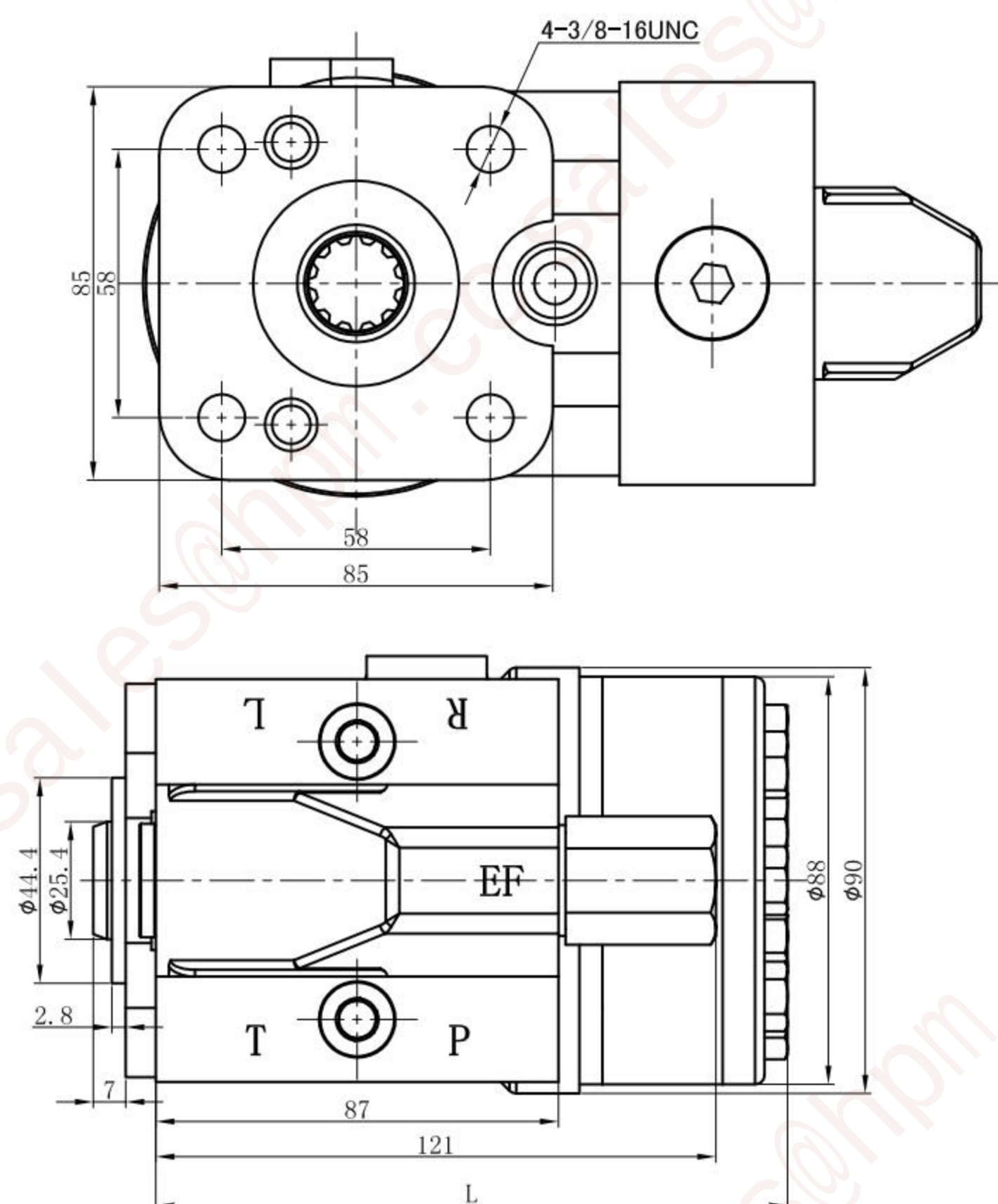
# Hydraulic steering units

## Drawing example

### 101S-5T-X-F



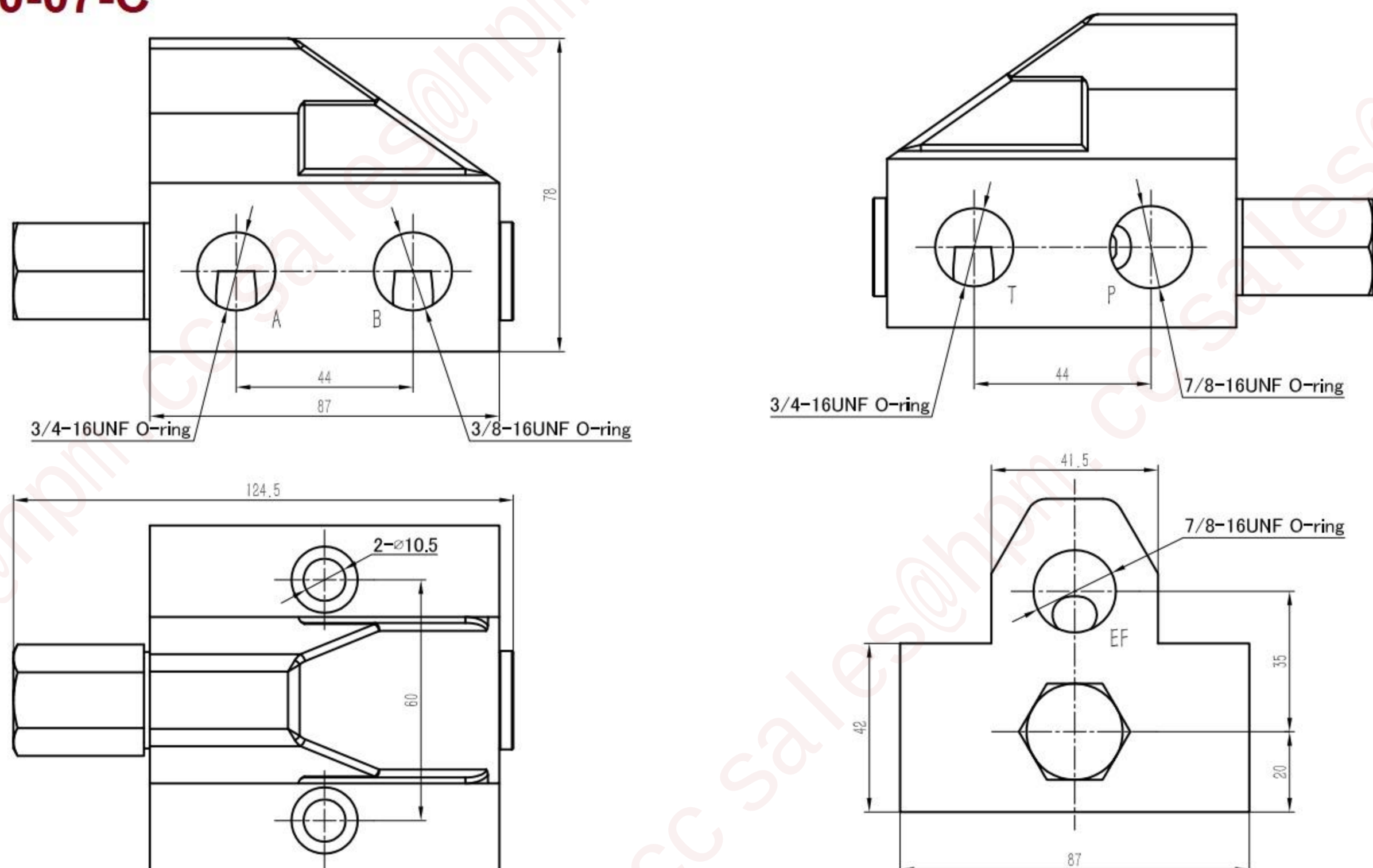
### 101S-5-F+PVF-D-80-0.7-C



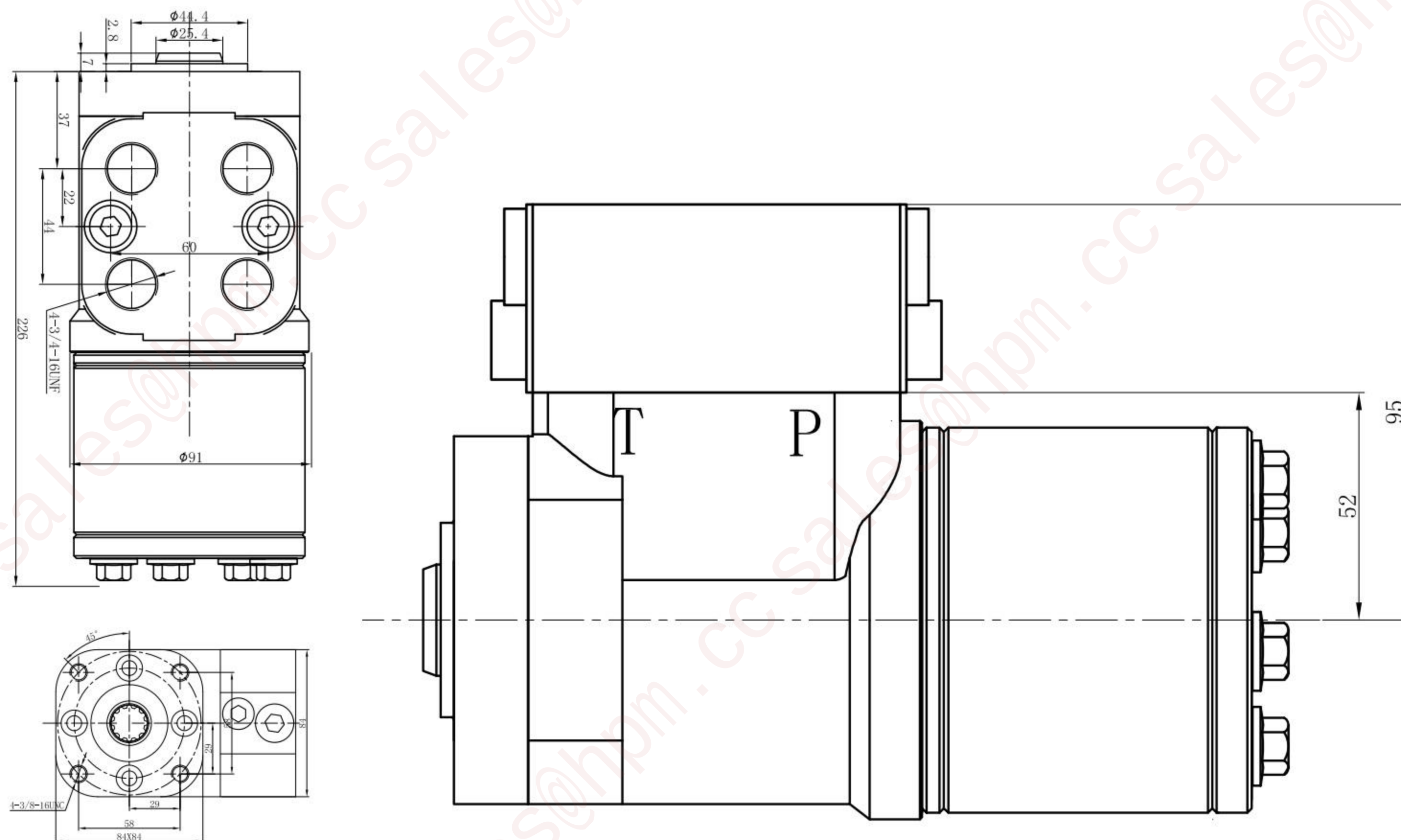
# Hydraulic steering units

## Drawing example

### PVFD-80-07-C



### BZZ1-800-B-C+FKA-C





101S-5T-x-E



**For other type steering units, and accessory please contact with our sales department. Like Coaxial Flow Amplifying steering units, Torque Amplifiers, Valve Blocks, Priority valves, Columns**