



# DDH Hydraulic series



VALVE AND FLOW CONTROL SPECIALISTS  
SERVICE AND RELIABILITY

## Spring return & double acting Compact actuator





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## 1. APPLICATIONS

The Duxdrive DDH series is a high quality hydraulic actuator. This actuator has first been developed to operate Duxvalves choke valves. As these valves are often used for modulation purpose, a high accuracy of the valve stem is required. Therefore, a smooth running output rotation has become one of the key features of the Duxdrive actuator. With both quarter and half turn Duxdrive is now suitable to operate a wide range of rotary valves. For special applications custom output angles are possible.

### Options

- **Quarter or half turn (or custom)**
- **Spring return or double acting \*\*\*\*\***
- **Temperature range**
  - **Standard range: -20°C to 90°C (-4°F to 194°F)**
  - **Low range: -40°C to 90°C (-40°F to 194°F)**
- **Control system**

A control system could be included which could be directly mounted to the actuator with a mounting plate or cabinet.



*Duxdrive with integrated control system*



## 2. CERTIFICATIONS

- **Certified to SIL 3/4**
- **Suitable for use in explosive areas according to ATEX 2014/34 EU**
- **Ingress protection according to IEC-60529 IP 67**
- **Quality assurance system ISO 9001**



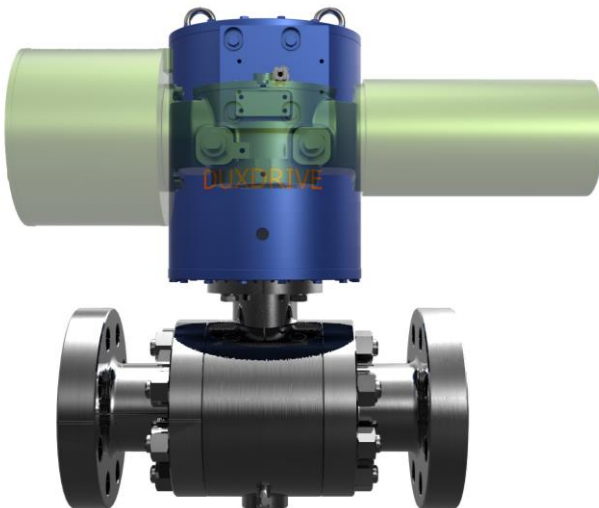
**VALVE AND FLOW CONTROL SPECIALISTS**  
SERVICE AND RELIABILITY



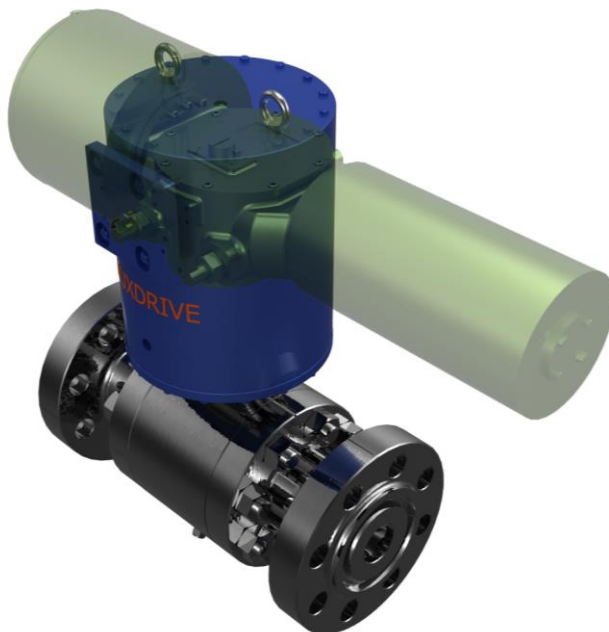
### 3. FEATURES

#### Compact design

Because of the compact design the Duxdrive is able to generate high output torques. The DDH series save space up to 70% compared to scotch yoke actuators. Ideal applications are FPSO and oil and gas rigs where space is limited, and volume restrictions are applicable. Compact building is possible due to the combined spring and cylinder container with the drive mechanism placed within.



*Duxdrive compared to scotch yoke actuator  
mounted on a 2" 900 Lbs ball valve*

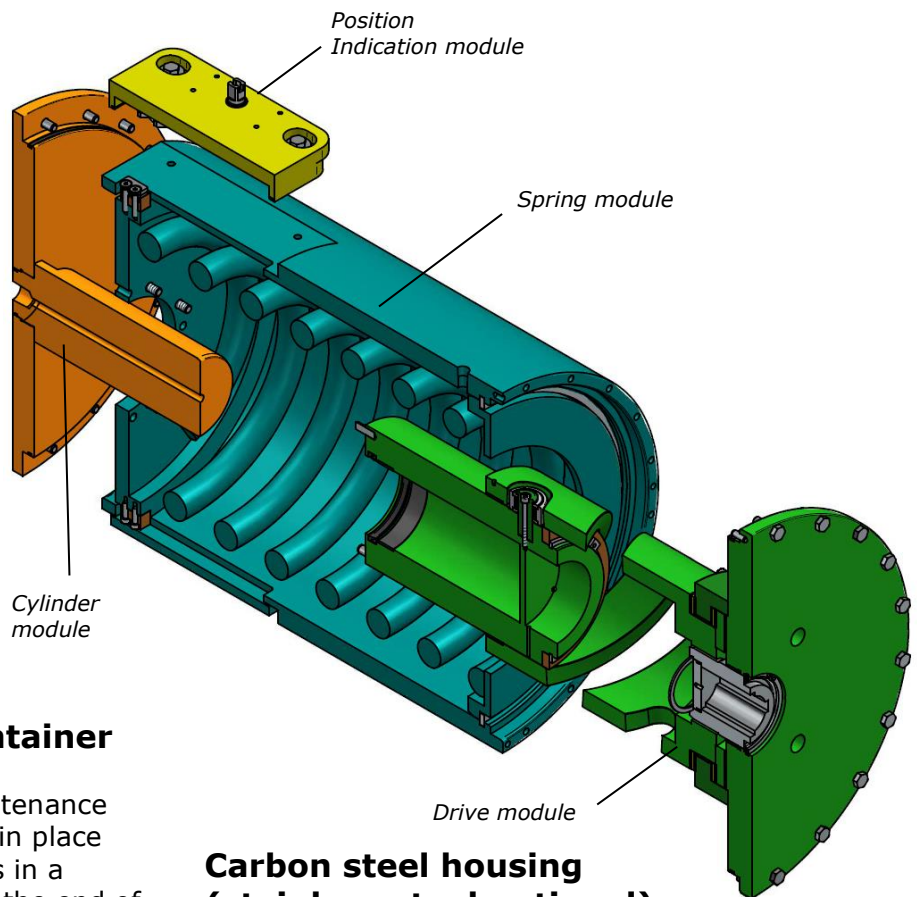


- NOT JUST FOR CHOKE VALVES*
- SIMPLICITY AND RELIABILITY*
- FOR BALL VALVES OR QUARTER*
- TURN MODULATING CONTROL VALVES*
- 180 DEGREE OPTION FOR 3 WAY*
- L or T PORT DIVERTING OR MIXING*
- VALVES*



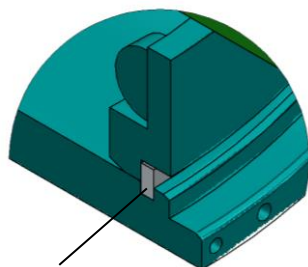
## Modular design

Modular design with drive module as base. The spring module is available in two or three sizes and the cylinder module in even more variants. With these options sizing is possible for different supply pressures and output torques.



## Safe spring container

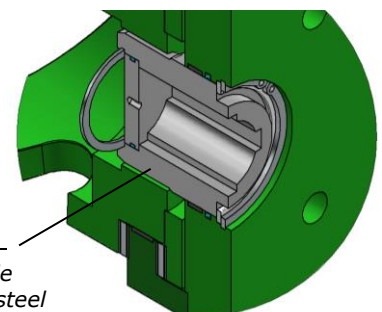
To ensure safe maintenance the spring is locked in place between two flanges in a closed container. At the end of the spring stroke the upper flange is stopped by an end stop (edge) in the cylinder. The lower flange is secured by a spring ring, inaccessible for disassembling.



*Safely secured spring ring*

## Carbon steel housing (stainless steel optional)

The housing is made of carbon steel, coated according to client specifications. To prevent corrosion of the valve interface, the stem adapter is made of stainless steel suitable for offshore conditions. This material has also a high strength to cope with the stresses caused by the output torques. As an option also a stainless steel housing is possible.

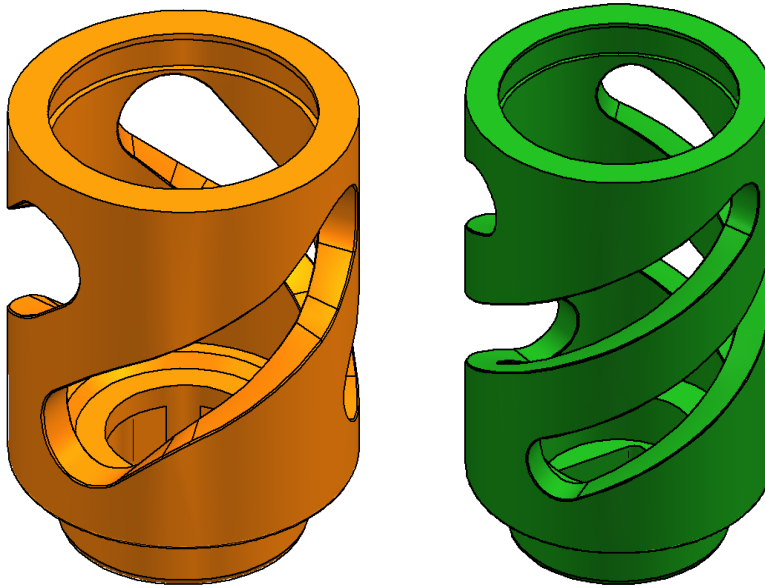
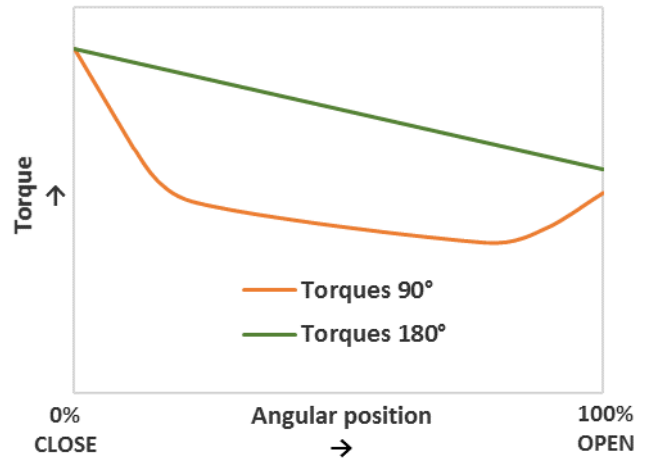


*High grade stainless steel stem adapter*



## Standard or custom torque curve

The torque characteristic is based on the shape of the curved slots in the curve-sleeve. The quarter turn Duxdrive has a more efficient shaped curve with a steep begin and end angle. This results in high break and end torques ideal for most rotary valves. The curve of the half turn Duxdrive has a linear shape for smooth output positioning. The resulting linear torque characteristic is ideal for modulating valves. To meet client specifications the torque curve could also be custom made.

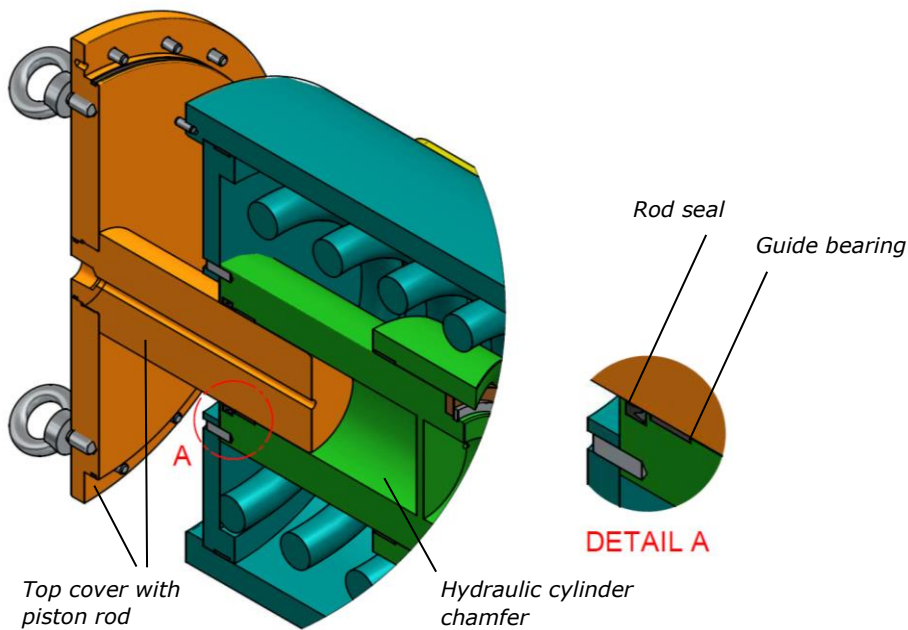


Curve-sleeve left to right: 90° and 180°



## Minimized number of seals

The hydraulic cylinder of the Duxdrive has been designed with a minimized number of seals. Only one seal is required for sealing the rod inside of the hydraulic cylinder chamfer so that changes on leakage are minimal. Access to the cylinder chamfer for maintenance purpose is easy by removing the top cover with piston rod.



## VDI/VDE 3845 position indication (dual optional)

For precise position indication there is a VDI/VDE 3845 connection at one side of the actuator. The turning shaft is made of stainless steel suitable for offshore conditions. Here a limit switchbox, positioner or position indicator can be connected. Optional is a dual indication connection on either side of the actuator.



*Duxdrive actuator with Westlock switchbox*

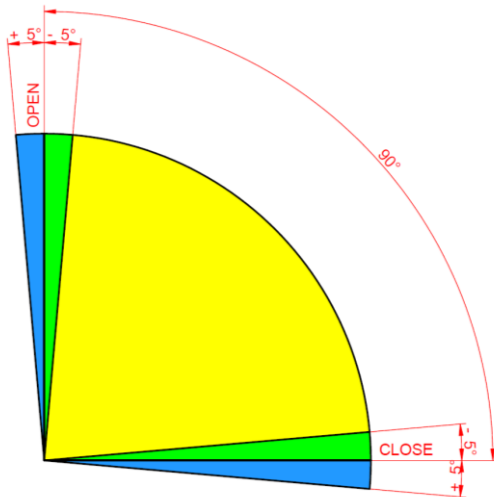




## Optional adjustment flange

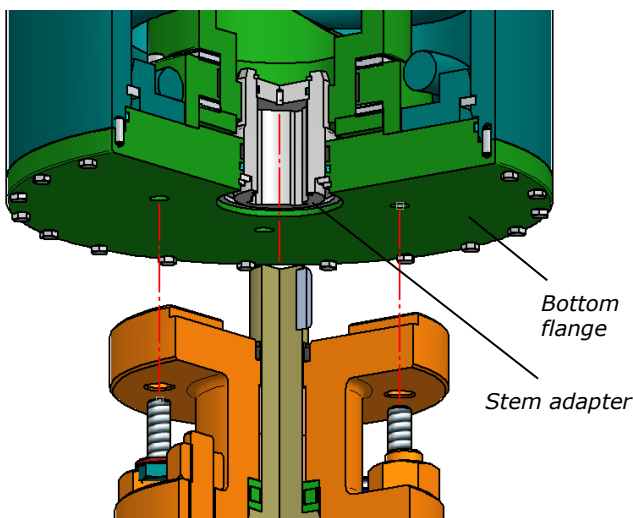
The Duxdrive has an uncomplicated design with a minimized number of parts. There are no adjustable travel stops inside of the actuator. An adjustment flange is optional, based on the valve accuracy of the open and close position. If only minor adjustment is required slightly oversized valve mounting holes would allow for precise positioning. If equipped with an adjustment flange the following is applicable:

- **Standard over- and undertravel:  $+5^\circ/-5^\circ$**
- **Custom over- and undertravel:  $+5^\circ/ \dots -20^\circ$  for modulating applications**



Over- and undertravel for a quarter turn Duxdrive

## Easy and direct mounting



Valve interface suitable for direct mounting

The valve interface could be either according to ISO 5211 (e.g. F10, F12, F25) or custom made. Therefore direct mounting is possible resulting in easier building and disassembling in case of maintenance. Another benefit is a more compact system. In case of keyed valve stems the stem adapter has multiple keyways allowing four different mounting positions.

- **Standard ISO 5211 or custom**
- **Up to four different mounting positions**



## 4. MODEL TYPES

(model example)

<b>DDH</b>	-	<b>1</b>	-	<b>0950</b>	-	<b>4</b>	-	<b>FC</b>	-	<b>2</b>	-	<b>20002</b>
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**Hydraulic  
Duxdrive**

Output angle	
90°	<b>1</b>
120° / ...	<b>2</b>
180°	<b>3</b>

Base type	
280 Nm *	<b>0280</b>
350 Nm	<b>0350</b>
950 Nm	<b>0950</b>
2500 Nm	<b>2500</b>
6000 Nm	<b>6000</b>
(larger on request)	...

Cylinder size **	
Range	<b>1 ... 9</b>

Fail action	
Fail Close	<b>FC</b>
Fail Open	<b>FO</b>
Double Acting	<b>DA</b>

Spring size	
Minimal	<b>1</b>
Normal	<b>2</b>
Maximal	<b>3</b>

**Serial number**  
with specified temp. range  
& seal material

\* Only for 90° output angle.

\*\* Cylinder size based on minimal system pressure from 75 Bar(g) to 250 Bar(g).  
Examples of complete operating range: 75 ... 150 Bar(g); 241 ... 290 Bar(g).