

This document shows the current DEIF standard scale designs for the XL/BW/BRW-2 and TRI-2 range.

Note that the drawings shown have been scaled to the same size for better viewing.

1. Standard designs for revolution (RPM) indicators

In compliance with: ISO 22554 Propeller shaft revolution indicators.

Black scale base			White scale base	
XL72	XL96	XL144	XL/BW144	XL/BW192/BRW-2
4150200144	4150250355	4150300181	4150320028	4150370028

Other standard scale end values: 100, 125, 150, 200, 250, 300, 350.

2. Standard designs for pitch indicators

In compliance with: ISO 22555 Propeller pitch indicators.

Black scale base			White scale base	
XL72	XL96	XL144	XL/BW144	XL/BW192/BRW-2
4150200145	4150250358	4150300189	4150320029	4150370027

3. Standard designs for Rate-Of-Turn (ROT) indicator

In compliance with: ISO 20672 Rate of turn indicators and IMO resolution A.526.

Black scale base			White scale base	
XL72	XL96	XL144	XL/BW144	XL/BW192/BRW-2
Not possible according to A.526	Not possible according to A.526		Possible as custom design	Possible as custom design
		4150300192		

It is possible to deliver custom designs for type 72 and 96, but not in compliance with the standards. Typically, only one ROT indicator according to standard is required. Others may act as supplement.

4. Standard designs for Rudder Angle Indicators (RAI)

Note: With 70 as end value, the resolution is 2 degrees instead of 1 degree (according to ISO 20673).

Forward-oriented (FWD) indicators type XL, BW and BRW-2:

Due to the physical placement of the indicator, the green field (STBD) on the scale is on the right side.

In compliance with: ISO 20673 Rudder angle indicators.

Black scale base			
XL72	XL96	XL144/BW144	XL/BW192/BRW-2
4150200237	4150250490	4150300283	4150350144

Black scale base			
XL72	XL96	XL144/BW144	XL/BW192/BRW-2
4150200242	4150250494	4150300273	4150350123

White scale base			
XL72	XL96	XL/BW144	XL/BW192/BRW-2
4150220004	4150270004	4150320005	4150370015

White scale base			
XL72	XL96	XL144/BW144	XL/BW192/BRW-2
4150220021	4150270008	4150320006	4150370016

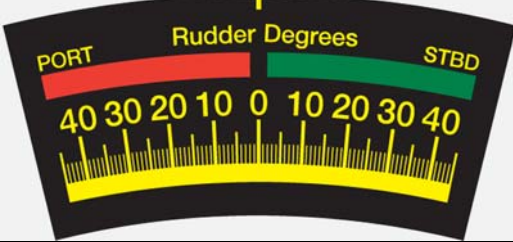
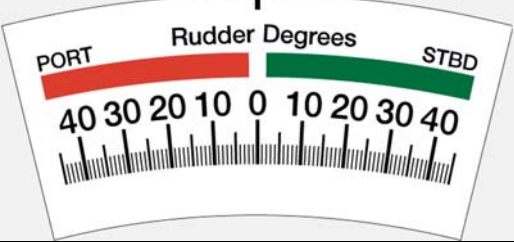

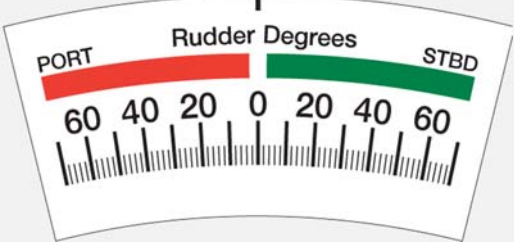


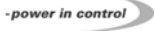
XL/BW/BRW-2 and TRI-2 standard scale designs

Ref.: JOL

-power in control-

Forward-oriented (FWD) Panorama indicator, type TRI-2

Black scale base	White scale base
 <p>A black scale base for a rudder indicator. The scale is semi-circular with a yellow background. The text 'Rudder Degrees' is at the top center. 'PORT' is on the left and 'STBD' is on the right. The scale has markings for 40, 30, 20, 10, 0, 10, 20, 30, 40 degrees.</p>	 <p>A white scale base for a rudder indicator. The scale is semi-circular with a white background. The text 'Rudder Degrees' is at the top center. 'PORT' is on the left and 'STBD' is on the right. The scale has markings for 40, 30, 20, 10, 0, 10, 20, 30, 40 degrees.</p>
4155112443	4155112436
Black scale base	White scale base
 <p>A black scale base for a rudder indicator. The scale is semi-circular with a yellow background. The text 'Rudder Degrees' is at the top center. 'PORT' is on the left and 'STBD' is on the right. The scale has markings for 60, 40, 20, 0, 20, 40, 60 degrees.</p>	 <p>A white scale base for a rudder indicator. The scale is semi-circular with a white background. The text 'Rudder Degrees' is at the top center. 'PORT' is on the left and 'STBD' is on the right. The scale has markings for 60, 40, 20, 0, 20, 40, 60 degrees.</p>
4155112447	4155112440



Aft-oriented (AFT) indicators type XL, BW and BRW-2:

Due to the physical placement of the indicator, the green field (STBD) on the scale is on the left side.

In compliance with: ISO 20673 Rudder angle indicators.

Black scale base			
XL72	XL96	XL144/BW144	XL/BW192/BRW-2
4150200238	4150250489	4150300187	4150350121

Black scale base			
XL72	XL96	XL144/BW144	XL/BW192/BRW-2
4150200241	4150250493	41503000272	41503500122

White scale base			
XL72	XL96	XL/BW144	XL/BW192/BRW-2
4150220022	4150270033	4150320030	4150370026

White scale base			
XL72	XL96	XL144/BW144	XL/BW192/BRW-2
4150220023	4150270034	4150320031	4150370001

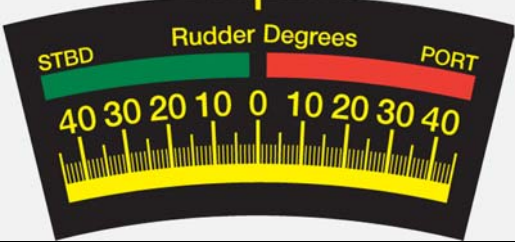
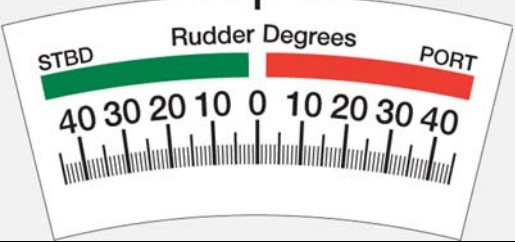
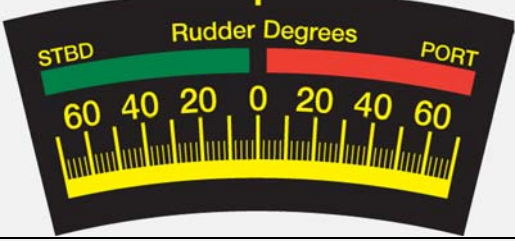
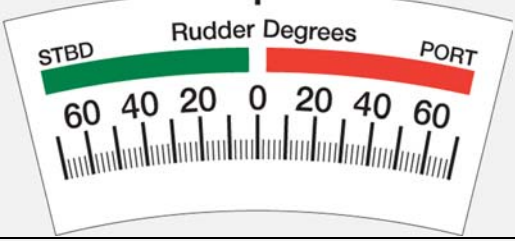


XL/BW/BRW-2 and TRI-2 standard scale designs

Ref.: JOL

-power in control

Aft-oriented (AFT) Panorama indicator, type TRI-2

Black scale base	White scale base
 <p>Rudder Degrees</p> <p>STBD PORT</p> <p>40 30 20 10 0 10 20 30 40</p>	 <p>Rudder Degrees</p> <p>STBD PORT</p> <p>40 30 20 10 0 10 20 30 40</p>
4155112444	4155112437
Black scale base	White scale base
 <p>Rudder Degrees</p> <p>STBD PORT</p> <p>60 40 20 0 20 40 60</p>	 <p>Rudder Degrees</p> <p>STBD PORT</p> <p>60 40 20 0 20 40 60</p>
4155112448	4155112441

5. Standard designs for Azimuth indicators

There are no international standards on these indicators yet, but the design is primarily based on ISO 20673.

Forward-oriented (FWD) indicators:

Due to the physical placement of the indicator, the green field (STBD) on the scale is on the right side.

Black scale base with yellow lines and figures			
XL72	XL96	XL144/BW144	XL/BW192/BRW-2
			Not possible due to technical limits
Scale: 4150240058 Disc: 4155111597	Scale: 4150290067 Disc: 4155111579	Scale: 4150340079 Disc: 4155111598	

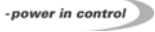
Black scale base with white lines and figures			
XL72	XL96	XL144/BW144	XL/BW192/BRW-2
Possible as custom design		Possible as custom design	Not possible due to technical limits
	Scale: 4150290098 Disc: 4155111582		

Aft-oriented (AFT) indicators:

Due to the physical placement of the indicator, the green field (STBD) on the scale is on the left side.

Black scale base with yellow lines and figures			
XL72	XL96	XL144/BW144	XL/BW192/BRW-2
			Not possible due to technical limits
Scale: 4150240056 Disc: 4155111597	Scale: 4150290065 Disc: 4155111579	Scale: 4150340059 Disc: 4155111598	

Black scale base with white lines and figures			
XL72	XL96	XL144/BW144	XL/BW192/BRW-2
Possible as custom design		Possible as custom design	Not possible due to technical limits
	Scale: 4150290086 Disc: 4155111582		



6. Designs for Rudder Angle Indicators (RAI) - **Not wheel-marked** (not according to ISO 20673)

Forward-oriented (FWD) indicator type XL, BW and BRW-2

Note: MED rudder scales must as a minimum be +/- 40 degrees.

Black scale base			
XL72	XL96	XL144/BW144	XL/BW192/BRW-2
4150200254	4150250529	4150300288	4150350128

White scale base			
XL72	XL96	XL/BW144	XL/BW192/BRW-2
4150220025	4150270003	4150320004	4150370014

Forward-oriented (FWD) Panorama indicator, type TRI-2 - **Not wheel-marked**

Note: MED rudder scales must as a minimum be +/- 40 degrees.

Black scale base	White scale base
4155110563	4155111187







XL/BW/BRW-2 and TRI-2 standard scale designs

Ref.: JOL

-power in control

Aft-oriented (AFT) indicator type XL, BW and BRW-2 - **Not wheel-marked**

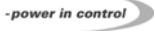
Note: MED rudder scales must as a minimum be +/- 40 degrees.

Black scale base			
XL72	XL96	XL144/BW144	XL/BW192/BRW-2
			
4150200253	4150250528	4150300287	4150350127

White scale base			
XL72	XL96	XL/BW144	XL/BW192/BRW-2
Possible as custom design	Possible as custom design	Possible as custom design	Possible as custom design

Aft-oriented (AFT) Panorama indicator, type TRI-2

Black scale base	White scale base
Possible as custom design	Possible as custom design



General design considerations:

The standard scale designs have been selected by combining the following parameters:

- International standard recommendations (MED wheel-mark requirements)
- Readability
- Design line
- Application
- Product quality (automatic vision test)

Scales are designed in line with the guidelines given in the “DEIF scale design guide” based on relevant ISO and IEC documents, the interpretation of the standards are made in close cooperation with DNV GL. This is to make sure that the scale designs are according to the international standards and for: Rate of turn, RPM, Pitch and Rudder/Azimuth indicators also to make sure that they are in accordance with all MED requirements.

In general, the design must ensure that the instrument data is clearly visible to the observer at a practical distance in the light conditions that are normally experienced on the bridge, that is in any light conditions from bright day to dark night.

Text and values - minimum character size:

Product:	Readable distance:	Minimum character size:
XL 72 control panel	1.0 m	3.5 mm
XL 96 control panel	1.0 m	3.5 mm
XL144, BW144 close overhead panel	1.5 m	5.3 mm
XL192, BW192, BRW-2, TRI-2 overhead panel	2.0 m	7.0 mm

The purpose of each indicator must either be illustrated by symbols where standard symbols have been internationally adopted or indicated by a label in English. (Additional local language may be added).

Scale base colour:

The black scale base designs are optimum for use inside the bridge. Due to the design, where only information fields are illuminated, very little light is emitted from the indicators, which helps the bridge crew preserve night vision.

The white scale base designs are intended for bridge wing indicators for outside mounting. The white colour gives optimum lifespan for the indicators in direct sunlight due to reduced internal heat-up.

DEIF recommends that customers do not deviate from this.