DOCUMENTATION SHEET

Propulsion Equipment Hydraulic shaft coupling

HYDRAULIO COUPLING

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General

The range of Rubber Design Couplings were designed specially to fit the most common propeller shaft diameters in mind. The simple design provides a powerful friction joint for high torque transmission, combined with simple mounting and dismounting features. Using oil injection technology.

Although originally designed for propeller shafts installations in yachts, the couplings are particularly versatile and can be equally used for pumps, turbines, compressors and generators. For applications like mining equipment, wind turbines, heavy machining and other shaft connections exposed to high torque transmission. The range of couplings are available in steel or stainless steel from 100mm to 300mm. Greater dimensions are available on request and can be custom-built.

How the RDC Works

The Rubber Design Coupling(RDC) is a mechanical shaft connection, which can be mounted and dismounted hydraulically.

The RDC consists of 2 conical sleeves made of high quality steel. The sleeves have matching tapered sides on each sleeve, the inner sleeve is tapered on the outside and the outer sleeve has a tapered inside. Hydraulic pressure is used to build up a oil film between the sleeves to eliminate metallic contact. The inner sleeve has a nut with a seal, it seals an annular chamber. Low oil pressure is built up in this chamber to press the outer sleeve up the taper of the inner sleeve, when the outer sleeve has reached its pre-determined value, pressure is released between the sleeves then the shafts are connected, and can transmit high torque loads.

Expertise & Quality

In the last 30 years Rubber Design gained much experience in mounting, and supplying propeller shaft installations, for the exclusive yacht building industry.

All Rubber Design Couplings are developed and made in house. Our couplings are cost effective and of the highest quality. At the Research & Development department, all components used are first modeled and examined using finite element analysis tools. The finished products are then thoroughly tested using destructive and non-destructive tests for both custom and standard products.

Shafts

To ease the shaft alignment for RDC couplings the shafts should be so designed that the coupling can be slide along it.

The surface roughness has to be within Ra 2.5 $\mu m,$ with a ISO tolerance of g6.



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Finite Element Analysis of coupling



Rubber Design vibration and noise control



TYPE	Da [mm]	D [mm]	A [mm]	A1 [mm]	A ₂ [mm]	A _a [mm]	∆ [mm]	Mass kg	Mt max. ⁴⁾ [KNm]
RDC 100	100	170	281	265	110	10	0.20	30	26.3
RDC 110	110	180	299	285	120	10	0.22	35	35.1
RDC 120	120	190	320	305	130	10	0.25	40	45.6
RDC 130	130	210	340	325	140	10	0.25	53	57.9
RDC 140	140	230	360	345	150	10	0.25	70	72.4
RDC 150	150	240	386	370	160	10	0.28	78	89
RDC 160	160	250	406	395	170	10	0.31	85	108
RDC 170	170	270	429	415	180	10	0.31	108	129
RDC 180	180	288	453	435	190	10	0.31	130	153
RDC 190	190	310	474	455	205	15	0.31	164	181
RDC 200	200	330	508	480	215	15	0.35	197	211
RDC 210	210	330	529	500	225	15	0.40	200	244
RDC 220	220	350	553	535	235	15	0.37	235	281
RDC 230	230	360	573	555	245	15	0.40	252	321
RDC 240	240	375	588	560	255	15	0.42	283	364
RDC 250	250	390	618	595	270	20	0.44	318	412
RDC 260	260	410	638	615	280	20	0.45	370	463
RDC 270	270	430	658	635	290	20	0.46	426	519
RDC 280	280	440	693	655	300	20	0.49	453	579
RDC 290	290	460	704	675	310	20	0.49	516	643
RDC 300	300	470	724	695	320	20	0.53	547	712

Above presented dimension are for standard type couplings always check the drawing for the specified dimensions and values.

 $\ensuremath{\Delta}$ dimension must be reached after mounting.

 $A_{\!\!3}$ is a nominal dimension it may vary depending on the outfall of the tolerances.

CHARACTERISTICS

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