

**JAURE®**

# Hydraulic Shrink Couplings

## JHC/ JHG-HF



A Regal Brand

**REGAL**

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JAURE®.

Experience, innovation  
and close cooperation  
with leading international  
companies.

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JAURE® is a leading supplier of couplings and power transmission solutions. Experience, manufacturing program, innovation and close cooperation with leading International companies in the business enables JAURE® to provide customized solutions to our customers.

For over 50 years, JAURE® has developed couplings for the most demanding applications in marine, wind energy, steel, railway and paper industries among others.

Our manufacturing program covers a complete range without boundaries in power and speed, and we continue developing new products for future challenges.

JAURE® is part of Regal Power Transmission Solutions, a division of Regal Beloit Corporation. Regal Power Transmission Solutions is comprised of 8 brands: Browning, Jaure, Kop-Flex, McGill, Morse, Rollway, SealMaster and System Plast. Particularly the integration of Kop-Flex and Jaure coupling businesses has strengthened Jaure's presence worldwide and has added application expertise to provide answers, products and service to our customers on a global basis.

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# Hydraulic Shaft Couplings

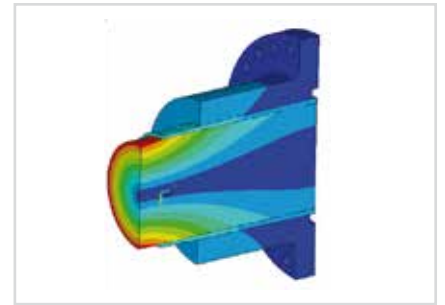
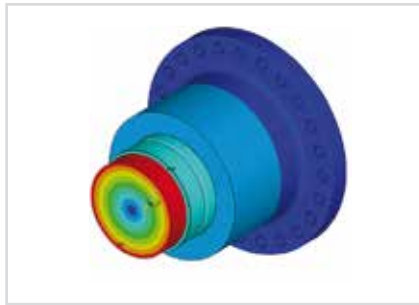
Jaure integrated the oil injection method for shaft connections back in the 60s. Thousands of couplings are running since then in various applications such as marine drives, wind turbines and heavy duty steel mills.

The Jaure hydraulic shrink coupling, JHC, was developed at a later stage. It uses the same principle of the oil injection method, with the advantage that it is equipped with a built-in device for an easier installation and removal of the hub on the shaft.

Hundreds of JHC have been delivered since then either on its own or in combination with Jaure flexible couplings. The simplicity of mounting and dismounting, together with the high torque transmission capacity represent their main benefits.

The main parts of the JHC coupling are the inner sleeve and the outer hub. The fitting surfaces of the sleeve and hub are slightly tapered. By driving the outer hub onto the inner sleeve, it is generated an interference fit with the shaft.

The press fit required for the JHC coupling is defined by expansion of the hub or by the axial drive-up distance of the hub onto the tapered sleeve.



FEA of JHC hydraulic couplings

In addition to our R+D+i department validation procedures, JHC couplings are analysed by specific software which is based on FEA. JAURE also collaborates with Technological Centres, that combined with our worldwide network of technical experts, enables us to provide innovative engineered solutions to our customers.



In house fatigue testing JHC-HF-F-100



100% hydraulically tested before shipment

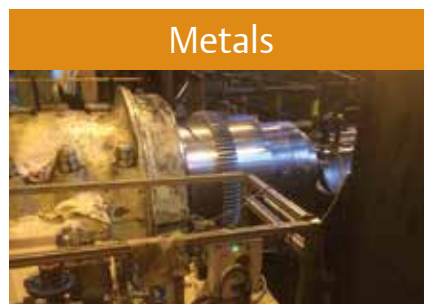
## Main advantages of JHC couplings are:

The main advantage of the JHC, compared to other type of rigid connections such as keyed solutions or shrink fitted solutions, is its simplicity for mounting-dismounting. This operation can be done without any special tooling or gauge manufactured specifically for it, and can be carried out in a short period of time. Only a high pressure oil pump system is needed for the mounting-dismounting process.

Other advantages of the JHC include:

- No need for heating or cooling of the parts for its mounting-dismounting. This process can be done at room temperature.
- Shaft does not need to have any special shape.
- Due to its specific fitting method, it can be mounted and dismantled several times, without the shafts getting worn.
- Easy to adjust to its desired position before mounting it, by rotating and/or moving it axially.
- Thanks to its engineered design, a homogeneous interference is achieved across the whole contact surface of the parts. This means stresses are uniformly spread when transmitting torque. The whole contact surface between parts transmits torque.
- Since torque is transmitted through the whole surface in contact and not only by local areas (such as keyed solution) parts can be designed to be smaller and lighter than in equivalent keyed solution.
- Can withstand high shock loads.

## Industry Applications:



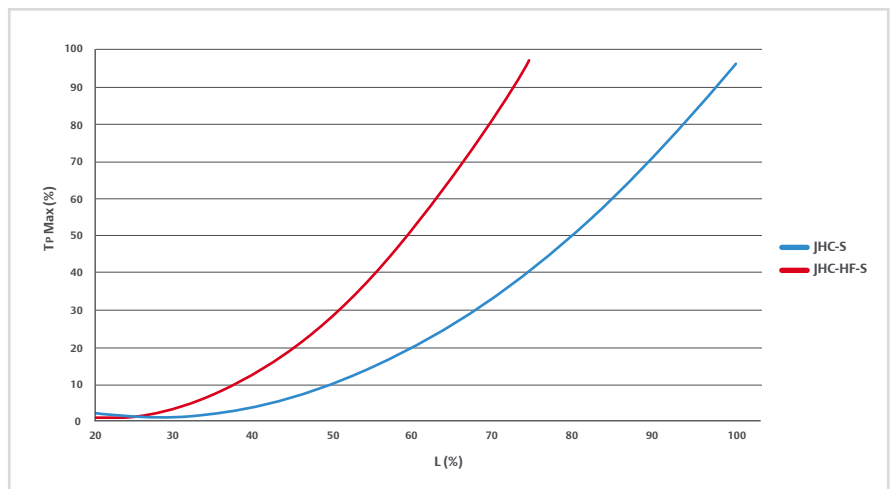
The Jaure hydraulic coupling is available on its sole as rigid connection and in combination with Jaure flexible couplings: gear **MT**, disc pack **Lamidisc**, rubber link **Ixilflex** and composite **Compolink** among others.

# JHC-HF: High Friction

NEW

As a result of our commitment to innovation and product development, we have launched our NEW high friction hydraulic shaft coupling JHC-HF. The JHC-HF solution enhances the properties of the JHC design to a further level. By increasing friction between its main parts, the high friction JHC-HF can transmit the same torque with a reduced size.

Additionally, the JHC-HF allows the connection of hollow shafts with no need for a reinforcement sleeve, with the associated simple and fast mounting benefits.



Torque transfer capability JHC-S vs JHC-HF-S

## MARINE TYPE APPROVAL & MANUFACTURING SURVEY ARRANGEMENT

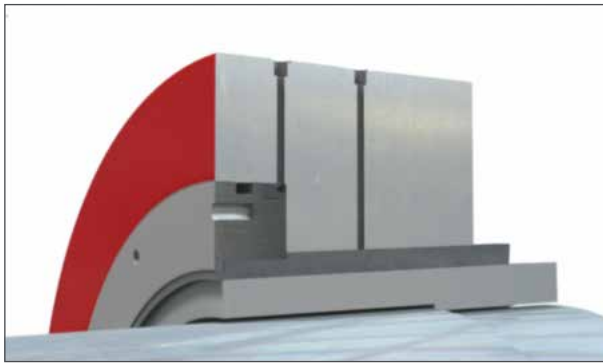
The Jaure hydraulic couplings can be also delivered on demand with the 3.2 certificate of any Marine Classification Society.

Jaure is additionally awarded with the Manufacturing Survey Arrangement – MSA from DNV. The MSA certificate is our commitment to continuously improve the service and response time to our customers and remain competitive in the market place.

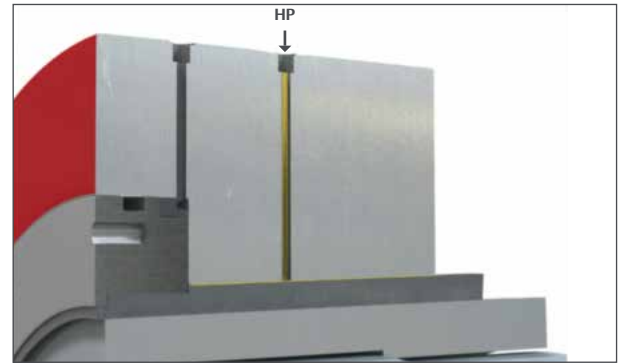


# How does it work?

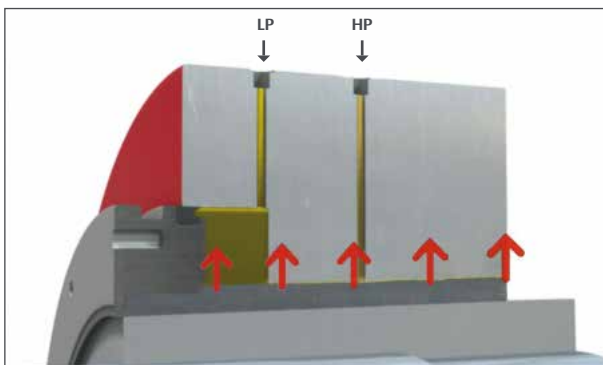
The basic principle of the JHC consists on overlapping a hub with a tapered bore over a sleeve with a tapered outer surface, and by forcing interference through them, creating a high radial pressure.



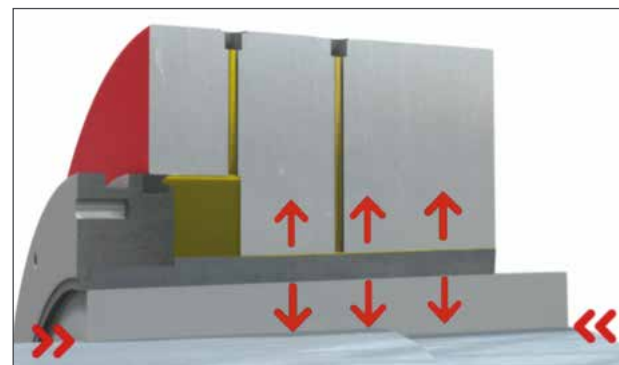
1) Jaure Hydraulic shaft coupling is mounted on the shafts through clearance fit.



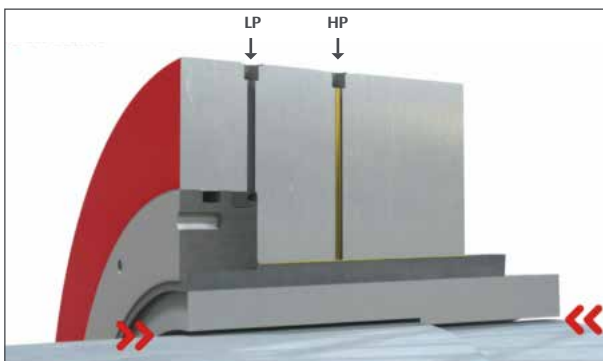
2) High pressure (HP) oil is injected through the HP inlet in order to create a thin film of oil between the taper surfaces which will later allow the outer sleeve to slide over the inner one.



3) Once the oil layer has fully separated both surfaces, low pressure (LP) oil is injected into the chamber in order to exert the necessary axial force for driving up the outer sleeve. This operation will continue until a given axial "drive-up" value is reached.



4) At this final position, we now have a shrink fit connection between shafts and torque can safely be transmitted. Oil is released for operation.

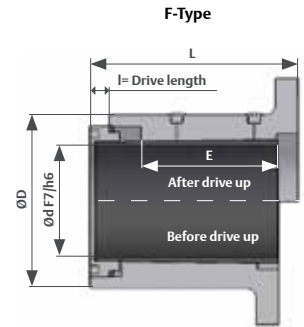


Dismounting is done in a similar way: the friction between the tapers is overcome by injecting oil.

- 1) For the dismounting of the shafts, LP oil is pumped in the chamber first in order to have a smoother drive down of the outer sleeve.
- 2) Then HP oil is pumped so that the taper surfaces are separated again by a thin film. HP pressure needs to be kept for at least 5 min in order to assure the necessary expansion of the outer sleeve.
- 3) LP is released and allowed to return so that the outer sleeve will slide back to its original position.

# JHC-F Flange Type

# JHC-S Sleeve Type



Sizes 90-390

					JHC-F				JHC-S			
JHC	T <sub>P</sub> max (2)	d	D	l	L	E	Weight	Moment of inertia	L	E	Weight	Moment of inertia
SIZE (1)	kNm	mm	mm	mm	mm	mm	kg	kgm <sup>2</sup>	mm	mm	kg	kgm <sup>2</sup>
90	31,5	90	165	15	186	110	22	0,11	278	220	31	0,14
100	41	100	175	16	201	120	26,6	0,15	301	240	36,2	0,18
110	53	110	185	17	219	135	32,1	0,22	332	270	43	0,25
120	65	120	195	18	233	145	37,7	0,30	354	290	48,9	0,32
130	84	130	205	20	261	165	45,5	0,41	400	330	58,9	0,43
140	107	140	225	21	268	170	56,7	0,60	410	340	74,4	0,65
150	131	150	240	22	281	180	67,4	0,81	431	360	88,5	0,89
160	147	160	255	23	304	195	81,8	1,1	467	390	107,9	1,2
170	184	170	275	24	319	205	101	1,6	490	410	134,2	1,8
180	211	180	285	25	332	215	112,6	2	511	430	146,3	2,1
190	241	190	295	27	353	230	126,3	2,4	545	460	162,6	2,5
200	290	200	315	28	368	240	150,7	3,2	568	480	197,2	3,4
210	341	210	325	30	387	250	166,5	3,8	595	500	214,3	4
220	408	220	345	31	405	265	197	5	626	530	259,1	5,4
230	440	230	350	32	418	275	201,8	5,3	647	550	263,9	5,8
240	514	240	370	33	434	285	237,1	6,9	671	570	311,9	7,6
250	570	250	380	34	456	300	263,5	8,4	706	600	339,3	8,8
260	655	260	400	36	470	310	301,9	10,4	728	620	394,2	11,2
270	798	270	440	37	492	325	392	14,9	763	650	540,3	18
280	860	280	450	38	506	335	414,5	16,6	785	670	571,5	20,1
290	910	290	455	39	520	345	428	18	807	690	582,1	21,2
300	985	300	460	40	540	360	445,7	19,6	840	720	599,8	22,6
310	1085	310	475	41	553	370	496,8	23,9	861	740	654,8	26,3
320	1180	320	495	42	567	380	555,6	28,6	883	760	739,5	32,1
330	1290	330	505	43	591	395	592,2	31,7	920	790	790,1	35,9
340	1439	340	525	44	610	405	666,3	38,2	947	810	890,9	43,6
350	1546	350	535	45	630	420	700,1	41,5	980	840	943,8	48,2
360	1665	360	550	46	645	430	760,6	47,9	1003	860	1020,2	55,1
370	1815	370	570	47	658	440	859,3	59,4	1024	880	1132,4	65,4
380	1925	380	580	48	676	455	900,8	64,5	1055	910	1192	71,6
390	2080	390	600	49	692	465	990,4	74,9	1079	930	1320,2	84,5

(1) Other sizes available on demand

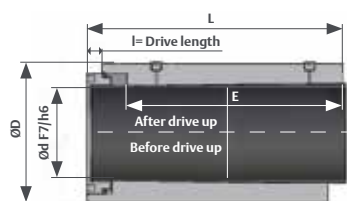
(2) Service factor to be applied depends on application



F-Type



S-Type



S-Type



Sizes 400-700

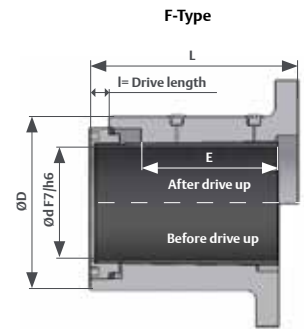
					JHC-F				JHC-S			
JHC	T <sub>p</sub> max (2)	d	D	l	L	E	Weight	Moment of inertia	L	E	Weight	Moment of inertia
SIZE (1)	kNm	mm	mm	mm	mm	mm	kg	kgm <sup>2</sup>	mm	mm	kg	kgm <sup>2</sup>
400	2183	400	610	50	712	480	1042,7	82	1112	960	1388,8	92,4
410	2342	410	630	51,5	721	490	1130,8	93,8	1129	980	1520	107,3
420	2492	420	640	53	736	500	1180,1	101,7	1152	1000	1580,1	115,7
430	2684	430	655	54	755	515	1291,1	119,4	1184	1030	1700,8	130,5
440	2910	440	675	55	769	525	1401,1	135,9	1206	1050	1859,4	150,9
450	3074	450	685	56	788	540	1465,5	147,2	1238	1080	1943,8	163,2
460	3287	460	700	57	802	550	1551,1	161,9	1260	1100	2064,9	181,1
470	3498	470	715	58	816	560	1640,1	177,7	1282	1120	2190,9	200,5
480	3632	480	720	59	830	570	1660	183,7	1304	1140	2210,7	206,9
490	3960	490	740	60,5	845	580	1797,4	208,8	1327	1160	2401,1	236,4
500	4197	500	750	61,5	869	600	1875,8	223,8	1369	1200	2519,1	255,8
510	4486	510	770	63,5	884	610	2057,8	262,8	1392	1220	2725,9	290,6
520	4819	520	790	64,5	908	620	2236,4	298,3	1424	1240	2964,7	331,5
530	5058	530	800	65,5	912	630	2283	313,1	1436	1260	3034,3	349,3
540	5343	540	815	66,5	926	640	2405,3	342,3	1458	1280	3196,8	381,9
550	5634	550	825	67,5	950	660	2500,5	364,4	1500	1320	3339,6	410,4
560	6035	560	845	68,5	964	670	2671,1	404,5	1522	1340	3588,4	460,9
570	6271	570	855	69,5	983	680	2768,8	431,1	1549	1360	3704,5	489
580	6742	580	875	71	998	690	2996,4	493,5	1572	1380	3972,1	547,2
590	6996	590	885	72	1012	700	3079,6	519,3	1594	1400	4083,1	577,4
600	7267	600	895	73	1032	710	3189,5	552,2	1622	1420	4211,9	611,3
610	7644,5	610	910	74	1046	720	3332,6	594,0	1644	1440	4413,9	662,2
620	7951	620	920	75	1060	730	3430,8	627,8	1666	1460	4531,8	697,2
630	8455	630	940	76	1074	740	3641,4	689,5	1688	1480	4837,1	774,2
640	9037	640	960	78	1100	760	3894,8	761,7	1732	1520	5221,1	868,8
650	9364	650	970	79	1114	770	4003,8	802,9	1754	1540	5353,5	912,4
660	9975	660	990	80,5	1129	780	4306	910,4	1777	1560	5695,2	1007,8
670	10207	670	995	81,5	1143	790	4366	943,9	1799	1580	5730	1030,6
680	10799	680	1015	82,5	1157	800	4588,6	1016,8	1821	1600	6086,2	1135,6
690	11165	690	1025	83,5	1171	810	4710,2	1068,7	1843	1620	6232,4	1189,4
700	11538	700	1035	84,5	1185	820	4821,3	1116,2	1865	1640	6380,4	1245,1

(1) Other sizes available on demand

(2) Service factor to be applied depends on application

# JHC-HF-F High Friction Flange Type

# JHC-HF-S High Friction Sleeve Type



Sizes 90-390

					JHC-HF-F				JHC-HF-S			
JHC-HF	T <sub>P</sub> max (2)	d	D	l	L	E	Weight	Moment of inertia	L	E	Weight	Moment of inertia
SIZE (1)	kNm	mm	mm	mm	mm	mm	kg	kgm <sup>2</sup>	mm	mm	kg	kgm <sup>2</sup>
90	31,5	90	155	15	154	78	15,9	0,07	214	156	19,5	0,08
100	41	100	165	16	167	86	19,5	0,11	233	172	23	0,11
110	53	110	175	17	178	94	23,4	0,16	250	188	26,6	0,14
120	65	120	185	18	190	102	28	0,23	268	204	30,6	0,19
130	84	130	195	20	210	114	33,6	0,31	298	228	36,2	0,25
140	107	140	210	21	226	128	41,6	0,45	326	256	46,1	0,37
150	131	150	225	22	237	136	49,9	0,61	343	272	55,7	0,51
160	147	160	240	23	253	144	60,3	0,83	365	288	67,5	0,70
170	184	170	255	24	266	152	72,2	1,1	384	304	80,2	0,94
180	211	180	265	25	277	160	81,4	1,4	401	320	87,7	1,1
190	241	190	275	27	291	168	90,9	1,8	421	336	96	1,3
200	290	200	290	28	304	176	105,4	2,3	440	352	112	1,7
210	341	210	300	30	321	184	117,5	2,8	463	368	122,5	2,1
220	408	220	320	31	332	192	138,9	3,6	480	384	149,5	2,8
230	440	230	325	32	343	200	142	3,8	497	400	151,2	3
240	514	240	340	33	357	208	163,2	4,8	517	416	173,1	3,7
250	570	250	350	34	372	216	182,2	6	538	432	186,4	4,3
260	655	260	370	36	384	224	210,8	7,4	556	448	222,2	5,7
270	798	270	405	37	402	235	268,3	10,2	583	470	306,8	9,1
280	860	280	415	38	414	243	284,4	11,3	601	486	325,7	10,2
290	910	290	420	39	429	254	296,3	12,4	625	508	333,5	10,9
300	985	300	425	40	442	262	307	13,6	644	524	337,5	11,4
310	1085	310	440	41	451	268	346,6	17,1	657	536	370,3	13,4
320	1180	320	460	42	463	276	390,5	20,4	675	552	426,2	16,7
330	1290	330	470	43	481	285	414,8	22,6	700	570	453,7	18,7
340	1439	340	485	44	498	293	459,6	26,7	723	586	500,8	22
350	1546	350	495	45	515	305	482,4	28,8	750	610	532,6	24,5
360	1665	360	510	46	523	308	524,7	33,5	759	616	573,7	27,9
370	1815	370	530	47	534	316	603,5	42,6	776	632	647,2	33,8
380	1925	380	540	48	546	325	630,4	46,1	795	650	677,9	36,9
390	2080	390	555	49	562	335	684,4	52,6	819	670	740,2	42,6

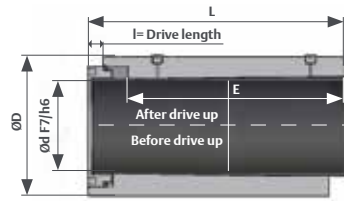
(1) Other sizes available on demand

(2) Service factor to be applied depends on application

F-Type



S-Type



S-Type



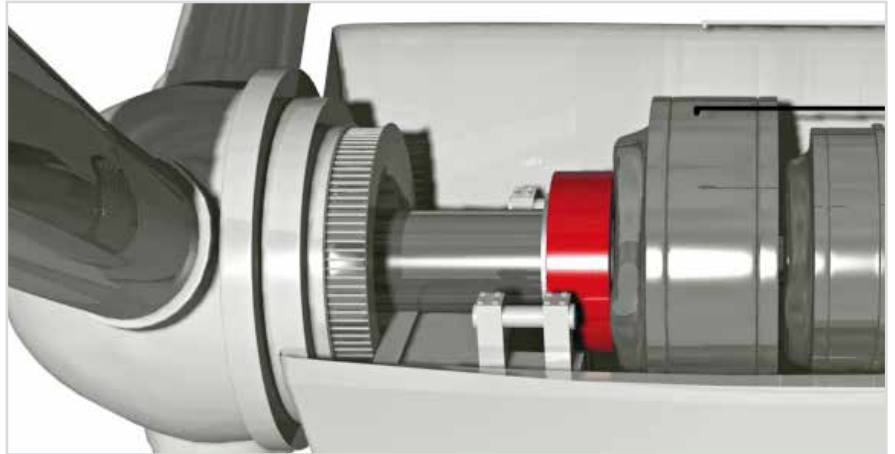
Sizes 400-700

					JHC-HF-F				JHC-HF-S			
JHC-HF	T <sub>p</sub> max (2)	d	D	l	L	E	Weight	Moment of inertia	L	E	Weight	Moment of inertia
SIZE (1)	kNm	mm	mm	mm	mm	mm	kg	kgm <sup>2</sup>	mm	mm	kg	kgm <sup>2</sup>
400	2183	400	565	50	577	345	720,5	57,7	842	690	777,5	46,6
410	2342	410	600	51,5	579	348	829,2	70,1	845	696	938,8	62
420	2492	420	615	52	592	356	886,3	77,9	864	712	1010,4	70
430	2684	430	625	54	606	366	956,6	90,9	886	732	1055,3	75,9
440	2910	440	645	54,5	616	372	1039,1	103,4	900	744	1159,5	88,4
450	3074	450	655	55,5	631	383	1087,8	112,1	924	766	1213	95,8
460	3287	460	670	56,5	640	388	1149,4	122,9	936	776	1286,7	106,2
470	3498	470	680	58	654	398	1199	132,7	958	796	1340	114,5
480	3632	480	685	59	667	407	1215,3	137,5	978	814	1353,2	118,3
490	3960	490	705	60	678	413	1319,6	156,5	993	826	1477,9	136,2
500	4197	500	720	61	689	420	1386,4	169,3	1009	840	1568,7	150,7
510	4486	510	735	63	705	431	1516,2	198,9	1034	862	1677	167,8
520	4819	520	755	63,5	727	439	1657,3	226,6	1062	878	1844,5	193,8
530	5058	530	765	64,5	728	446	1689,6	237,7	1068	892	1882,8	203,8
540	5343	540	775	66,5	739	453	1754,3	255,9	1084	906	1938,6	216,2
550	5634	550	790	67	751	461	1837,7	274,9	1102	922	2052,2	237,7
560	6035	560	805	68,5	764	470	1939,9	300,7	1122	940	2172,2	261,1
570	6271	570	815	69,5	780	477	2014,9	321,2	1143	954	2245,8	277,7
580	6742	580	835	70,5	792	484	2197,2	371,9	1160	968	2423,7	313,2
590	6996	590	845	71,5	804	492	2260,8	391,5	1178	984	2496,3	331,4
600	7267	600	855	72	822	500	2349,4	417,6	1202	1000	2584,9	352,5
610	7645	610	865	73,5	836	510	2428,2	443,5	1224	1020	2668	373,6
620	7951	620	875	74,5	847	517	2502,6	469,6	1240	1034	2739,4	393,8
630	8455	630	895	75	858	524	2661,8	515,8	1256	1048	2942,6	440,6
640	9037	640	915	77,5	872	532	2829,9	566	1276	1064	3159,8	492,5
650	9364	650	925	78,5	884	540	2915,1	598,2	1294	1080	3245,8	518,6
660	9975	660	940	80	899	550	3126,8	678,9	1317	1100	3416,7	563,4
670	10207	670	950	80,5	909	556	3213,9	715,5	1331	1112	3497,2	590,8
680	10799	680	965	82	921	564	3335	757,7	1349	1128	3662,2	638
690	11165	690	975	83	933	572	3430	798,4	1367	1144	3756,5	669,9
700	11538	700	985	83,5	945	580	3515,5	834,4	1385	1160	3853,4	703,4

(1) Other sizes available on demand

(2) Service factor to be applied depends on application

# JHC-HS Shaft To Hollow Shaft Connection



Jaure JHC-HS on a 3Mw wind turbine LSS

Shaft to Hollow shaft connections are typically found in Wind turbine Main shafts, but can also be employed in many other applications such as Test Benches, etc. Well suited to applications with limited available space where a very compact connection is required.

Our engineering expertise designs customised solutions for each specific application, with no limitation in terms of torque transmission capacity or size.

Also available High Friction (HF) type for an even more compact solution.

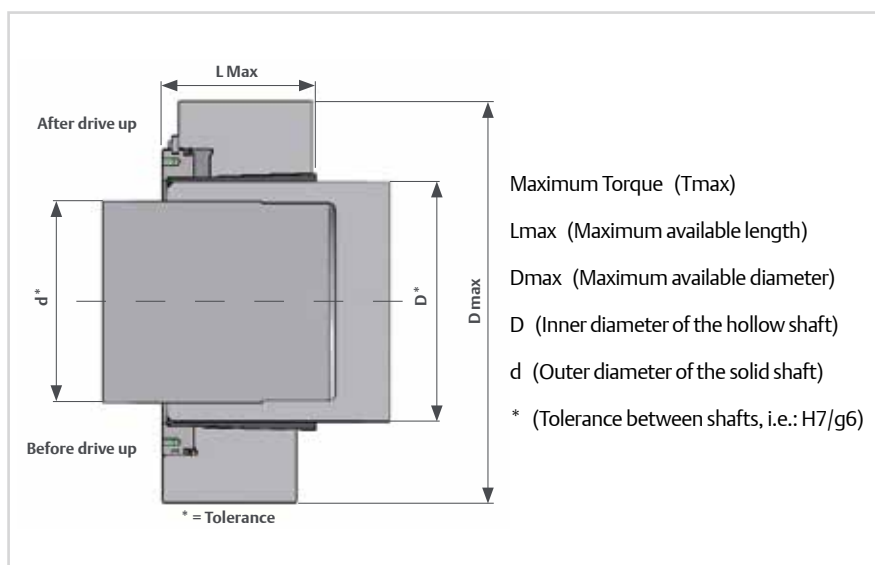


JHC-HS 750 during wind turbine assembly



Jaure JHC-HS

## Necessary data for JHC-HS selection:



## Mounting and dismounting tools:

Jaure hydraulic shrink couplings can be easily mounted using oil pumps. The type and capacity of the pump depends on the size of the coupling: for small coupling sizes, simple hand pumps can be used, while for big coupling sizes electric and pneumohydraulic pumps will be needed. Please contact JAURE for additional information.



Pneumohydraulic pump



Hand pumps

## Service:

Jaure has an experienced and skilled service team worldwide, which is available to share its expert assistance in designing a predictive and preventive maintenance program. Jaure Service Centers offer:



- Repair and refurbishment
- Expert failure analysis
- Field technical support
- Torque monitoring

Our support services for commissioning or problem solving and analysis are available worldwide upon request.

# JHC/JHG-HF References:



JHC-F-190 assembly test in house



Drive-up measurement on JHC-HS-750



Jaure MTX integrated with JHC-F



JHC-S-0100 in hydraulic testing



Surface vessel with Jaure JHC-F



Jaure JHC-F-230 integrated with Lamidisc 730-6



Jaure MTGX-HD-TI-1000/JHC-700 on wind test bench



Jaure Ixiflex 1096-8 with JHC-F-230



Jaure JHC-F-320 in combination with Lamidisc1300-6



Trimaran with Jaure JHC-F



Jaure JHC-F-240 for Water Jet Drive



Jaure JHC-F integrated with Lamidisc and Jaure Super Nut

# Jaure manufacturing program



Product Brand Name	MT	LAMIDISC®	TCB / TCB-HD	AL-S / AL-SD / ALD	RECORD
Type & Description	Gear	Disc pack	Barrel (drum type)	Gear spindles	Grid / spring type

INDUSTRY APPLICATION					
Metals & Heavy duty	•	•	•	•	•
Minerals & Mills	•	•	•		•
Crane & Hoisting	•	•	•		•
Pulp & Paper	•	•			•
Petrochemical / Oil & Gas	•	•			•
Cooling Towers		•			
Machine Tools		•			
Marine	•	•	•		
Wind Turbines		•			•
Test Benches	•	•			
Railway	•	•			



Special safety heavy duty gas nitrided gears



LAMIDISC® Safety coupling on test bench Incl. SAFESET® (SAFESET® from VOITH TURBO)



Type Approvals (Marine & Wind).



## COUPLINGS



**JAUFLEX®**

**IXILFLEX®**

**COMPOLINK®**

**JFTL TORQUE  
LIMITER**

**JCFS**

**JHC**

Elastic

Elastic Link

Composite Link

Torque Limiter

Composite Shafts

Hydraulic fit  
(shaft couplings)

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Carbon Fibre Shaft combined with LAMIDISC® coupling.



Torque monitoring on wind turbines.



Double-gear couplings for railway.

# Kop-Flex & Jaure manufacturing program

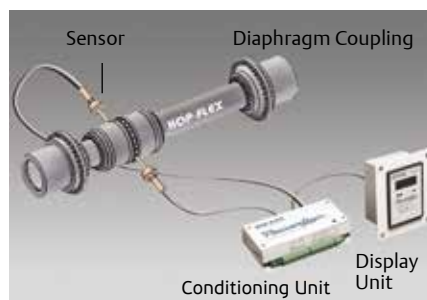
## COUPLINGS



Product Brand Name	MAX-C®	HIGH PERFORMANCE PROGRAM			KOPFLEX GREASE	SERVICE
Type & Description	Heavy duty elastic coupling	GEAR	DISC	DIAPHRAGM	Gear coupling / spindle grease	Repair & maintenance program

### INDUSTRY APPLICATION

Metals & Heavy duty	•				•	•
Minerals & Mills	•				•	•
Crane & Hoisting	•				•	•
Pulp & Paper					•	•
Petrochemical / Oil & Gas	•	•	•	•	•	•
Cooling Towers					•	•
Machine Tools					•	•
Marine	•	•	•	•	•	•
Wind Turbines	•				•	•
Test Benches	•	•	•	•	•	•
Railway	•	•			•	•



Powerlign® Torque Monitoring.



High Performance Solutions.

# Global presence

## MANUFACTURING FACILITIES & ENGINEERING CENTERS



JAURE® & KOP-FLEX® engineered couplings are designed, manufactured, sold and serviced worldwide, with service provided from specification right through to installation.

All JAURE® & KOP-FLEX® facilities around the globe are state of the art, with access to a large and

experienced engineering staff focused on providing solutions for our customers' requirements.

A dedicated global sales and service team assists you to find the best choice and manage all your coupling needs.



JAURE®. Zizurkil, Spain.



Pune, India.



Nove Mesto, Slovakia.



Zhangzhou, China.



KOP-FLEX®. Baltimore, USA.



Florence, Kentucky, USA.



Rexdale / Toronto, Canada.



Apocadaca, México.

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#### APPLICATION CONSIDERATIONS

The proper selection and application of power transmission products and components, including the related area of product safety, is the responsibility of the customer. Operating and performance requirements and potential associated issues will vary appreciably depending upon the use and application of such products and components. The scope of the technical and application information included in this publication is necessarily limited. Unusual operating environments and conditions, lubrication requirements, loading supports, and other factors can materially affect the application and operating results of the products and components and the customer should carefully review its requirements. Any technical advice or review furnished by Regal-Beloit America, Inc. and its affiliates with respect to the use of products and components is given in good faith and without charge, and Regal assumes no obligation or liability for the advice given, or results obtained, all such advice and review being given and accepted at customer's risk.

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