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Tensioning specialists



Drive Up Systems

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Hydraulically operated **RingJack** for smooth assembly

Drawing on more than 60 years of hydraulic drive up system experience Pilgrim's RingJack has been designed and developed to facilitate the smooth assembly of a body onto a tapered journal.

Typically used from installing large size bearings in a papermill through to ship propellers (fig 2) , tillers, pintles, rudderstocks and fixed stabilizer fins. It is of robust construction and incorporates a high pressure sealing system.

The Ringjacks compact design is suitable for mounting onto the screwed nut as typically found in a propulsion or steering assembly to provide axial movements for final positioning. The Ringjack can also be used as part of an Oil Injection Package for final positioning and subsequent removal work. This includes The MorPress range of pumps, hydraulic connectors and high pressure hoses.

Bespoke designed RingJacks can be provided If you can't find a suitable RingJack from the standard range. or Gas Turbine flanged couplings in the Power Generation Sector.

How it works

When hydraulic pressure is applied the piston of the ringjack is displaced see fig 1, in the process pushing up the body along the tapered journal to the required push-up distance required for the application.



Standard RingJack Range

Benefits

- Reliable
- Compact
- Accurate positioning
- Robust
- Can be provided with plain or threaded bore.
- Class approved for marine applications

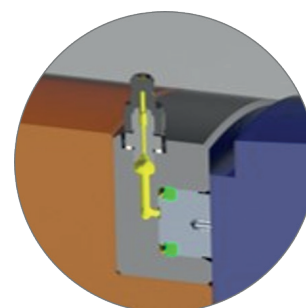


Fig 1

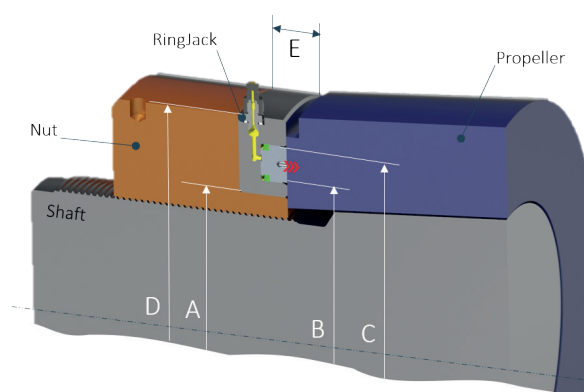


Fig 2

All dimensions in mm

Model	A	B	C	D	E	LOAD RING TRAVEL	MAX LOAD KN	WEIGHT KG
PRJ245	245	275	340	390	55	15	2090	31
PRJ265	265	295	365	415	55	15	2400	35
PRJ285	285	315	385	435	55	15	2730	37
PRJ305	305	335	415	465	55	15	3175	42
PRJ325	325	365	445	510	70	20	3555	66
PRJ345	345	385	470	535	70	20	3955	72
PRJ365	365	405	495	560	70	20	4375	77
PRJ385	385	425	520	585	70	20	4820	84
PRJ405	405	445	545	610	70	20	5400	90
PRJ425	425	465	570	635	70	20	5890	96
PRJ445	445	485	595	660	70	20	6400	103
PRJ465	465	505	620	685	70	20	6940	110
PRJ485	485	525	645	710	70	20	7490	116
PRJ505	505	545	670	735	70	20	8220	123
PRJ525	525	565	695	760	70	20	8820	130
PRJ545	545	595	725	805	90	25	9440	195
PRJ565	565	615	750	830	90	25	10090	205
PRJ585	585	635	775	855	90	25	10760	216
PRJ605	605	655	800	880	90	25	11620	226
PRJ625	625	675	825	905	90	25	12330	238
PRJ645	645	695	860	940	90	25	13820	260
PRJ670	670	720	885	965	90	25	14610	267
PRJ690	690	740	915	995	90	25	17290	285
PRJ720	720	770	955	1050	100	30	17930	360

Pilgrim Nut the marine standard

Pilgrims invented hydraulically installed Pilgrim Nut has become the marine industry standard for fitting and fixing propellers, providing a quick, safe and cost-effective installation solution. It is also used extensively for tiller, rudder & stabiliser applications where precise high loading is required.

How it works?

The hydraulic pressure required by the Pilgrim nut is provided by the MorPress pump range. When the pressure is applied, the piston of the Pilgrim nut extends, pushing the propeller or rudder along the tapered shaft. The applied pressure and travel of the piston correspond to the required push-up distance of the application. The nut can be designed to stay in situ or remove after installation.

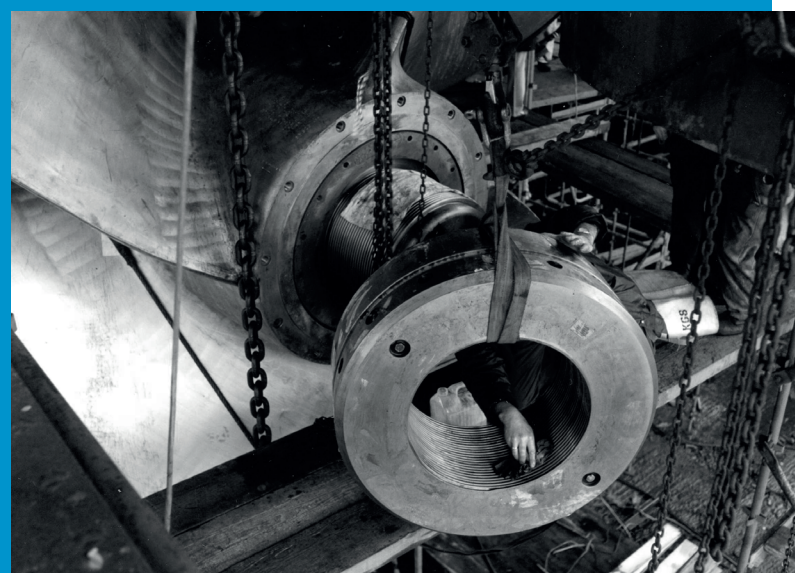
In addition to oil injection techniques, removal of propellers and rudders can be simplified by reversing the Pilgrim Nut and using Pilgrim withdrawal equipment to pull the propeller or rudder off the taper.

The design principle of the Pilgrim Nut is universally accepted and approved by all major classification societies.

About the PN Nut Range

For the PN nut range the force is based on a working pressure of 1375 bar (20,000 psi). Higher pressure versions are available as per HPN range. In addition to the standard range Pilgrim can offer specially designed Nuts including: modified ports, special material, special coatings, plating, modified nut bodies, threads and / or load rings.

PN style Nuts are suitable for Keyed or oil injected propellers, rudder stocks, pintles and tiller heads. For Dry Fit keyless installations refer to the (HPN) High Pressure Nuts.



Standard PN Nut Range

Benefits

- Fully Class approved
- Cost effective installation & removal
- Reliable operation
- Safe
- Controlled and accurate loading
- Can either be used to install only or stay in-situ.

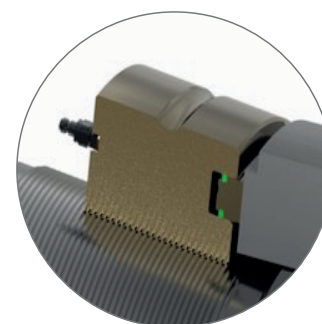


Fig 1

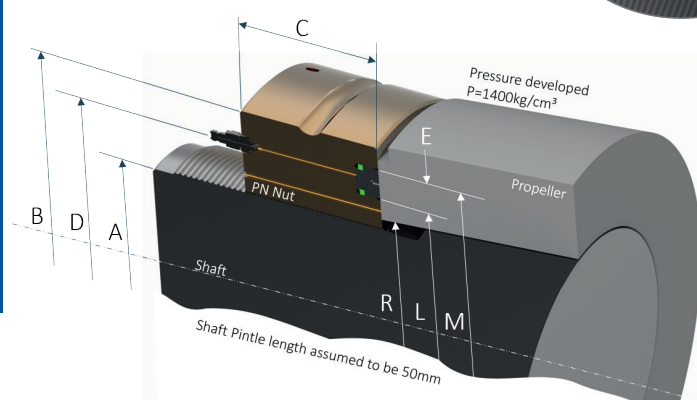


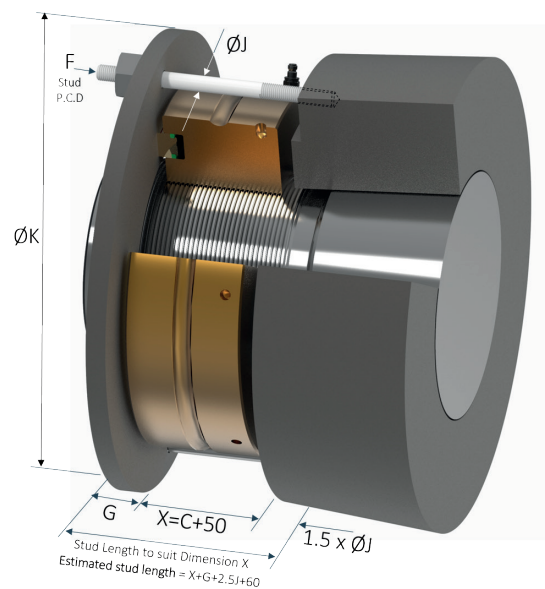
Fig 2

Table 1

Nut Type	SIZE	Thread Ø	Plain Bore Ø	Outside Ø	Nut Width	D	E	Load ring Ring		Max. Load Tons (P=1400kg/cm²)	Weight Kg
								Inside Ø L	Outside Ø M		
PN	01	225	200	360	135	292.5	22.50	270.00	315.00	285	71
HPN					113		24.75	267.75	317.25	357	59
PN	02	250	225	400	150	325.0	25.00	300.00	350.00	350	86
HPN					125		27.50	297.50	352.50	441	80
PN	03	275	250	440	165	357.5	27.50	330.00	385.00	430	114
HPN					138		30.25	327.25	387.75	533	105
PN	04	300	275	480	180	390.0	30.00	360.00	420.00	510	148
HPN					150		33.00	357.00	423.00	635	135
PN	05	325	300	520	195	422.5	32.50	390.00	455.00	600	188
HPN					163		35.75	386.75	458.25	745	171
PN	06	350	325	560	210	455.0	35.00	420.00	490.00	690	236
HPN					175		38.50	416.50	493.50	864	211
PN	07	375	350	600	225	487.5	37.50	450.00	525.00	795	290
HPN					188		41.25	446.25	528.75	992	259
PN	08	400	375	640	240	520.0	40.00	480.00	560.00	905	356
HPN					200		44.00	476.00	564.00	1129	312
PN	09	425	400	680	255	552.5	42.50	510.00	595.00	1020	423
HPN					213		46.75	505.75	599.25	1274	373
PN	10	450	425	720	270	585.0	45.00	540.00	630.00	1145	502
HPN					225		49.50	535.50	634.50	1428	440
PN	11	475	450	760	285	617.5	47.50	570.00	665.00	1275	590
HPN					238		52.25	565.25	669.75	1591	517
PN	12	500	475	800	300	650.0	50.00	600.00	700.00	1415	688
HPN					250		55.00	595.00	705.00	1763	600
PN	13	525	500	840	315	682.5	52.50	630.00	735.00	1560	797
HPN					263		57.75	624.75	740.25	1944	694
PN	14	550	525	880	330	715.0	55.00	660.00	770.00	1710	916
HPN					275		60.50	654.50	775.50	2133	794
PN	15	575	550	920	345	747.5	57.50	690.00	805.00	1870	1046
HPN					288		63.25	684.25	810.75	2332	907
PN	16	600	575	960	360	780.0	60.00	720.00	840.00	2035	1189
HPN					300		66.00	714.00	846.00	2539	1026
PN	17	625	600	1000	375	812.5	62.50	750.00	875.00	2210	1344
HPN					313		68.75	743.75	881.25	2755	1159
PN	18	650	625	1040	390	845.0	65.00	780.00	910.00	2390	1512
HPN					325		71.50	773.50	916.50	2980	1299
PN	19	675	650	1080	405	877.5	67.50	810.00	945.00	2575	1693
HPN					338		74.25	803.25	951.75	3213	1454
PN	20	700	675	1120	420	910.0	70.00	840.00	980.00	2770	1888
HPN					350		77.00	833.00	987.00	3456	1670
PN	21	725	700	1160	435	942.5	72.50	870.00	1015.00	2970	2098
HPN					363		79.75	862.75	1022.25	3707	1796
PN	22	750	725	1200	450	975.0	75.00	900.00	1050.00	3180	2322
HPN					375		82.50	892.50	1057.50	3967	1982
PN	23	775	750	1240	388	1007.5	85.25	922.25	1092.75	4236	2187
HPN	24	800	775	1280	400	1040.0	88.00	952.00	1128.00	4514	2399
HPN	25	825	800	1320	413	1072.5	90.75	981.75	1163.25	4800	2631



PN Nut withdrawal



Selection Procedure

Select L nearest in value equal to, or above R.
Find corresponding value of A from Table 1 on the previous page and choose withdrawal equipment from Table 2

Note

These tables relate to Pilgrim Nuts used for the assembly of keyed propellers only. They are not suitable for use with Pilgrim Keyless propellers and other dry fit propellers.
The data shown in Table 2 is issued for general guidance only.

Table 2

All dimensions in mm

Nut Type	6					kg	8					kg	10					kg	12					kg	14					kg	16					kg	18					kg	20					kg	
	J	F	K	G	Wt		J	F	K	G	Wt		J	F	K	G	Wt		J	F	K	G	Wt		J	F	K	G	Wt		J	F	K	G	Wt		J	F	K	G	Wt								
PN1	48	430	525	80	170																																												
PN2	48	470	600	90	234																																												
PN3	48	510	625	90	253																																												
PN4	56	560	700	100	354	48	550	675	100	331																																							
PN5	56	600	750	110	434	48	590	700	110	385	48	590	700	110	398																																		
PN6	64	650	800	120	550	56	640	775	120	518	48	630	750	120	483																																		
PN7	64	690	850	120	614	56	680	825	120	579	56	680	825	120	600	48	680	800	120	557																													
PN8	72	740	900	130	739	64	730	900	130	765	56	720	850	130	677	48	710	825	130	632	48	710	825	130	646																								
PN9						64	770	925	140	857	56	760	900	140	800	56	760	900	140	822	48	750	875	140	765	48	750	875	140	780																			
PN10						72	820	1000	150	1085	64	800	975	150	858	56	800	950	150	960	56	800	950	150	981	48	790	900	150	870																			
PN11						72	850	1025	160	1200	72	850	1025	160	1242	64	850	1000	160	1222	56	840	975	160	1088	56	840	975	160	1110																			
PN12											72	900	1075	160	1350	64	890	1050	160	1280	56	880	1025	160	1190	56	880	1025	160	1213																			
PN13																64	930	1100	170	1465	64	930	1100	170	1500	56	920	1050	170	1336																			
PN14																72	980	1150	180	1730	64	970	1125	180	1640	64	970	1125	180	1675																			
PN15																72	1010	1200	190	1955	64	1000	1175	190	1856	64	1000	1175	190	1890																			
PN16																					72	1050	1225	200	2171	64	1050	1200	200	2056																			
PN17																					72	1090	1275	200	2330	72	1090	1275	200	2379	64	1090	1250	200	2260														
PN18																										72	1130	1325	210	2655	64	1130	1300	210	2540														
PN19																										72	1170	1350	220	2860	72	1170	1350	220	2940														
PN20																										72	1210	1430	230	2935	72	1210	1400	230	3270														
PN21																																72	1250	1425	230	3350	72	1250	1425	230	3400								
PN22																																																	

Oil Injection Package

Easy to operate and highly cost effective, the Pilgrim oil injection package is a complete system designed and presented for the exact application.

This system can be designed and supplied with the PN Nut, RingJack or Hydraulic Jack.

How it works?

In the typical example (Fig 3) the pump generates a controlled hydraulic pressure to the PN Nut or RingJack while injecting oil to the tapered shaft interface of the propeller or rudder. The use of this oil during installation ensures that

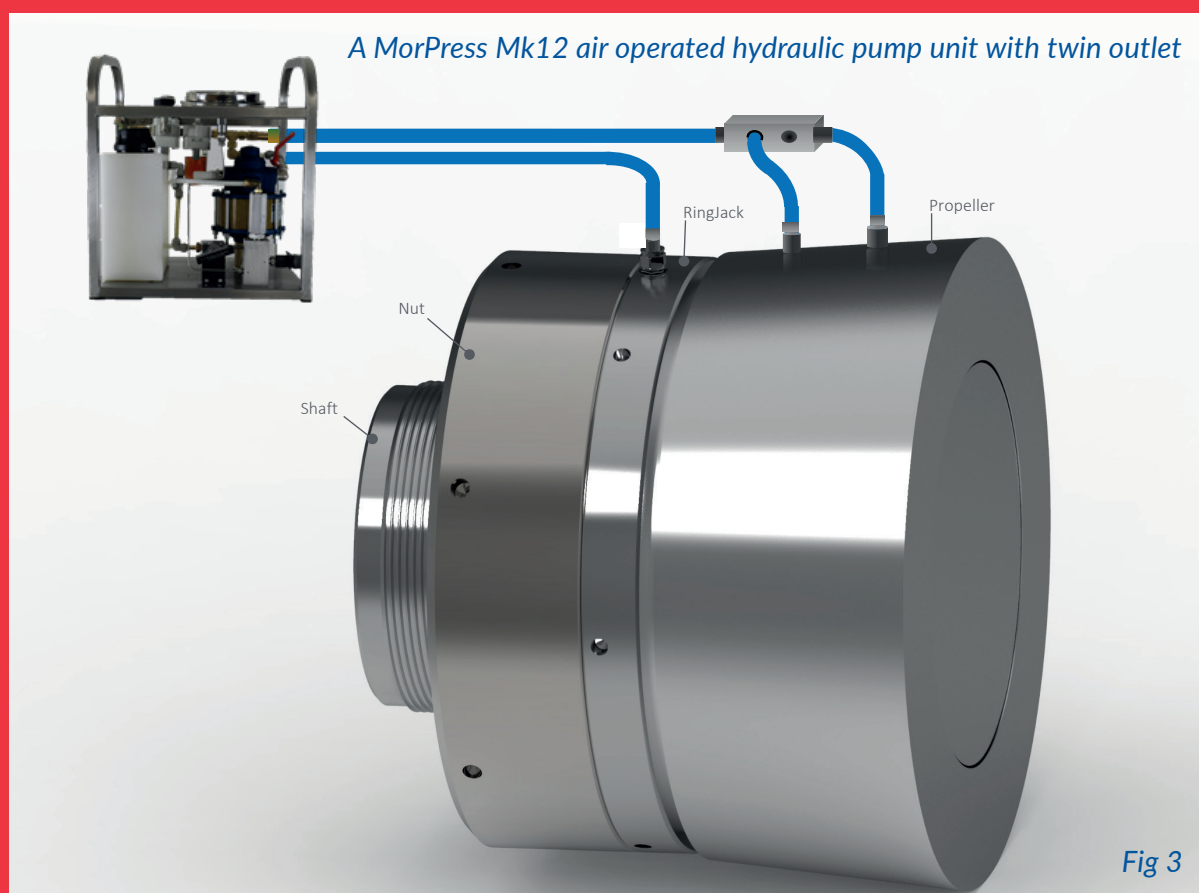
components are mounted and secured quickly and with total reliability.

Consisting of:

- MorPress Hydraulic Pump
- High Pressure Hoses
- Hydraulic Fittings
- Multi Port Connector Blocks

Installation and Removal

The time taken to remove a propeller or rudder is greatly reduced using the Pilgrim oil injection package. An extensive range of other oil injection packages are also available utilising any pump from the MorPress Range.



The High pressure Hydraulic Cylinder range

With many years knowledge of working with high pressure hydraulic systems, Pilgrim have created a Hydraulic Cylinder range that is compact and strong, suitable for many industries and applications.

A high tensile steel hydraulically operated cylinder ideal for restricted spaces. The maximum load capacities listed are developed by applying an oil pressure of 2,200bar (32,000lbf/in²).

The Hydraulic Cylinder can also be used as part of the Oil Injection Package for final positioning and subsequent removal work.

How it works?

Using the similar principles of the Pilgrim Nuts and RingJack, hydraulic pressure is applied by means of a hydraulic pump, forcing the piston of the Hydraulic Cylinder to positively displace, in the process pushing up the mass to be moved. Once the maximum designed piston displacement has been reached the pump pressure is maintained while shimming can take place. Once safe, the pressure can then be decreased allowing removal of the Hydraulic Cylinder.

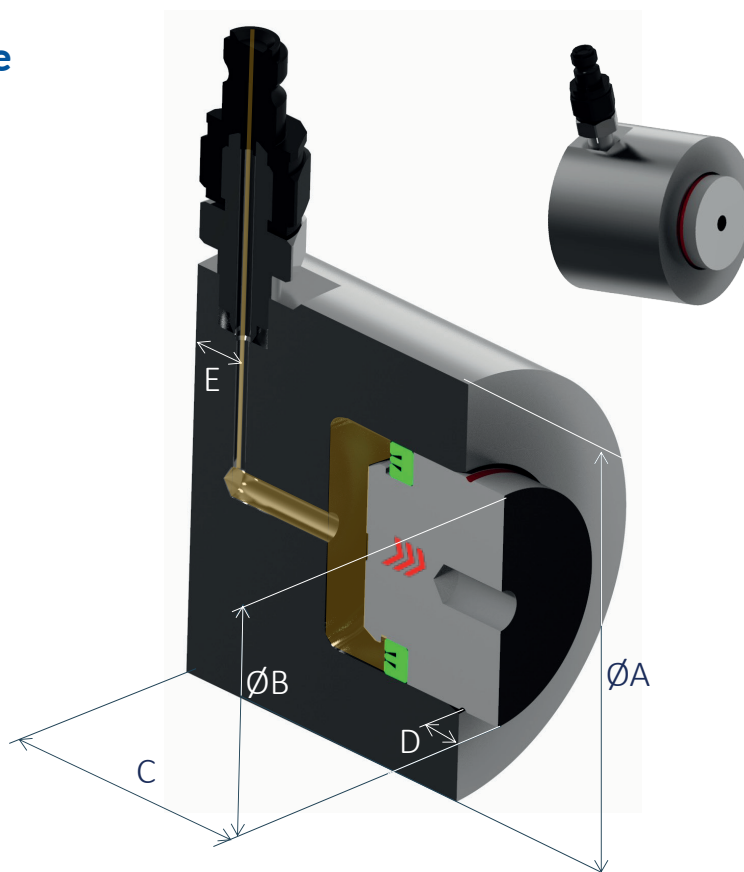
Bespoke designed Hydraulic Jacks can be provided If you can't find anything suitable from the standard range.

The Oil Injection Package comprises of a pump, high pressure hoses, hydraulic fittings from the MorPress range.



Benefits

- Compact design for confined working spaces
- Powerful performance
- Visual Max. stroke indicator on piston.
- Can be used horizontally or vertically
- Works with either hand or air driven hydraulic pump.



All dimensions in mm

Pt No.	Hydraulic Connection	Max Force (Tonnes)	A	B	C	D	E	Surface Pressure mm²	Piston Displacement mm
HJ-M001	M16	11	45	25	45	10	12	491	5
HJ-R001	9/16" UNF								
HJ-M002	M16	20	66	34	55	14	12	908	7
HJ-R002	9/16" UNF								
HJ-M003	M16	44	90	50	70	20	12	1964	10
HJ-R003	9/16" UNF								
HJ-M004	M16	63	104	60	75	22	12	2828	11
HJ-R004	9/16" UNF								
HJ-M005	M16	79	115	67	82	24	12	3526	12
HJ-R005	9/16" UNF								
HJ-M006	M16	102	128	76	87	26	12	4537	13
HJ-R006	9/16" UNF								
HJ-M007	M16	213	162	110	90	26	12	9504	13
HJ-R007	9/16" UNF								
HJ-M008	M16	407	204	152	90	26	12	18148	13
HJ-R008	9/16" UNF								
HJ-M009	M16	616	239	187	90	26	12	27468	13
HJ-R009	9/16" UNF								
HJ-M010	M16	814	267	215	90	26	12	36310	13
HJ-R010	9/16" UNF								
HJ-M011	M16	1015	292	240	90	26	12	45245	13
HJ-R011	9/16" UNF								



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