Problem Scenario

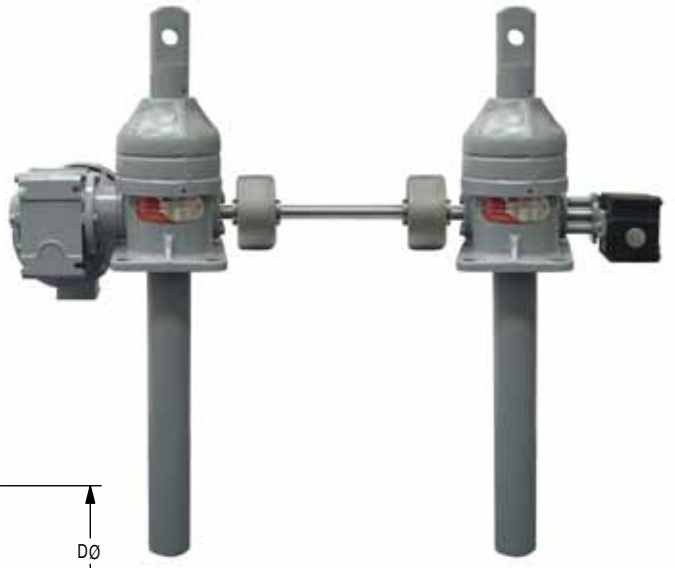
A common system operating problem stems from connecting shafts made from standard steel, which are often bowed or out-of-round. This results in a whipping effect while the system is being run with the connecting shaft working its way loose from the system at high speeds and doing a great deal of damage to the system's equipment.

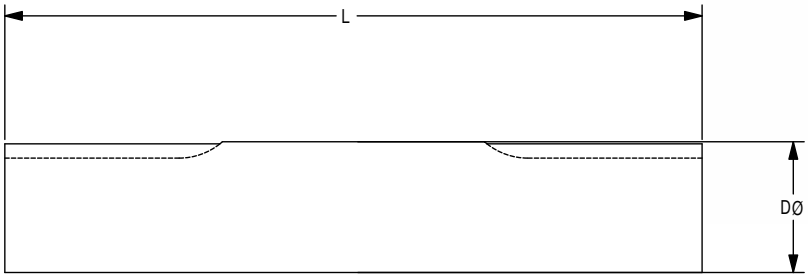
Solution

Duff-Norton connecting shafts, which are furnished with close tolerance Turned, Ground, and Polished steel for smooth rotation.

FEATURES

- Turned, Ground, and Polished steel
- Shaft material is machined from cold-drawn bar.
- Furnished with ANSI-standard in-line keyways.
- Coordinates well with Duff-Norton Couplings (pages 142-143) and Block Supports (pages 146-147).





Dimensions and Minimum Size											
Model		SH50	SH63	SH75	SH100	SH125	SH150	SH163	SH175	SH200	SH225	SH250
Minimum Shaft Length* "L" (in)		5	5	5	5	6	7	7	7	8	10	10
Shaft Diameter "D" (in)	Nominal	1/2	5/8	3/4	1	1-1/4	1-1/2	1-5/8	1-3/4	2	2-1/4	2-1/2
	Actual	0.500	0.625	0.750	1.000	1.250	1.500	1.625	1.750	2.000	2.250	2.500
		0.499	0.624	0.749	0.999	1.249	1.499	1.624	1.749	1.999	2.247	2.497
Keyway Width (in)		1/8	3/16	3/16	1/4	1/4	3/8	3/8	3/8	1/2	1/2	5/8
Keyway Flat (in)		1.25	1.25	1.25	1.25	1.5	1.75	1.75	2	2	2.5	2.5

Note: Minimum shaft length may vary depending on the specified coupling.

POWER TRANSMISSION COMPONENTS

SHAFT SELECTION CRITERIA

Instructions:

1. Find a torque value that is greater than or equal to your calculated torque requirements.
2. Use the second column to find the required shaft diameter (rounding up is recommended.)
3. Check the third column for the maximum allowable shaft span before supports are required.
4. Match your selected shaft's maximum allowable speed (rpm) to actual shaft speed (rpm). Increasing your selected shaft size is recommended until it falls into the allowable range.

Shaft Diameter (Inches)	Maximum Torque (in/lbs)	Maximum** Distance Between Supports (inches)	For Shaft Lengths below, Maximum Allowable RPMs***									
			36	48	60	72	84	96	108	120	132	144
0.500	9	68	1469	826	529	367	270	207	163	132	109	92
0.625	22	79	1836	1033	661	459	337	258	204	165	137	115
0.750	45	89	2204	1240	793	551	405	310	245	198	164	138
1.000	141	107	2938	1653	1058	735	540	413	326	264	219	184
1.250	345	125	3673	2066	1322	918	675	516	408	331	273	230
1.500	716	141	4407	2479	1587	1102	810	620	490	397	328	275
1.625	986	148	4775	2686	1719	1194	877	671	531	430	355	298
1.750	1326	156	5142	2892	1851	1285	944	723	571	463	382	321
2.000	2262	170	5877	3306	2116	1469	1079	826	653	529	437	367
2.250	3624	184	6611	3719	2380	1653	1214	930	735	595	492	413
2.500	5523	198	7346	4132	2644	1836	1349	1033	816	661	546	459

* Based on .08 degrees per foot torsional deflection.

** Based on .010 in/ft maximum sag between bearings. Shaded area exceeds sag recommendation.

*** Based on 80% critical speed, simple supports

Reference: Machinery's Handbook, 23rd edition.

Maximum Torque:	$D=.29(T)^{1/4}$	$T=(D/.29)^4$
Bearing Distance:	$L(ft.)=8.95(D^2)^{1/3}$	$L(in.)=107.4(D^2)^{1/3}$
Critical Speed, Shaft Only, Simple Supports:		$N=1.0 \times 4.76 \times 10^6 \times D/L^2$