

SCHMIDT **L200 & 300 SERIES** OFFSET COUPLINGS

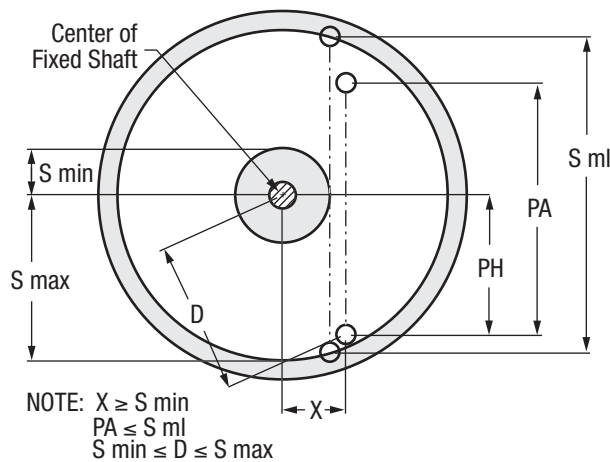
How To Select L200 & L300 Schmidt Offset Couplings

Example:

Step 1. List the performance requirements

- a) Horsepower H=55 (HP)
- b) Shaft Speed N=1000 (RPM)
- c) B-10 Bearing Lifetime B-10=25000(HRS)
- d) Offset From Fixed Shaft PH=2 (INCH)
- e) Variable Offset (if required) PA=5 (INCH)

Step 2. Select a coupling with the required offset characteristics. All offset couplings have a minimum offset (S_{min}), a maximum offset (S_{max}) and a maximum linear range of shaft displacement (S_{ml}). For applications where the offset distance between shafts remains FIXED, simply select a coupling with an offset larger than S_{min} and smaller than S_{max} . For applications where the shaft offset distance VARIES during operation, select a coupling where the linear range of displacement is less than the S_{ml} . Note: At no time can the shafts be separated by more than S_{max} nor less than S_{min} . To use all of S_{ml} , X (see diagram below) must be equal to S_{min} and PH must equal $PA/2$. Consult dimension chart on page 6.



Step 3. Select the lifetime speed factor "L" from chart to the right. For N=1000 (RPM) and B10=(25000) (HRS) L=6.034

Step 4. Calculate the required performance factor $P_r = H/L = 55/6.034 = 9.115$

Step 5. Compare the required performance factor "Pr" with the coupling performance factor "P" listed on the performance data table on page 6. Select a coupling size which has an equal or higher "P" factor as "Pr". The coupling size L280C meets these requirements.

Step 6. Compare the practical speed limit (see performance data table on page 6). The data shows that the coupling size L280C can operate at 1500 RPM.

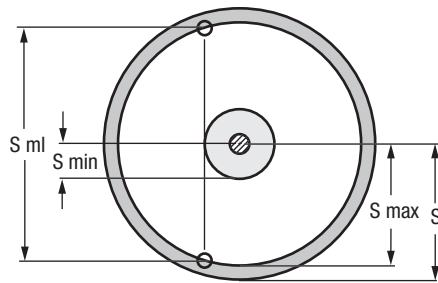
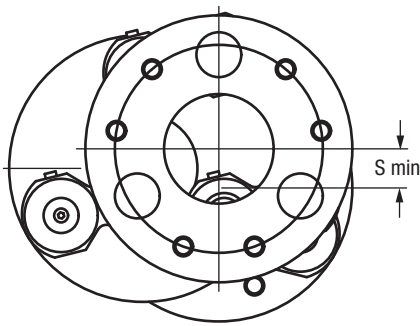
Step 7. Select hubs (if required) from chart on page 11.

Shaft Speed N (rpm)	Lifetime-Speed Factor "L"					
	B-10 Lifetime (Hours)					
	1,000	2,500	5,000	10,000	25,000	50,000
10	0.631	0.479	0.389	0.316	0.240	0.195
25	1.198	0.910	0.739	0.601	0.456	0.371
50	1.947	1.479	1.201	0.976	0.741	0.601
100	3.162	2.402	1.951	1.585	1.204	0.978
150	4.200	3.191	2.502	2.105	1.599	1.299
200	5.137	3.902	3.170	2.575	1.956	1.589
250	6.011	4.562	3.706	3.010	2.287	1.857
300	6.823	5.183	4.210	3.420	2.598	2.110
400	8.345	6.340	5.149	4.182	3.177	2.581
500	9.756	7.411	6.020	4.889	3.714	3.017
600	11.08	8.420	6.839	5.555	4.220	3.428
700	12.34	9.379	7.618	6.188	4.700	3.818
800	13.56	10.30	8.365	6.795	5.161	4.192
900	14.72	11.18	9.084	7.378	5.605	4.553
1,000	15.85	12.04	9.779	7.943	6.034	4.901
1,100	16.94	12.87	10.45	8.491	6.450	5.391
1,200	18.01	13.68	11.11	9.025	6.856	5.568
1,300	19.04	14.47	11.75	9.545	7.250	5.889
1,400	20.06	15.24	12.38	10.05	7.636	6.203
1,500	21.05	15.99	12.99	10.55	8.015	6.510
1,600	22.02	16.73	13.59	11.04	8.385	6.810
1,700	22.98	17.45	14.18	11.52	8.748	7.106
1,800	23.92	18.17	14.76	11.99	9.105	7.396
1,900	24.84	18.87	15.33	12.45	9.456	7.681
2,000	25.75	19.56	15.89	12.90	9.803	7.962
2,100	26.64	20.24	16.44	13.35	10.14	8.238
2,200	27.52	20.91	16.98	13.79	10.48	8.511
2,300	28.39	21.57	17.52	14.23	10.81	8.780
2,400	29.25	22.22	18.05	14.66	11.14	9.046
2,500	30.10	22.86	18.57	15.08	11.46	9.308

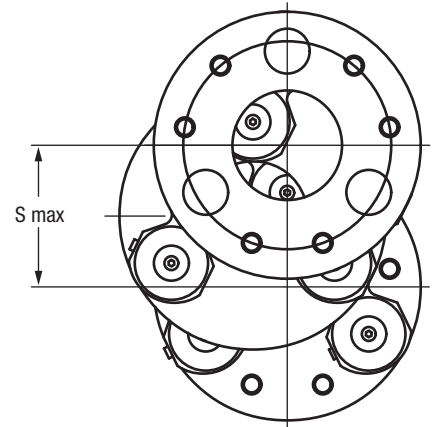
The L200 & L300 Series couplings use needle bearings. The B-10 lifetime on the bearing is considered the life of the coupling, assuming that the bearing is the weakest part in the coupling. The lifetime-speed factor accounts for the B-10 lifetime and shaft speed.

SCHMIDT **L200 & 300 SERIES** OFFSET COUPLINGS

Performance Data



Recommended operational area for shaft displacement



Coupling Designation	Performance Data									
	Part No.	Shaft Displacements				Angular (In)*	Performance Factor P	Max. Torque Capacity (In-Lbs)*	Practical Speed Limit (rpm)**	Coupling Weight (Lb)
S (In)		S min (In)	S max (In)	S ml (In)						
L230C	1.75	0.437	1.575	3.026	0.020	0.186	637	2,500	2	2
L234C						0.878	3,000	2,000	6	9
L239C						1.465	5,000	2,000	7	17
L246C						2.285	7,800	2,000	9	31
L253C						3.222	11,000	2,000	11	50
L259C	3.50	0.87	3.15	6.05	0.025	5.272	18,000	1,750	30	155
L270C						8.787	30,000	1,750	39	297
L280C						13.035	44,500	1,500	47	496
L290C						18.160	62,000	1,250	55	770
L281C						10.691	36,500	1,250	65	608
L289C	4.50	1.12	4.05	7.78	0.025	16.549	56,500	1,250	77	948
L210C						24.605	84,000	1,000	96	616
L211C						34.856	119,000	1,000	112	2,594
L214C						60.633	207,000	1,000	171	6,049
L217C						93.732	320,000	1,000	223	11,917
L220C	4.00	1.00	3.60	6.92	0.025	134.446	459,000	750	273	20,913
L350C						1.465	5,000	2,500	10	36
L355C						2.255	7,700	2,500	12	55
L360C						1.845	6,300	2,000	12	70
L375C						6.883	23,500	1,750	45	360
L385C	7.00	1.75	6.30	12.10	0.025	8.143	27,800	1,750	57	583
L310C	7.00	1.75	6.30	12.10		13.767	47,000	1,250	95	1,368
L312C	10.00	2.50	9.00	17.29		17.135	58,500	1,000	129	2,594

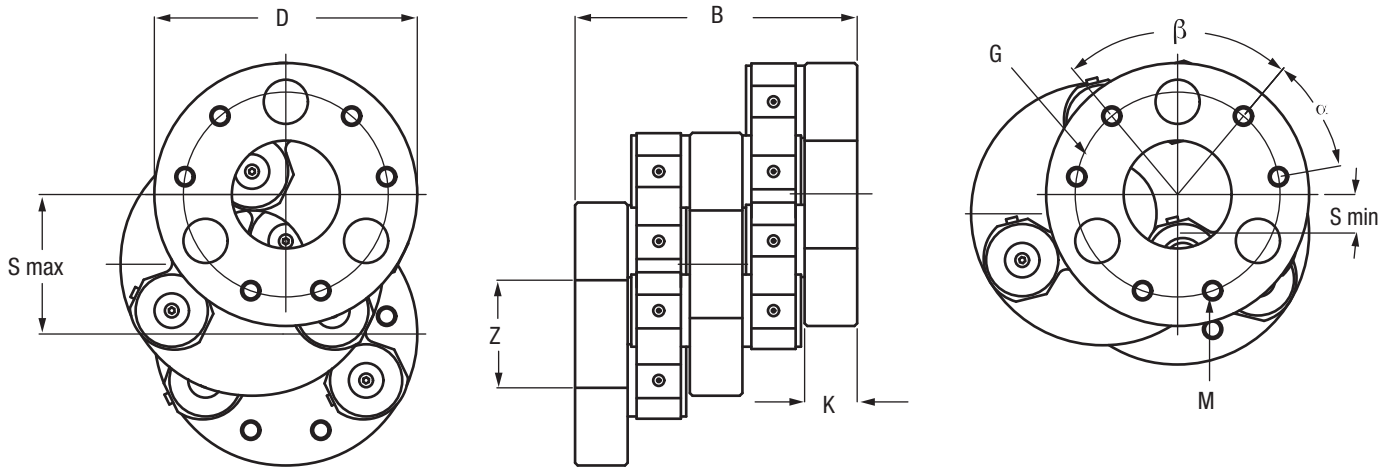
*The torque capacity of the Schmidt Coupling is primarily a function of the bearing size, the number of bearings and the torque radius of the coupling.

These design parameters are expressed by the performance factor P.

**If shaft speed requirement is higher than the practical speed limit consult our engineering department.

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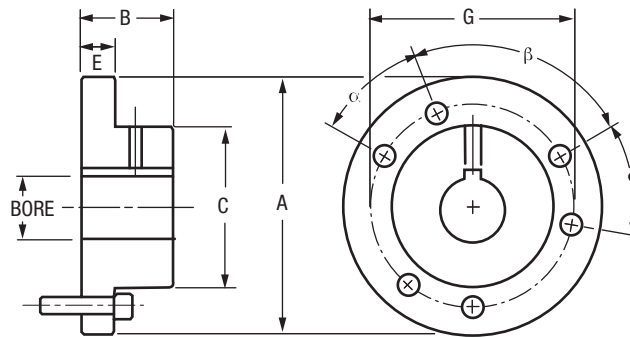
Dimension Data



Coupling Designation	Dimension Data											
	Coupling		End Disc Assembly Data									
Part No.	D (In)	B ±.032 (In)	Z (In)	K (In)	G (In)	M (In)	Number of Bolts	α (°)	β (°)	Bolt Size (In)		
L230C	3.00	2.75	1.280	0.380	2.187	8-32	6	40	80	8-32 Fl. Hd.		
L234C	3.37	3.81	1.375	0.60	2.750	5/16-18	6	40	80	5/16-18x1		
L239C	3.93		1.937		3.000		4	90	90			
L246C	4.62		2.625		3.750		5	72	72			
L253C	5.25		3.250		4.375		6	60	60			
L259C	5.94	6.37	2.437	1.19	4.625	7/16-14	6	40	80	7/16-14x1.75		
L270C	7.00		3.500		5.625		4	90	90			
L280C	8.00		4.500		6.625		5	72	72			
L290C	9.00		5.500		7.625		6	60	60			
L281C	8.00	7.62	3.500	1.44	6.500	5/8-11	6	40	80	5/8-11x2		
L289C	8.90		4.375		7.375		4	90	90			
L210C	10.20		5.500		8.500		5	72	72			
L211C	11.60		7.000		10.000		6	60	60			
L214C	14.41	9.500	12.000	15.500	18.250	3/4-10	8	45	45	3/4-10x2.25		
L217C	17.31						12.000	15.500	10		36	36
L220C	20.25						14.500	18.250	12		30	30
L350C	5.00	3.81	1.375	0.60	2.750	5/16-18	6	40	80	5/16-18x1		
L355C	5.56		1.625									
L360C	6.00		1.375									
L375C	7.50	6.37	2.437	1.19	4.625	7/16-14	6	40	80	7/16-14x2		
L385C	8.50		2.437									
L310C	10.00	7.62	3.500	1.44	6.500	5/8-11	6	40	80	5/8-11x2		
L312C	11.80		3.500									

SCHMIDT **HUBS** FOR **200 - 500 SERIES** COUPLINGS

- Standard Hub Data For Schmidt Couplings
- Typical shaft/hub configurations determined by amount of axial shaft separation.



Used on Coupling		Hub Part No.	Hub Dimensions (Inch)									Wt. (Lbs)
L200	L300		A	B	C	E	Max Bore†	G	Number & Size of Fasteners	α	β	
L230C		S6025XX	2.812	1.000	1.750	0.500	1.125	2.188	(6) #8-32 x 3/4	40°	80°	1.2
L234C	L350C L355C L360C	S6027XX	3.375	1.250	2.000	0.687	1.250	2.750	(6) 5/16-18 x 1	40°	80°	2.2
L239C		S6030XX	3.938	1.500	2.250	0.687	1.500	3.000	(4) 5/16-18 x 1	90°	90°	3.2
L246C		S6031XX	4.625	1.750	3.000	0.687	2.000	3.750	(5) 5/16-18 x 1	72°	72°	5.3
L253C		S6032XX	5.250	1.875	3.625	0.687	2.500	4.375	(6) 5/16-18 x 1	60°	60°	7.6
L259C	L375C L385C	S6033XX	5.938	2.125	3.750	0.750	2.500	4.625	(6) 7/16-14 x 1-3/4	40°	80°	10.1
L270C		S6035XX	7.000	2.500	4.375	1.000	3.000	5.625	(4) 5/8-11 x 2	90°	90°	17.2
L280C		S6039XX	8.000	2.875	5.375	1.000	3.750	6.625	(5) 5/8-11 x 2	72°	72°	26.1
L290C		S6042XX	9.000	3.375	6.375	1.000	4.500	7.625	(6) 5/8-11 x 2	60°	60°	39.5
L281C	L375C L385C	S6038XX	8.000	3.250	5.250	1.000	3.500	6.500	(6) 5/8-11 x 2	40°	80°	28.0
L289C		S6040XX	8.900	3.500	6.000	1.250	4.125	7.375	(4) 3/4-10 x 2-1/4	90°	90°	39.8
L210C		S6043XX	10.000	4.000	7.125	1.250	5.250	8.500	(5) 3/4-10 x 2-1/4	72°	72°	58.6
L211C		S6044XX	11.600	4.500	8.625	1.250	6.375	10.000	(6) 3/4-10 x 2-1/4	60°	60°	90.4
L214C												
L217C												
L220C												
Contact Factory												

†Please specify bore and keyway size.

Standard Hub Data for Inline and 5-D Couplings (Inch)											
Used on Coupling	Hub Part No.	A	B	C	E	Max Bore†	G	Number & Size of Fasteners	α	β	Hub Wts. Net Lbs.
L431C/D L442C/D	S6026XX	3.000	1.250	3.000	1.250	1.500	2.412	(3) 1/4-20 x 1	120°	120°	2.5
L436C/D L448C/D*	S6029XX	3.613	1.750	2.500	0.687	1.750	3.000	(6) 1/4-20 x 1-1/4	60°	60°	3.4
L463C/D L485C/D*	S6034XX	6.250	3.000	3.937	1.000	2.625	5.000	(6) 1/2-13 x 2	60°	60°	15.5
L481C/D L411C/D*	S6037XX	8.125	4.000	5.437	1.250	3.500	7.000	(8) 5/8-11 x 2-1/4	45°	45°	36.4
L536S	S6027XX	3.375	1.250	2.000	0.687	1.250	2.750	(6) 5/16-18 x 1	40°	80°	2.2
L558S L564S	S6032XX	5.250	1.875	3.625	0.687	2.500	4.375	(6) 5/16-18 x 1	60°	60°	7.6
L585S	S6033XX	5.938	2.125	3.750	0.750	2.500	4.625	(6) 7/16-14 x 1-3/4	40°	80°	10.1
L582S	S6039XX	8.000	2.875	5.375	1.000	3.750	6.625	(5) 5/8-11 x 2	72°	72°	26.1
L511S	S6038XX	8.000	3.250	5.250	1.000	3.500	6.500	(6) 5/8-11 x 2	40°	80°	28.0
L514S	S6044XX	11.600	4.500	8.625	1.250	6.375	10.000	(6) 3/4-10 x 2-1/4	60°	60°	90.4

†Please specify bore and keyway size.

*Only these sizes will accept an inverted hub configuration to reduce axial length.



Inverted-standard configuration



Standard configuration



Inverted configuration

SCHMIDT COUPLINGS **REFERENCE DATA**

Standard Keyways - Inch Bore Hubs

Bore Size		Keyway	Bore Size		Keyway
Over	To		Over	To	
0.437	0.562	0.125x0.062	2.250	2.750	0.625x0.312
0.562	0.875	0.187x0.094	2.750	3.250	0.750x0.375
0.875	1.250	0.250x0.125	3.250	3.750	0.875x0.437
1.250	1.375	0.312x0.156	3.750	4.500	1.000x0.500
1.375	1.750	0.375x0.187	4.500	5.500	1.250x0.625
1.750	2.250	0.500x0.250	5.500	6.500	1.500x0.750

Standard Keyways - Metric Bore Hubs

Bore Size		Keyway	Bore Size		Keyway
Over	To		Over	To	
10	12	4x1.8	58	65	18x4.4
12	17	5x2.3	65	75	20x4.9
17	22	6x2.8	75	85	22x5.4
22	30	8x3.3	85	95	25x5.4
30	38	10x3.3	95	110	28x6.4
38	44	12x3.3	110	130	32x7.4
44	50	14x3.8	130	150	36x8.4
50	58	16x4.3	150	170	40x9.4

Note: Inch bore hubs will be supplied with inch size setscrews. Metric bore hubs will be supplied with metric size setscrews. Standard keyways are for square keys. Keyways for rectangular keys are available - consult factory.

Bore Tolerances

Nominal		Bore Tolerance			
Shaft Diameter		Class 1		Interference	
Over	To	Clearance Fit		Fit	
0.437	1.500	-0.000	+0.001	-0.001	-0.0005
1.500	2.000	-0.000	+0.001	-0.002	-0.001
2.000	3.000	-0.000	+0.0015	-0.002	-0.001
3.000	4.000	-0.000	+0.0015	-0.003	-0.0015
4.000	5.000	-0.000	+0.002	-0.0035	-0.002
5.000	6.000	-0.000	+0.002	-0.004	-0.0025

Based on nominal shaft diameter (AGMA Standard 511.02) Clearance Fit Standard. Metric hub bores will be supplied with H7 clearance fit as standard. S7 interference fit available.

How To Select An Inline or 5-D Coupling Selection Formula

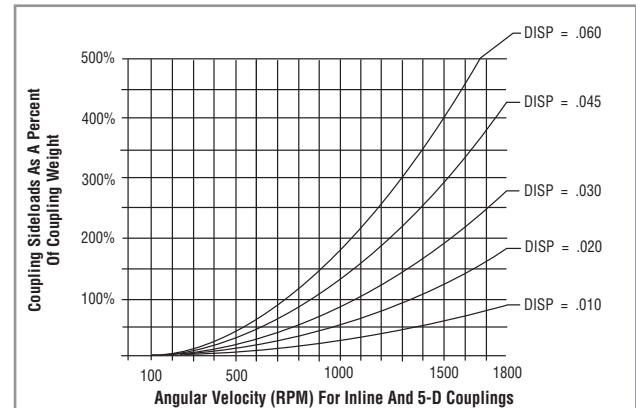
$$(HP/100 \text{ RPM}) = \frac{(\text{Required HP}) \times (\text{Service Factor}) \times 100}{\text{RPM}}$$

Selection Formula Example

Required HP = 100 at 1750 RPM and 1.5 Service Factor

$$(HP/100 \text{ RPM}) = \frac{100 \times 1.5 \times 100}{1750} = 8.57$$

Look for a coupling size which as a HP/100 RPM rating equal or greater than the required 8.57. For this example the coupling size L463C with a HP/100 RPM rating of 19.04 can be selected. If the backlash requirement is not critical the coupling L463D, which does not require any further lubrication, can be chosen.



The graph shows the InLine /5D coupling's reaction to parallel misalignment. Machinery sensitive to sideload forces generated by the coupling may require closer shaft alignment. Machinery not sensitive to sideload forces may allow for more misalignment than shown in the dimension and performance data tables.

Service Factor Guide

Uniform	1.0
Light Shock	1.5
Medium Shock	2.0
Heavy Shock	2.5

The service factors listed are intended only as a general guide. For typical service factors used in various applications, refer to "AGMA Standard-Lc classification and Service Factors For Flexible Couplings" (AGMA 514.02).

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