

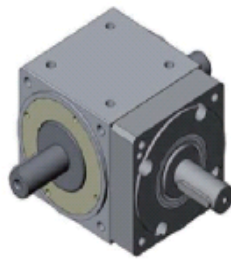
WS –DS Right-Angle Series

Precision Spiral Bevel gearbox family - 6 sizes
 Smallest is WS 42SF-1-DS (Single stage, ratio 1) with
 “solid” shaft X-axis input and solid Y-axis output.
 5 larger sizes - Sizes 70-180 (Single stage, ratio 2) with
 “solid” shaft input and hollow shaft output.
 Other output variations available for Y and Z axis
 Mount in your machine on any of 6 sides
 Customize your input and output shaft features
 Output torques to 1735 Lb-in/ 196 Nm.

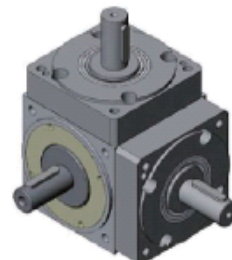


Above -- Typical solid shaft X-axis input with Hollow shaft Y or Z axis output

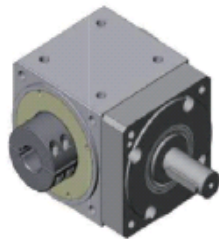
These Right-Angle gearboxes with Spiral Bevel gearing in their output stages can be backlash adjusted with recommended tools and suggested procedures. Upon request, we will provide information for gearbox owners to adjust backlash or tightness at their own risk.



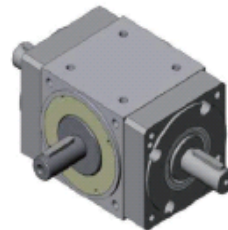
X-axis solid shaft input
 Y-axis solid double output shafts



X-axis solid shaft input
 Y and Z axis –solid output shafts



Standard size 70-180 output -- Hollow shaft
 y- axis output with integrated coupling



X and Y solid output shafts

Application Notes:

Output Y- axis is mounted on angular contact ball bearings. Very quiet and smooth power transmission.

The customer’s solid output shaft should completely occupy the length of the “hollow” Y- axis.

Radial load caused deflection of the customer’s solid output shaft, installed in the hollow bore, from the face of the coupling, along the theoretical centerline of the shaft, should not exceed 0.5 degree.

Eccentricity of the customer’s solid output shaft installed in the hollow bore should not exceed 0.03 mm T.I.R.

Performance Characteristics – Solid Input Shaft

WS gearhead Type (1)(2)		WS42SF -1-DS	WS70F -2-DS	WS90F -2-DS	WS120F- 2-DS	WS150F -2-DS	WS180F -2-DS
Nominal Output Torque	Lbf-in / Nm	51.3 / 5.8	130 / 14.7	243 / 27.5	503 / 56.8	1154 / 130	1735 / 196
Max Acceleration Torque	Lbf-in / Nm	3 times Nominal Output Torque					
Emergency Stop Torque	Lbf-in / Nm	3.4 times Nominal Output Torque - Maximum of 1000 times during life of the gearhead.					
Max input/output Speed	rpm	1500 / 1500	1200 / 600	1000 / 500	800 / 400	800 / 400	500 / 250
Gear ratio	i	1	2	2	2	2	2
Standard Backlash (max) (3)	Arc-mins	10	10	10	10	10	10
Reduced Backlash (max) (3)	Arc-mins	5	5	5	5	5	5
Max. radial load (4)	Lbf/ N	55 / 245	190 / 843	309 / 1373	551 / 2452	772 / 3432	1213 / 5394
Max. axial force (Y-axis)	Lbf/ N	27 / 122	94 / 422	154 / 686	275 / 1226	386 / 1716	605 / 2697
Rated life	H	> 10,000 - at permissible input speed and Nominal Output Torque					
Operating Temperature Range	°C	-10°C to +40°C ambient -- 90°C max operating case temperature					
Sound level (5)	dB (A)	65	65	65	72	77	78
Mounting Pos & Lubrication		All Positions -- Lubricated for life (synthetic grease)					
Direction of rotation		Input and output shafts opposite directions					
Protection class		IP54					
Efficiency at full load	%	85%					
Weight	Kg	0.6	1.2	3.4	7.4	13	41
No-load running torque	Lbf-in/ Nm	0.71 / 0.08	2.3 / 0.26	4.25 / 0.48	4.25 / 1.43	17 / 1.91	-
Gearhead Inertia	Kg- cm ²	0.035	0.05	0.23	0.8	1.72	2.12

(1) SF suffix indicates solid shaft output is standard. The 42 size is available only with solid output shaft and ratio 1.

(2) F suffix indicates Hollow output shaft is standard. Ratio 2 is standard for sizes 70-180.

(3) At 3 % of rated load

(4) At a distance of one-half of the coupling length -- from end of the coupling

(5) At max. input speed and at max standard backlash.

How to Order – State WS-DS gearhead Type. Describe output configuration desired.

Notes : X axis output is same rpm as X axis input

Y and Z axis outputs have input speed divided by ratio

Input Alternatives -- The WS-DS gearbox accommodates a variety of input hardware to solve motion control objectives. Please inquire.
Larger ratios -- We can integrate our type GNP planetary gearheads into the input side -- Fixed ratios from 3 to 100 in 1 or 2 stages -- See WS - GNP Series

