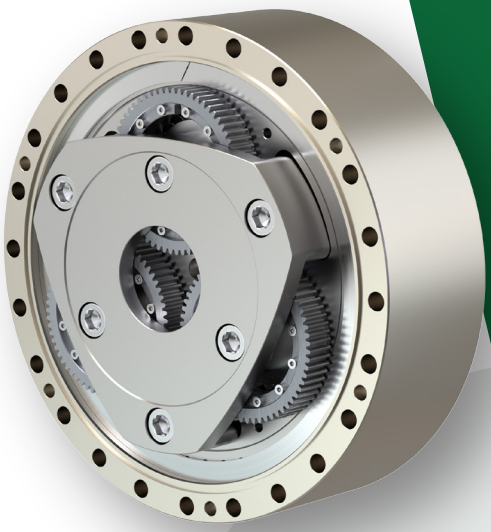
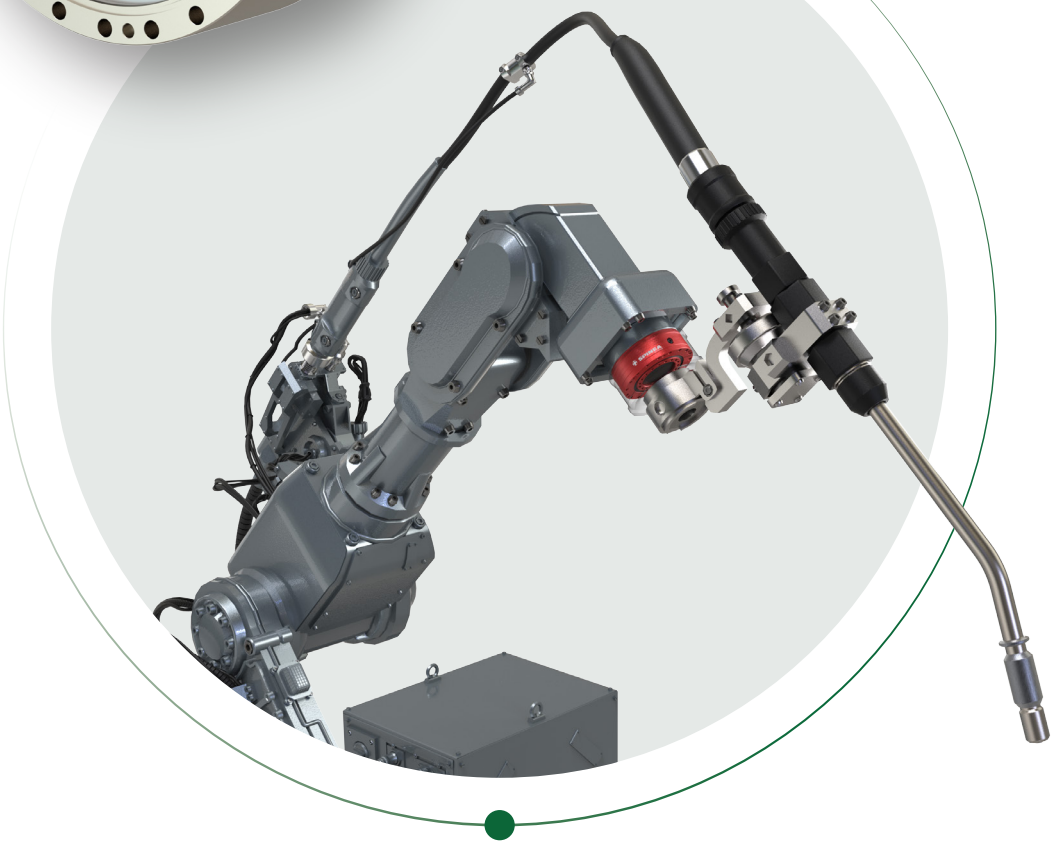
TwinSpin®

W SERIES

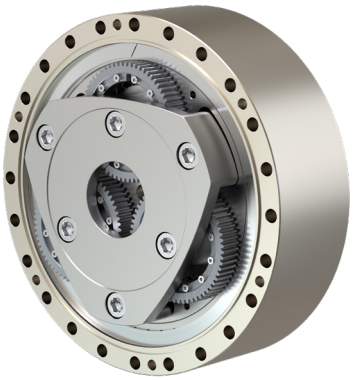


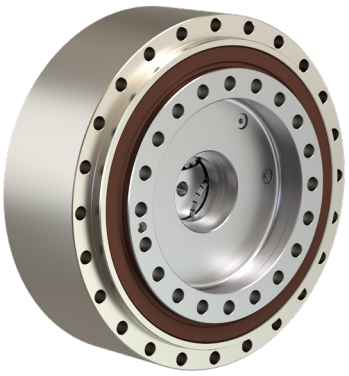


IMPROVED RV

SPINEA® **W** SERIES IS EXCELLENT
IN BOTH INDUSTRIAL ROBOTS
AND MANY OTHERS

1.1 W-S SERIES





Advantages

- **high torque density**
- **high torsional rigidity**
- **high precision of output bearing**
- **high moment rigidity**
- **easy installation possibilities**
- **wide range of ratios**
- **compact design**

The **W series** in standard non-hollow shaft is a series of middle and large size W high precision gear reducers with improved performance for the most demanding applications. W series with innovative gear reducer design delivers an increased torque-to-weight ratio and very high torsional rigidity. Innovative design of the output bearing resulted in the higher tilting stiffness, radial and axial load and high precision. Finally, new series of gear reducers have been introduced with W series to broaden the portfolio and application range of SPINEA gear reducers.

Tab. 1.1a: W series features

Case	Case installation holes A.) Through B.) Threaded

Tab. 1.1b: W series ordering specifications

W - 350 - S - G - P24

Name	Size	Version	Installation holes in the case			Ratios
			A	B	C	
W	250	S	Through holes	Threaded holes	Through & threaded holes	51, 63, 81, 105, 120.6, 147, 163.5, 183, 206.4
	295	S	Through holes	Threaded holes	Through & threaded holes	81, 92, 105, 118, 135, 150.5, 183, 202.5, 253.2
	320	S	Through holes	Threaded holes	Through & threaded holes	79, 105, 123, 144, 175.2, 214.2, 231.75, 252.33, 313
	350	S	Through holes	Threaded holes	Through & threaded holes	105, 131, 141, 157, 177, 183, 196, 202.5, 226.33, 245.4, 261, 287, 313
	400	S	Through holes	Threaded holes	Through & threaded holes	105, 117, 131, 141, 157, 183, 198.6, 209, 241.5, 300
	440	S	Through holes	Threaded holes	Through & threaded holes	105, 117, 131, 157, 165, 183, 201, 222, 261
	495	S	Through holes	Threaded holes	Through & threaded holes	105, 123, 141, 157, 165, 183, 195, 215.5, 237, 261

Tab. 1.1c: W-S series rating table

Size	Reduction ratio	Rated output torque	Max. acceleration / deceleration torque	Maximum permissible torque at emergency / E-stop	Rated output speed	Allowable Output speed Duty Cycle 40% 9) 11)	Lost motion	Hysteresis	Angular transmission error 6)
	i	T_R [Nm]	T_{acc} [Nm]	T_{em} [Nm]	$n_{Routput}$ [rpm]	$n_{max\ output}$ [rpm]	LM [arcmin]	H [arcmin]	ATE [arcsec]
W-250S	51	2 000	5 000	10 000	15	45	<1	<1	<50
	63					45			
	81					45			
	105					37			
	120,6					31			
	147					26			
	163,5					23			
	183					20			
	206,4					18			
W-295S	81	3 800	9 500	19 000	15	28	<1	<1	<50
	92					28			
	105					28			
	118					28			
	135					27			
	150.5					25			
	183					21			
	202.5					19			
	253.2					15			
W-320S	79	4 900	12 250	24 500	15	27	<1	<1	<50
	105					27			
	123					27			
	144					27			
	175.2					22			
	214.2					18			
	231.75					17			
	252.33					16			
	313					15			
W-350S	105	6 000	15 000	30 000	15	23	<1	<1	<50
	131					23			
	141					23			
	157					23			
	177					21			
	183					20			
	196					19			
	202.5					17			
	226.33					16			
	245.4					15			
	261					14			
	287					13			
	313					12			

RIGHT TO CHANGE WITHOUT PRIOR NOTICE RESERVED

1) Mean statistical value.
2) Load at output speed 15 rpm and L10=12 000 hrs and Load factor Lw=1.
3) Rated Tilting Momnet M_c value for $F_a = 0$.
4) Rated Radial Force F_r value for $M_c = 0$ and $F_a = 0$.
5) Rated Axial Force F_a value for $M_c = 0$ and $F_r = 0$.
6) The parameter depends on the version of the high precision reduction gear.
7) The parameter depends on the version of the high precision reduction gear, ratio and lost motion.
8) The parameter values are informative. Exact value depends on the specific version of the high precision reduction gear.
9) Temperatures of the high precision reduction gear lower than 20°C will cause higher no-load starting or back driving torque.
10) Instantaneous speed peak that may occur within the working cycle.
11) Allowable ouput speed at max surface temperature 60 °C during use.

Tab. 2.1c: W-S series rating table - continued

Size	Reduction ratio	Tilting stiffness 1) 5)	Rated tilting moment 2) 3)	Allowable tilting moment	Allowable radial force 2)	Allowable axial force 2) 4)	Weight 7)
	i	M_t [Nm/arcmin]	M_c [Nm]	M_{cmax} [Nm]	F_{rR} [kN]	$F_{a\,max}$ [kN]	m [kg]
W-250S	51 63 81 105 120.6 147 163.5 183 206.4		5 630	11 260	56.4	84	32
W-295S	81 92 105 118 135 150.5 183 202.5 253.2		7 250	14 500	61	91	47
W-320S	79 105 123 144 175.2 214.2 231.75 252.33 313		10 400	20 800	80	120	60
W-350S	105 131 141 157 177 183 196 202.5 226.33 245.4 261 287 313	13 000	12 400	24 800	85	127	77

IMPORTANT NOTES:

- Load values in the table are valid for the nominal life of L_{10} = 6 000 [Hrs]..
- High precision reduction gears are preferred for intermittent cycles (S3-S8); the output speed in applications is an inverted variable.
- The continuous mode cycle (S1) should needed to be consulted with the manufacturer.
- If the output speed in application is below than 0,1 rpm please consult with the manufacturer.
- The values in the table refer to nominal operating temperature.
- Please note the temperature on the gear case that should not exceed 60°C.

The ratios highlighted in bold are recommended by SPINEA® as optimal versions in terms of price and delivery.

Tab. 1.1d: W-S series rating table

Size	Reduction ratio	Rated output torque	Max. acceleration / deceleration torque	Maximum permissible torque at emergency / E-stop	Rated output speed	Allowable Output speed Duty Cycle 40% 9) 11)	Lost motion	Hysteresis	Angular transmission error 6)
	i	T_R [Nm]	T_{acc} [Nm]	T_{em} [Nm]	$n_{Routput}$ [rpm]	$n_{max\ output}$ [rpm]	LM [arcmin]	H [arcmin]	ATE [arcsec]
W-400S	105	8 000	20 000	40 000	15	19	<1	<1	<50
	117					19			
	131					19			
	141					19			
	157					19			
	183					19			
	198.6					17			
	209					16			
	241.5					14			
	300					11			
W-440S	105	10 500	26 250	52 500	15	18	<1	<1	<50
	117					18			
	131					18			
	157					18			
	165					16			
	183					14			
	201					23			
	222					13			
	261					11			
W-495S	105	14 400	36 000	72 000	15	16	<1	<1	<50
	123					16			
	141					16			
	157					16			
	165					15			
	183					13			
	195					12			
	215.5					11			
	237					10			
	261					9			

RIGHT TO CHANGE WITHOUT PRIOR NOTICE RESERVED

1) Mean statistical value.
2) Load at output speed 15 rpm and L10=12 000 hrs and Load factor Lw=1.
3) Rated Tilting Momnet M_c value for $F_a = 0$.
4) Rated Radial Force F_r value for $M_c = 0$ and $F_a = 0$.
5) Rated Axial Force F_a value for $M_c = 0$ and $F_r = 0$.
6) The parameter depends on the version of the high precision reduction gear.
7) The parameter depends on the version of the high precision reduction gear, ratio and lost motion.
8) The parameter values are informative. Exact value depends on the specific version of the high precision reduction gear.
9) Temperatures of the high precision reduction gear lower than 20°C will cause higher no-load starting or back driving torque.
10) Instantaneous speed peak that may occur within the working cycle.
11) Allowable ouput speed at max surface temperature 60 °C during use.

Tab. 2.1c: W-S series rating table - continued

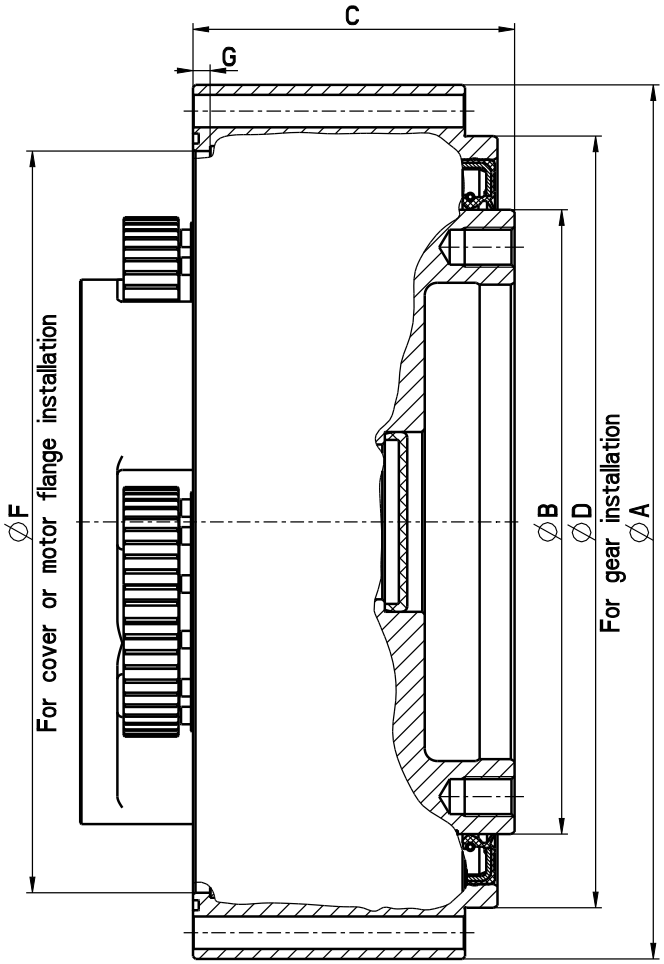
Size	Reduction ratio	Rated tilting moment 2) 3)	Allowable tilting moment	Allowable radial force 2)	Allowable axial force 2) 4)	Weight 7)
	i	M_c [Nm]	M_{cmax} [Nm]	F_{rR} [kN]	$F_{a\,max}$ [kN]	m [kg]
W-400S	105	15 700	31 400	92	138	97
	117					
	131					
	141					
	157					
	183					
	198.6					
	209					
	241.5					
	300					
W-440S	105	18 600	37 200	98	146	128
	117					
	131					
	157					
	165					
	183					
	201					
	222					
	261					
W-495S	105	29 000	58 000	135	201	150
	123					
	141					
	157					
	165					
	183					
	195					
	215.5					
	237					
	261					

IMPORTANT NOTES:

- Load values in the table are valid for the nominal life of L_{10} = 6 000 [Hrs]..
- High precision reduction gears are preferred for intermittent cycles (S3-S8); the output speed in applications is an inverted variable.
- The continuous mode cycle (S1) should needed to be consulted with the manufacturer.
- If the output speed in application is below than 0,1 rpm please consult with the manufacturer.
- The values in the table refer to nominal operating temperature.
- Please note the temperature on the gear case that should not exceed 60˚C.

The ratios highlighted in bold are recommended by SPINEA® as optimal versions in terms of price and delivery.

W-S parametric drawings



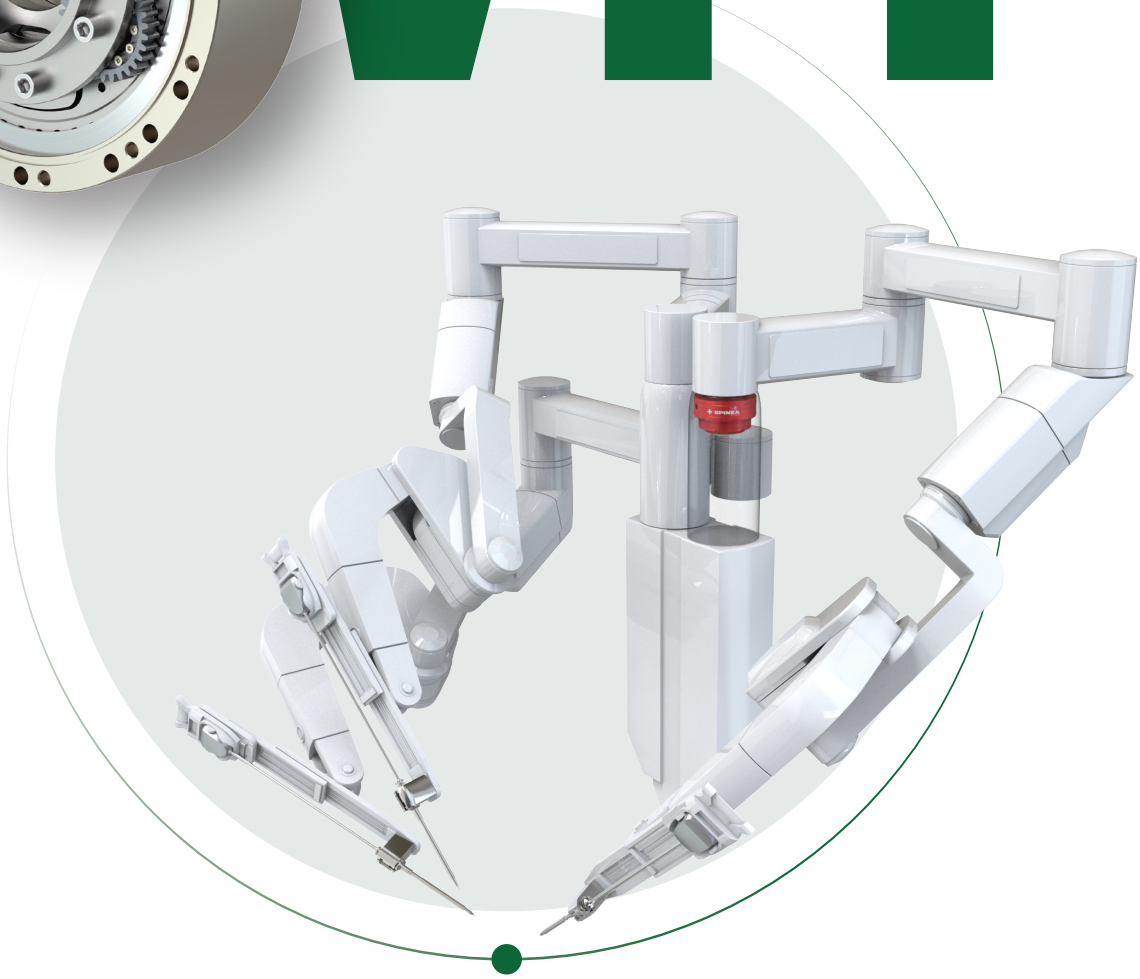
DIMENSIONS OF W-S STANDARD NON HOLLOW SHAFT GEAR REDUCERS

MODEL W-S	250S	295S	320S	350S	400S	440S	495S
∅A (mm)	250	295	320	350	400	440	495
∅B (mm)	170 h7	210 h7	220 h7	250 h7	300 h7	340 h7	390 h7
C (mm)	108,5	114,5	125	129	129	135	151
∅D (mm)	215 h7	254 h7	279 h7	309 h7	356 h7	396 h7	455 h7
∅F (mm)	202 H7	240 H7	262 H7	297 H7	342 H7	382 H7	431 H7
G (mm)	6,5	7	7	7	7	7	7

1. Use only standardized components, such as ring seals, bolts, etc.
2. Right to change without prior notice reserved.
3. Unsealed space, see the installation instructions in the TS Catalogue.

TwinSpin®

WH SERIES



IMPROVED HOLLOWSHAFT RV

TwinSpin® **WH** SERIES IS EXCELLENT
IN BOTH INDUSTRIAL ROBOTS
AND MANY OTHERS

Tab. 1.1e: W-H series rating table

Size	Reduction ratio	Shaft inside diameter	Rated output torque	Max. acceleration / deceleration torque	Maximum permissible torque at emergency / E-stop	Rated output speed	Allowable Output speed Duty Cycle 40% 9) 11)	Lost motion	Hysteresis	Angular transmission error 6)
	i	[mm]	T_R [Nm]	T_{acc} [Nm]	T_{em} [Nm]	$n_{Routput}$ [rpm]	$n_{max\ output}$ [rpm]	LM [arcmin]	H [arcmin]	ATE [arcsec]
W-320H	100.946	80	2 000	5 000	10 000	15	19	<1	<1	<40
	146.03						13			
	199.29						10			
	226.822						9			
W-350H	106.4	90	3 050	7 625	15 250	15	19	<1	<1	<40
	158.02						13			
	205.97						10			
	243.53						8			
W-400H	102.08	120	4 450	11 125	22 250	15	18	<1	<1	<50
	148.76						13			
	203.22						10			
	248.175						8			
W-440H	107.5	140	5 250	13 125	26 250	15	17	<1	<1	<50
	146.2						13			
	215						10			
	258.361						8			
W-495H	110.202	150	8 100	20 250	40 500	15	15	<1	<1	<50
	150.2						11			
	205.851						7			
	256.062						6			

RIGHT TO CHANGE WITHOUT PRIOR NOTICE RESERVED

1) Mean statistical value.
2) Load at output speed 15 rpm and L10=12 000 hrs and Load factor Lw=1.
3) Rated Tilting Momnet M_c value for $F_a = 0$.
4) Rated Radial Force F_r value for $M_c = 0$ and $F_a = 0$.
5) Rated Axial Force F_a value for $M_c = 0$ and $F_r = 0$.
6) The parameter depends on the version of the high precision reduction gear.
7) The parameter depends on the version of the high precision reduction gear, ratio and lost motion.
8) The parameter values are informative. Exact value depends on the specific version of the high precision reduction gear.
9) Temperatures of the high precision reduction gear lower than 20°C will cause higher no-load starting or back driving torque.
10) Instantaneous speed peak that may occur within the working cycle.
11) Allowable ouput speed at max surface temperature 60 °C during use.

Tab. 2.1c: W-H series rating table - continued

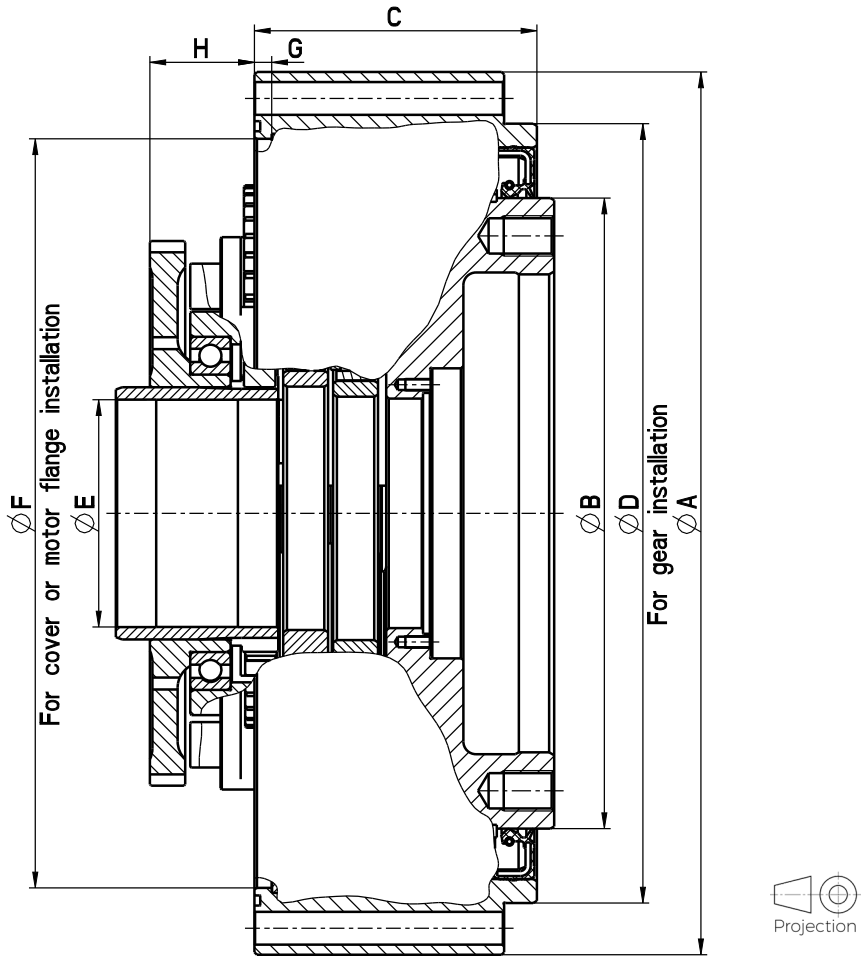
Size	Reduction ratio	Torsional stiffness 50 – 100 % T_R 1) 6)	Tilting stiffness 1) 5)	Rated tilting moment 2) 3)	Allowable tilting moment	Allowable radial force 2)	Allowable axial force 2) 4)	Weight 7)
	i	k_t [Nm/arcmin]	M_t [Nm/arcmin]	M_c [Nm]	M_{cmax} [Nm]	F_{rR} [kN]	$F_{a\,max}$ [kN]	m [kg]
W-320H	100.946			10 400	20 800	80	127	55
	146.03							
	199.29							
	226.822							
W-350H	106.4	1 750 - 2 000	13 000	12 400	24 800	85	127	62
	158.02							
	205.97							
	243.53							
W-400H	102.08			15 700	31 400	95	138	81
	148.76							
	203.22							
	248.175							
W-440H	107.5			18 600	37 200	98	186	99
	146.2							
	215							
	258.361							
W-495H	110.202			29 000	58 000	135	290	145
	150.2							
	205.851							
	256.062							

IMPORTANT NOTES:

- Load values in the table are valid for the nominal life of L_{10} = 6 000 [Hrs]..
- High precision reduction gears are preferred for intermittent cycles (S3-S8); the output speed in applications is an inverted variable.
- The continuous mode cycle (S1) should needed to be consulted with the manufacturer.
- If the output speed in application is below than 0.1 rpm please consult with the manufacturer.
- The values in the table refer to nominal operating temperature.
- Please note the temperature on the gear case that should not exceed 60°C.

The ratios highlighted in bold are recommended by SPINEA® as optimal versions in terms of price and delivery.

W-S parametric drawings



DIMENSIONS OF W-H HOLLOW SHAFT GEAR REDUCERS

MODEL W-H	320H	350H	400H	440H	495H
∅A (mm)	320	350	400	440	495
∅B (mm)	220 h7	250 h7	300 h7	340 h7	390 h7
C (mm)	115	119	121	123	137
∅D (mm)	279 h7	309 h7	356 h7	396 h7	455 h7
∅E (mm)	90,2	90,1	120	140	150,5
∅F (mm)	262 H7	297 H7	342 H7	382 H7	431 H7
G (mm)	7	7	7	7	7
H (mm)	38	41.5	52	64	58

1. Use only standardized components, such as ring seals, bolts, etc.
2. Right to change without prior notice reserved.
3. Unsealed space, see the installation instructions in the TS Catalogue.