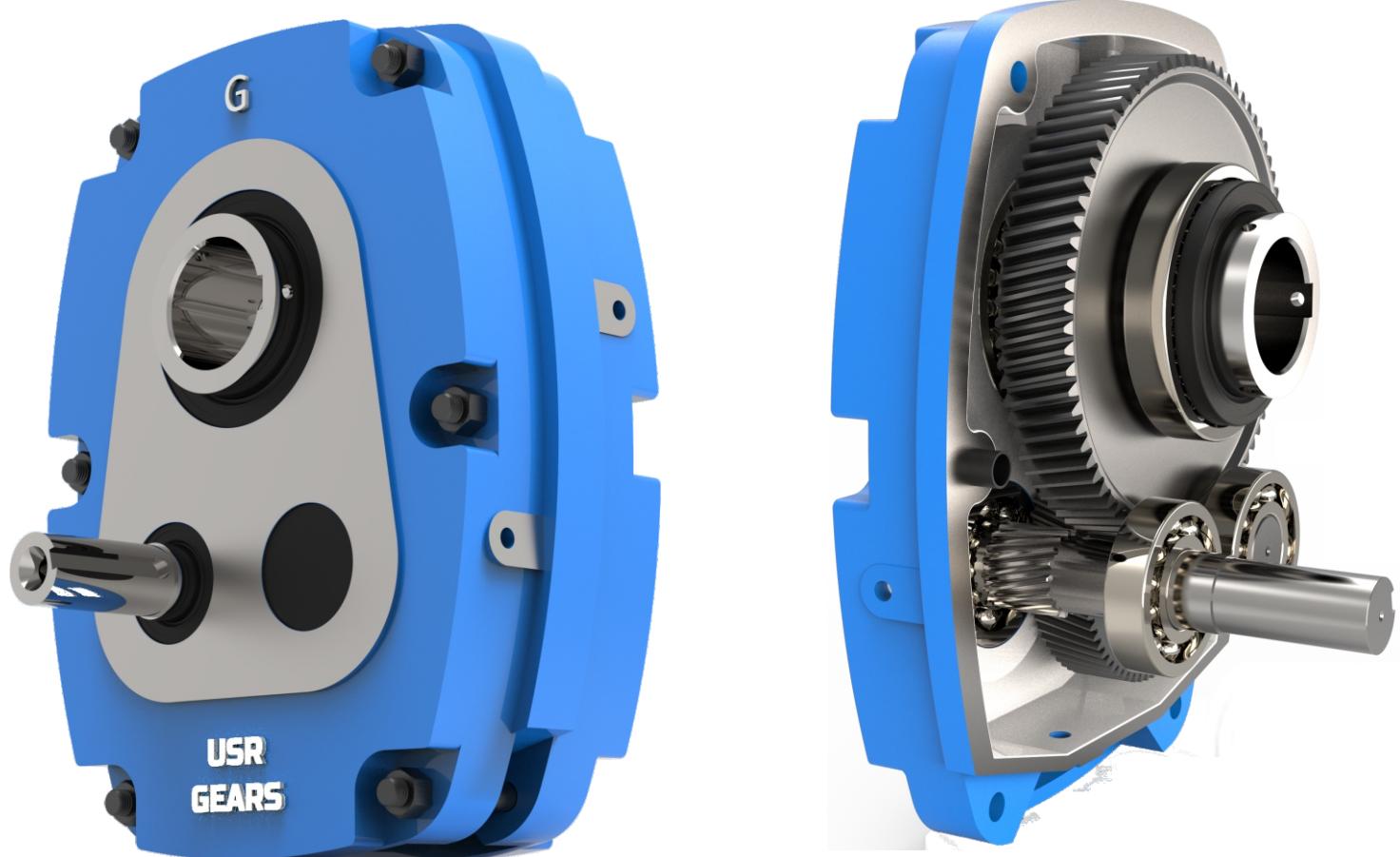




**SMSR SERIES**



**Uttam Speed Reducer Equipments Pvt Ltd**

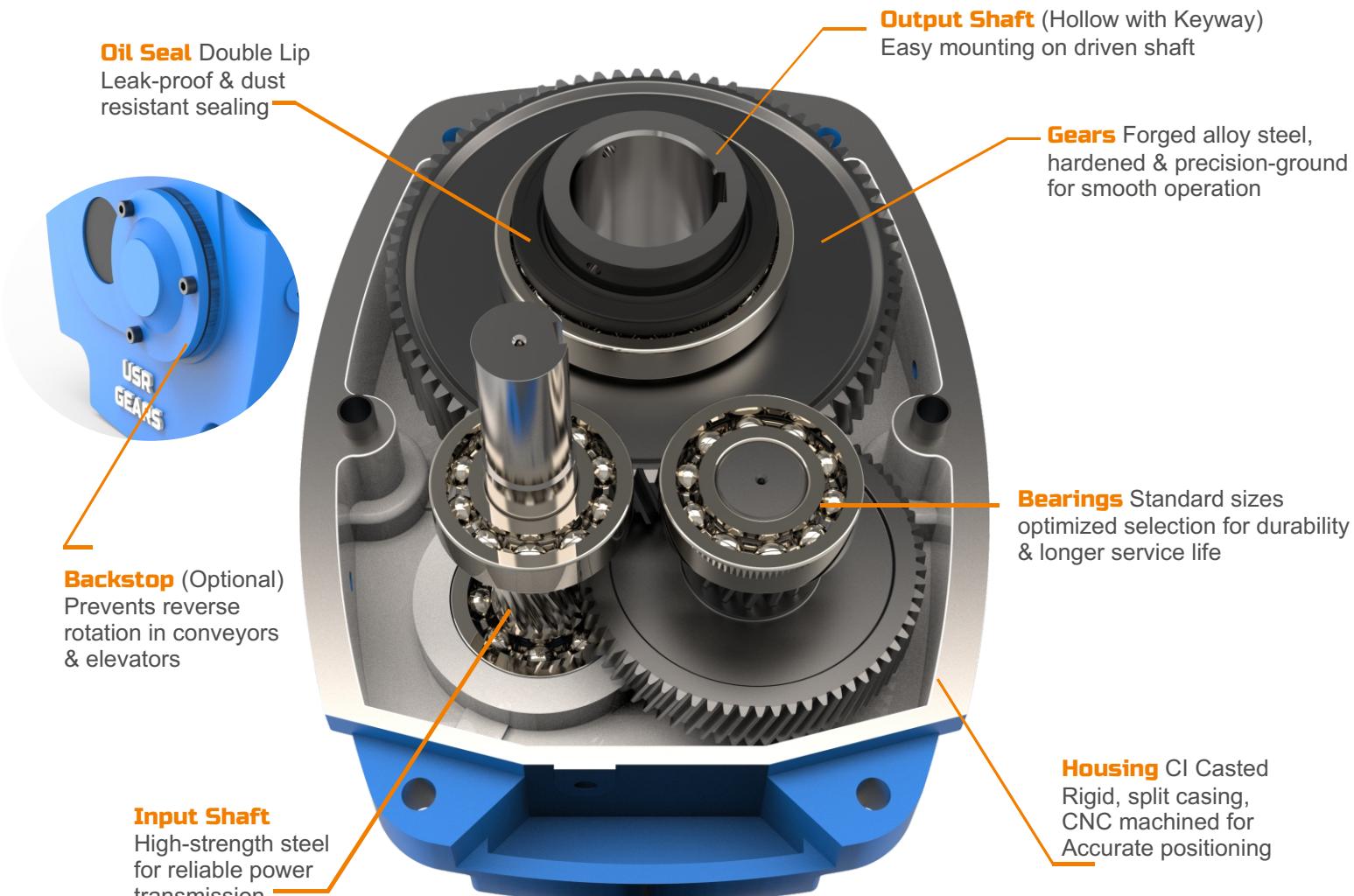
**Planetary Gearboxes - Helical Gearboxes - Single & Twin Screw Extruder Gearboxes  
Crane Duty Gearboxes - Rolling Mill Gearboxes - Customized Gearboxes - SMSR Gearboxes**

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## Range

- Bore sizes available from 30 mm up to 120 mm
- Taper-Grip bush design for quick fitting and easy removal
- Three bore configurations offered as standard
- Speed reduction ratios achievable up to 200:1 using a simple belt drive system
- Option to equip with holdback / backstop device for reverse rotation prevention



## Applications

Conveyors  
Crushers and Screens  
Bucket Elevators  
Feeder Drives  
Agitators and Mixers  
Pulley and Roller Drives

## Industries

Cement Plants  
Mining & Quarrying  
Power Plants  
Fertilizer Plants  
Construction & Material Handling  
Paper & Pulp Industry

## SMSR Sizes and Ratio's

Ratio	Sizes							
5	B	C	D	E	F	G	H	J
13	B	C	D	E	F	G	H	J
20	B	C	D	E	F	G	H	J

## Designed Power

Mechanical power rating for which the gearbox is designed to operate safely and efficiently.

## Absorbed Power

Actual power consumed by the driven machine during operation.

## Service Factor (SF)

Multiplier applied to absorbed power, depending on type of load and duty cycle.

## Input Speed (RPM)

Determined as= Motor Speed÷Pulley/chain Ratio or =Motor Speed in case no belt/chain drive

## Output Speed (RPM)

Determined as= Input Speed ÷ Gearbox Ratio

## Service Factor As Per Loads

TABLE-1

Types of Loads	Operational Hours per Day		
	Under 10	10-16	over 16
Uniform Loads	1.00	1.12	1.25
Moderate Shock Loads	1.25	1.40	1.60
Heavy Shock Loads	1.60	1.80	2.00

## Unit Selection

### Unit Selection Example

Input Power: 7.5 kW at 520 RPM after pulley

Required Output Speed: 40 RPM

Application: Heavy shock load, 15 hrs/day

Absorbed Power: 6.2 kW

### 1 – Ratio Calculation

### 2 - Check Require SF

### 2 – Required Mech. Power

### 3 – Gearbox Selection

Ratio=520/40=13

From table 1 SF is 1.8

Required Mech. Power=Absorbed Power×SF=6.2×1.8=11.16 kW

From Table 3-4, choose gearbox with ratio  $\approx 13$  and mechanical power  $\geq 11.16$  kW.

Selected: Model G13, Ratio 13 from table-2

**Note:** Designed power of the gearbox must always be higher than the required mechanical power.

To calculate belt pulley drive /Chain drive efficiency, please consult with team USR.

## Size Selection

### According to Belt Width and Length

To ensure optimum performance and reliability of SMSR Gearboxes, it is important to select the gearbox based on the conveyor belt size.

The selection depends on both the belt width and the conveyor length. The table-2 provides a quick reference for choosing the correct gearbox model according to different conveyor belt sizes and lengths.

**Note:** For any query, please consult with team USR.

TABLE-2

Selection of Gearbox According to Conveyer Belt Size		
Model	Belt Widt	Belt Length
D	18"	20 ft/30 ft/40 ft/50 ft
E	24"	30 ft/40 ft/50 ft/60 ft
F	30"	30 ft/40 ft/50 ft/60 ft
G	36"	30 ft/40 ft/50 ft/60 ft /70 ft /80 ft /100 ft
H	36"	40 ft/50 ft/60 ft /70 ft /80 ft /100 ft
J	36"	40 ft/50 ft/60 ft /70 ft /80 ft /100 ft /150 ft

## Motor Mounting Arrangement

Our SMSR Gearbox is designed with a robust and flexible motor mounting arrangement to ensure smooth and efficient power transmission.

The pre-drilled motor mounting plate allows easy and accurate motor installation without the need for additional machining.

Fine adjustments are provided both for belt tensioning and precise motor placement, ensuring optimal alignment and extended belt life.

This arrangement minimizes vibration, improves reliability, and enhances the overall performance of the drive system.

With quick installation and user-friendly design, the motor mounting arrangement reduces downtime and ensures consistent operation across various industrial applications.



**Power Rating (kw) For Double Reduction SMSR Ratio 13:1 & 20:1**
**TABLE-3**

Output Speed (RPM)	SMSR POWER IN KW							
	B13/B20	C13/C20	D13/D20	E13/E20	F13/F20	G13/G20	H13/H20	J13/J20
10	0.29	0.49	0.82	1.25	1.97	3.11	4.9	7.8
12	0.36	0.58	0.96	1.48	2.45	3.71	5.9	9.2
14	0.42	0.67	1.11	1.73	2.71	4.30	6.8	10.7
16	0.47	0.76	1.27	1.97	3.09	4.89	7.7	12.1
18	0.53	0.86	1.41	2.20	3.44	5.48	8.7	13.6
20	0.59	0.96	1.58	2.43	3.82	6.08	9.5	15.1
22	0.63	1.04	1.73	2.67	4.18	6.63	10.4	16.4
24	0.69	1.13	1.86	2.89	4.55	7.22	11.3	17.9
26	0.75	1.22	2.02	3.13	4.91	7.79	12.1	19.3
28	0.81	1.32	2.18	3.36	5.27	8.35	13.1	20.6
30	0.86	1.41	2.32	3.58	5.63	8.92	13.9	22.5
32	0.92	1.50	2.47	3.81	4.98	9.49	14.8	23.6
34	0.98	1.60	2.63	4.04	6.34	10.04	15.7	25.1
38	1.10	1.79	2.91	4.48	7.05	11.12	17.4	27.6
40	1.16	1.87	3.07	4.71	7.41	11.87	18.2	29.0
42	1.20	1.96	3.19	4.92	7.75	12.39	19.3	30.1
46	1.30	2.13	3.48	5.37	8.28	13.65	21.1	32.6
50	1.42	2.30	3.78	5.81	9.07	14.60	22.8	35.0
52	1.47	2.37	4.00	6.03	9.14	15.23	23.4	35.6
54	1.52	2.47	4.14	6.23	9.42	15.86	24.4	36.3
58	1.64	2.61	4.43	6.66	10.02	16.80	25.8	38.0
62	1.76	2.77	4.71	7.23	10.61	17.96	27.5	40.2
66	1.86	2.94	5.01	7.68	11.24	19.01	29.7	42.5
70	1.96	3.07	5.13	8.11	11.76	20.16	30.6	44.7
74	2.06	3.18	5.42	8.54	12.39	21.11	32.0	47.0
78	2.15	3.32	5.70	8.97	12.92	22.26	33.6	49.2
80	2.23	3.39	5.81	9.19	13.23	22.47	34.3	50.2
85	2.34	3.58	6.14	9.71	13.97	23.31	36.2	52.8
90	2.48	3.79	6.49	10.24	14.60	24.57	37.9	55.3
95	2.61	4.00	6.81	10.50	15.44	25.83	39.0	58.0
100	2.73	4.19	7.15	11.03	16.17	27.09	40.7	60.5
105	2.85	4.41	7.48	11.55	17.01			
110	2.98	4.62	7.81					
115	3.11							
<b>Torque at 100 RPM</b>	<b>277</b>	<b>468</b>	<b>783</b>	<b>1194</b>	<b>1881</b>	<b>2970</b>	<b>4680</b>	<b>7449</b>

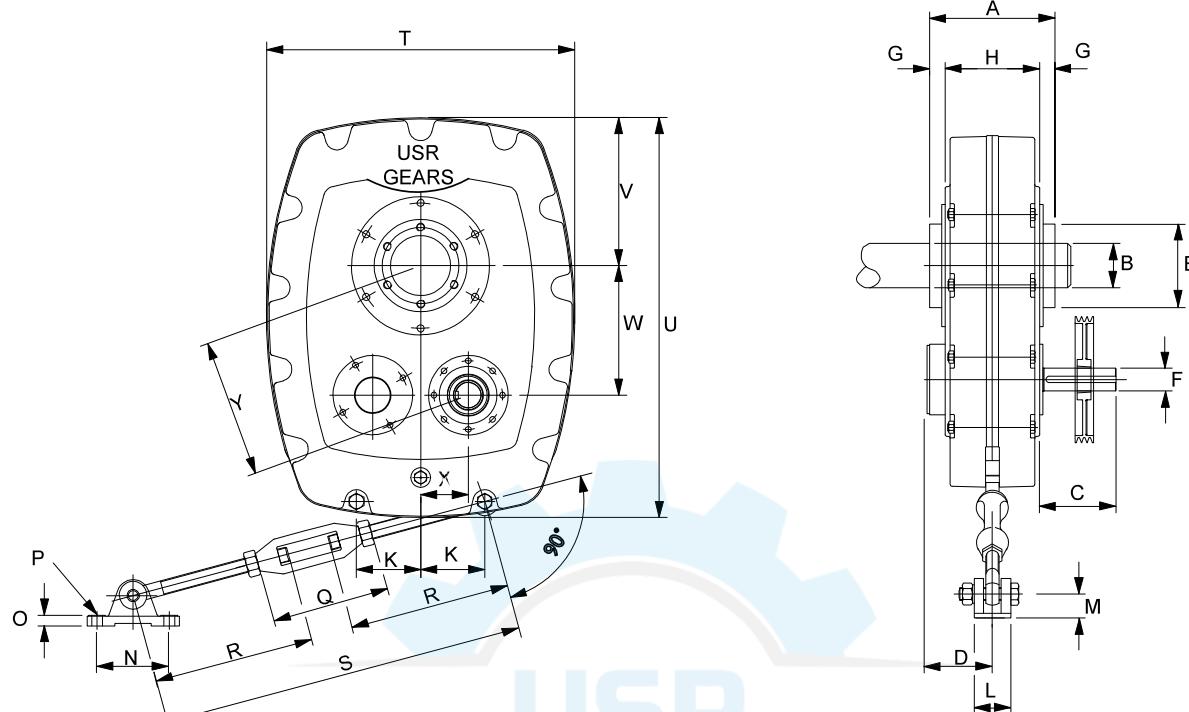
Note: All power ratings and specifications are indicative and may vary with design improvements. The manufacturer reserves the right to revise details without prior notice.

**Power Rating (kw) For Single Reduction SMSR Ratio 5:1**
**TABLE-4**

<b>Output Speed RPM</b>	<b>SMSR POWER IN KW</b>							
	<b>B5</b>	<b>C5</b>	<b>D5</b>	<b>E5</b>	<b>F5</b>	<b>G5</b>	<b>H5</b>	<b>J5</b>
100	2.68	4.20	6.62	10.29	15.12	25.20	36.20	62.20
110	2.87	4.62	7.08	11.03	16.07	27.60	38.90	67.20
120	3.13	5.04	7.46	11.76	17.01	29.90	41.40	72.50
130	3.36	5.31	7.77	12.34	17.85	31.50	43.40	76.70
140	3.56	5.54	8.11	12.71	18.59	32.60	45.20	79.20
150	3.62	5.78	8.30	13.13	19.22	33.60	47.30	81.90
160	3.73	5.88	8.51	13.55	19.95	34.70	48.30	85.10
170	3.83	5.90	8.72	13.76	20.37	35.10	49.90	88.20
180	3.94	6.09	8.93	14.18	21.00	35.70	51.50	90.30
190	4.04	6.30	9.14	14.49	21.53	36.80	52.50	93.50
200	4.20	6.49	9.45	14.91	22.05	37.80	53.60	96.60
210	4.31	6.53	9.66	15.23	22.47	38.50	54.60	98.70
220	4.41	6.72	9.87	15.75	23.10	39.30	56.20	101.90
230	4.53	6.87	10.06	16.07	23.63	40.00	57.30	104.00
240	4.66	7.04	10.29	16.49	24.26	41.10	58.80	107.10
250	4.78	7.14	10.71	16.80	25.04	42.10	60.40	109.20
260	4.89	7.35	10.92	17.01	25.41	43.10	61.30	111.30
270	5.04	7.46	11.13	17.85	26.25	44.10	63.00	113.40
280	5.20	7.56	11.55	18.38	26.78	45.20	64.10	115.50
290	5.36	7.77	11.76	18.90	27.41	46.20	65.10	116.60
300	5.46	7.98	12.08	19.43	27.83	47.40	66.20	118.70
310	5.62	8.17	12.34	19.95	28.67	48.60	67.70	122.90
320	5.78	8.30	12.60	20.27	26.61	49.40	69.40	123.90
330	5.88	8.51	13.02	20.90	30.35	50.90	70.90	125.00
340	6.09	8.72	13.44	21.11	31.08	52.30	71.60	125.50
350	6.30	8.82	13.76	21.84	31.71	53.30	73.50	126.00
360	6.41	9.03	14.18	22.26	32.60	54.60	74.60	128.10
370	6.62	9.24	14.44	22.79	33.60	55.70	75.60	129.20
380	6.72	9.45	14.70	23.10	34.49	56.70	77.70	130.20
390	6.93	9.56	15.23	23.52	35.07	58.80	79.80	131.30
400	7.14	9.66	15.65	24.57	35.91	59.90	81.90	134.20
<b>Torque at 100 RPM</b>	<b>256</b>	<b>401</b>	<b>632</b>	<b>983</b>	<b>1444</b>	<b>2407</b>	<b>3457</b>	<b>5940</b>

Note: All power ratings and specifications are indicative and may vary with design improvements. The manufacturer reserves the right to revise details without prior notice.

## Dimensions of Shaft Mounted SMSR Gearbox



**TABLE-5**

SIZE	Mass Kg.		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S		T	U	V	W	X	Y
	Ratio 5	Ratio 13 20																		Min	Max						
B	15	16	134		63	59	80	19j6	15	104	131	55	24	20	65	5	10	200	300	600	750	186	226	81	75	25	79
C	21	22	142		72	65	90	22j6	17	108	156	59	24	20	65	5	10	200	300	600	750	218	270	96	90	31	95
D	30	32	152		77	68	100	25j6	17	118	188	76	28	24	75	5	12	216	350	700	850	258	328	117	110	37	116
E	41	46	170		85	76	115	28j6	20	130	222	90	28	24	75	5	12	216	350	700	850	278	377	129	125	43	133
F	53	58	189		90	87	130	32k6	20	149	242	98	34	30	100	6	16	216	375	750	900	317	414	143	141	50	150
G	82	92	212	See Table 6	105	110	145	42k6	20	172	277	110	34	30	100	6	16	216	375	750	900	365	468	162	156	56	166
H	133	144	242		116	115	170	48k6	26	190	330	88	70	50	121	18	16	222	375	750	900	434	550	195	189	62	200
J	194	208	257		135	119	200	55m6	30	197	424	102	70	50	121	18	16	222	375	750	900	542	700	254	255	75	266

### General Notes

All dimensions are in millimetres and subject to change without prior notice.

V-Belt adjustment of 150 mm is permitted. By trimming the threaded rod ends, the 'S' dimension can be further reduced by:

- ▶ up to 300 mm on sizes B & C
- ▶ up to 350 mm on sizes D & E
- ▶ up to 395 mm on sizes F, G, H & J

Keyways conform to British Standard and Indian Standard Metric specifications.

## Output Shaft Dimensions

TABLE-6

SMSR Size	Standard Bore	Alternative Bore
B	30	40
C	40	50
D	50	55
E	55	65
F	65	75
G	75	85
H	85	100
J	100	120

\*Note: All dimensions are in millimetres (mm). The gearbox output hollow shaft hub is manufactured with F7 tolerance. Shaft keyways are provided as per the appropriate standard dimensions in ISO 2048.

## Mounting Options

### Backstop Device

Available to prevent reverse rotation of the gearbox in applications such as conveyors and elevators, ensuring safe and reliable operation.

### Vertical Input Shaft

Option to supply with a vertical input shaft arrangement, suitable for both upward and downward drive positions. Please consult the USR Team for details.

### Flange Mounting

Gear cases are provided with drilled and tapped holes on the input drive face, enabling direct bolting to a supporting structure.

Contact the USR Team for specific requirements.

### Motor Mounting Frame

A motor mounting frame can be supplied over the gearbox for easy and secure motor installation.

## Lubrication

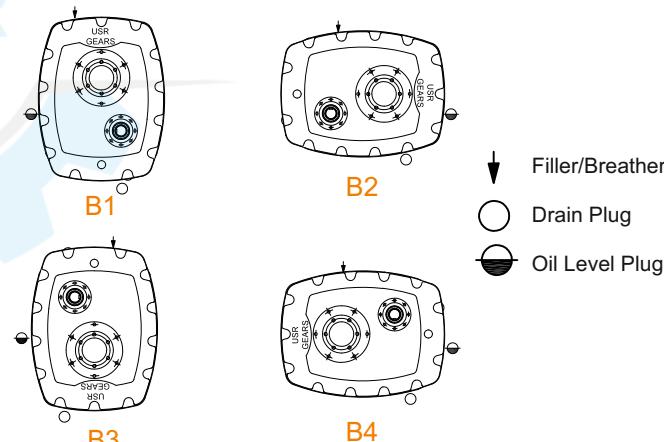
### Oil Quantity for Mounting Positions

Unit Size	Mounting Position	Lubricant Quantity - Litres			
		Mounting Position			
		B1	B2	B3	B4
C	B1	0.5	0.5	0.5	0.6
D	B1	0.8	0.9	0.8	1.1
E	B1	1.2	1.7	1.4	1.8
F	B1	2.5	2.6	2.4	2.5
G	B1	3.3	3.2	3.2	3.3
H	B1	4.1	5.3	4.1	5.8
J	B1	5.7	8.6	5.9	8.6
C	B2	0.4	0.6	0.5	0.6
D	B2	0.7	0.9	0.8	0.9
E	B2	1	1.8	1.4	1.6
F	B2	2.3	2.6	2.4	2.2
G	B2	3	3.2	3.2	3.2
H	B2	3.8	5.5	4.2	5.1
J	B2	5.4	8.5	5.9	8.3
C	B3	0.4	0.6	0.5	0.6
D	B3	0.7	0.9	0.8	0.9
E	B3	1	1.8	1.4	1.6
F	B3	2.3	2.6	2.4	2.2
G	B3	3	3.2	3.2	3.2
H	B3	3.8	5.5	4.2	5.1
J	B3	5.4	8.5	5.9	8.3
C	B4	0.4	0.6	0.5	0.6
D	B4	0.7	0.9	0.8	0.9
E	B4	1	1.8	1.4	1.6
F	B4	2.3	2.6	2.4	2.2
G	B4	3	3.2	3.2	3.2
H	B4	3.8	5.5	4.2	5.1
J	B4	5.4	8.5	5.9	8.3

### Recommended Lubricant Grade

Size	13:1 and 20:1 Gearbox			5:1 Gearbox			
	CDEFGHJ	CDEFGHJ	CDEFGHJ	CDEFGHJ	CDEFGHJ	CD	EFGHJ
Ambient Temp °C	0-20 RPM	20-50 RPM	50-120 RPM	0-100 RPM	100-200 RPM	200-400 RPM	200-400 RPM
6 to 25	460	460	460	460	320	320	460
26 to 40	460	460	460	460	460	460	460

**Caution:** Overfilling can cause overheating, while insufficient oil may lead to gear damage and premature failure. Always maintain the correct oil level for safe and efficient gearbox performance.

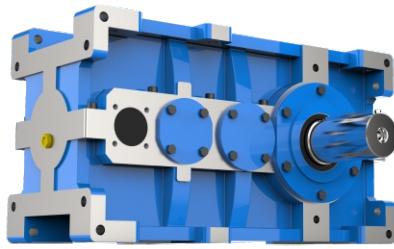


### Lubrication Instructions for SMSR Gearbox

The SMSR Gearboxes are supplied without oil and must be filled before operation. Always use the recommended grade of oil as per the lubrication chart, considering ambient temperature and output RPM. Oil quantity may vary depending on the gearbox model and mounting position—refer to the table for correct filling levels. Oil should be filled up to the level plug when the gearbox is stationary. Drain, flush, and refill the oil every six months, and check levels regularly. For different mounting positions, ensure the filler, breather, and drain plugs are correctly located as per the chart.



Planetary Gearbox



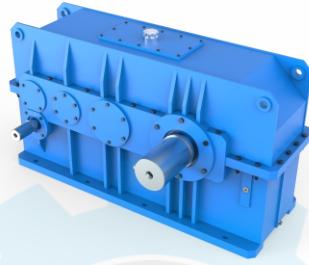
Helical Gearbox



Extruder Gearbox



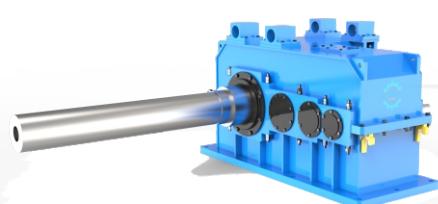
Inline Helical Gearbox



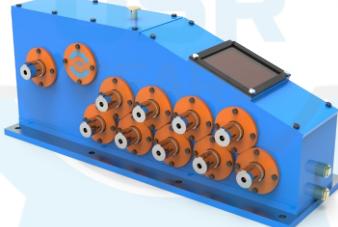
Crane Duty Gearbox



Twin Screw Extruder Gearbox



Recoiler Gearbox



Rolling Mill Gearbox



Loose Gears and Pinions

## UTTAM SPEED REDUCER EQUIPMETS PVT LTD

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SCAN TO CONNECT

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