



SCS

SCREW CONVEYORS



TECHNICAL CATALOG
ASSEMBLY-MAINTENANCE CATALOG
SPARE PARTS CATALOG



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Certificate

Standard **ISO 9001:2015**

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Standard **ISO 45001:2018**

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1. TECHNICAL CATALOG



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1.1 BASIC SAFETY WARNINGS

In compiling this instruction catalog, careful attention has been paid to all considerations of operation and maintenance during normal working conditions. Buyers/users are exclusively responsible in complying all laws, rules, and regulations in force in their country/area regarding safety of working environment and labour safety.

For matters which are not specified by the manufacturer in this catalog, as requirements of the applicable environmental process, safety, health care and other social responsibilities applicable laws, regulations, instructions and rules will be effective.

Particular care should be taken against all risks, danger and accidental incidents which may occur during the operation of the product.

This catalog contains description and recommendations for to guide set-up, start-up, operation, and maintenance procedures.

This catalog or its related parts should be kept close to the product with easy access for users. It is the buyer's/user's responsibility and authority to ensure the delivery of this catalog to related users of the product.

Never start any operation before reading this catalog completely.

The product is produced solely for its intended use. Please ask for manufacturer's approval for different applications.

The product shall be operated in and under normal operating conditions. Manufacturer is absolutely not responsible for any complications or their consequences in cases where alterations have been made without written consent of the manufacturer.

All protective and safety clothes, tools, devices and conditions have to be supplied by the user. The unit has to be fixed during and prior to any operation.

In order to perform assembly, maintenance, repair and cleaning on the product, according to 2006/42 EC the user must take all necessary precautions to ensure public safety, safety of the environment and its entities and also take all actions to prevent any harm that may involve third parties.

Requirements for pneumatic lines and air usage shall be completed by the user to meet air consumption according to technical specifications which are given in technical catalog.

Only fully qualified and authorized electricians should carry out electrical operations. Occupational safety and worker health requirements must be met. Electrical problems and their consequences are out of manufacturer's control and are not covered under warranty. The manufacturer cannot be held responsible for any damage to property, persons or third parties, arising from poor electrical workmanship.

Always ensure that the power is disconnected before each operation. It is vital important that Power button has to be managed by a qualified person to prevent uncontrolled opening and closing.

All electrical connections shall be executed by the user to ensure safe operation. Users also have to take necessary actions to avoid uncontrolled startup of machine by means of emergency stop and switches of sufficient amount.

Controlling the status of Voltage and frequency's compliance is important. The electrical earthing of the product must be proper, safety warnings should be clean and readable, and all operations should be according to EN 600079-14 and TS 60204-1 EN standards.

Do not start up, if the unit is not complete and/or not in proper condition. Do not interfere with the unit during

operation. Never approach while the units are operating. Never let tools, hand or head to approach to the operating zone during operation.

If you require further technical information or spares for your unit, please contact the manufacturer and it is necessary to inform all data such as serial number, type etc. which are written on the machine's plate.

Make sure that; all lifting/transportation operations must be conducted in accordance with the instructions specified in this catalog and the relevant standards. Lifting operations should be done with accessories and carrying systems suitable for unit dimensions and weight.

Manufacturer can modify the product without notice and immediate effect. All dimensions specified in the catalog are for nominal standard parts. Dimensions and features may change depending on the type of project, applications, material.

This catalog cannot be changed without informing the manufacturer. The latest version of the catalog is accessible at our web site www.ozb.com.tr.

1.2 SAFETY SYMBOLS

These signs are of a warning nature and do not eliminate the risk. These instructions and/or warnings are recommendations, which should be run in conjunction with the latest health and safety directives in accident prevention.

WARNING DANGER

Special indication, provision and prohibition to prevent injury to personnel.



ELECTRICAL POWER DANGER





1.3 UNIT DESCRIPTIONS

Screw conveyors are used in many different sectors for the purpose of feeding, conveying and dosing bulk solids materials.

SCS type screw conveyors are used for cement conveying in batching plants and similar applications.

Screw Conveyors, which can be produced in different diameters and lengths, provide material movements with the rotation of the flight inside.

SCS type screw conveyors generally consist of machine body consisting of a tubular body made up of one or more flanged sections, within which is housed a screw flight or worm-on-pipe.

The flight is rotated to transport the material from the point of intake to the point of discharge.

Drive unit consists of an electrical motor coupled to an inline gearbox unit with seal.

Hanger bearings ensure true alignment and smooth rotation of the flight-pipe.

Inspection hatches are positioned under the inlet and hanger bearings to ensure ease of access for maintenance or emergency procedures.

1.4 OPERATION CONDITIONS

Products are not designed to operate in explosive, flammable, toxic, hazardous viral or dangerous bacterial environments and/or materials. If the machine has to operate in these conditions, the manufacturer must be informed.

The appropriate use of the unit according to the food norms should be reported to the manufacturer at order although the unit has to be produced accordingly.

The appropriate use of the unit is designed for the following conditions:

- Proper ambient temperature: + 68°F / + 104°F
- Transported material temperature: <+ 104°F
- Maximum surface temperature: 212°F
- Pressure for general applications; It is designed to operate under positive/negative pressure
- Max working angle: 45°

1.5 PRODUCT LABEL

Every unit is supplied with identification plates showing;

- Manufacturer's information
- Manufacturer's web site
- CE logo
- Product code
- Production place

Do not throw away the labels on the unit and do not change the information on the label. Make sure that labels are clean and legible.

-
-

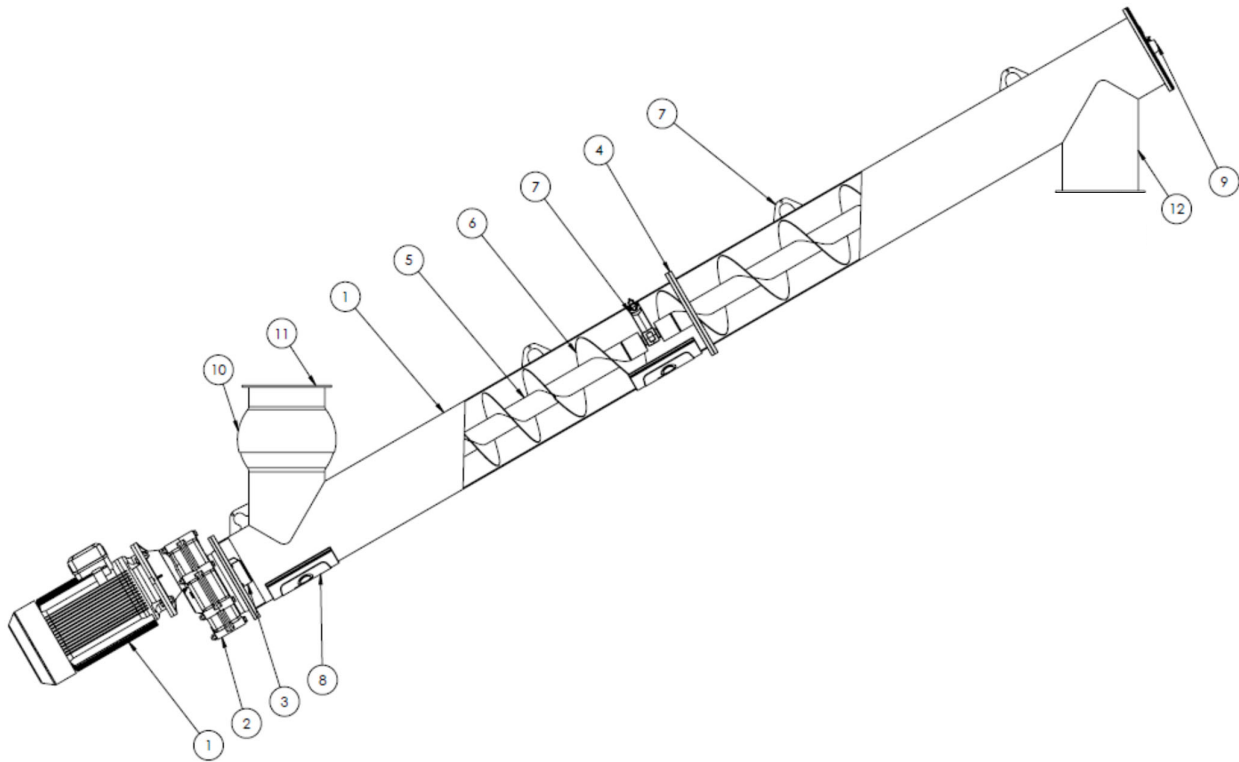
			
www.ozb.com.tr		ISO 9001	
Type	:		
Serial No	:		
Year	:		
Rotating Direction	→	Made in Turkey	

1.6 PRODUCT CODE KEY

1	2	3	4	5	6	7	8	9
SCS	273	8000	HBR130	7	11	300	C	30

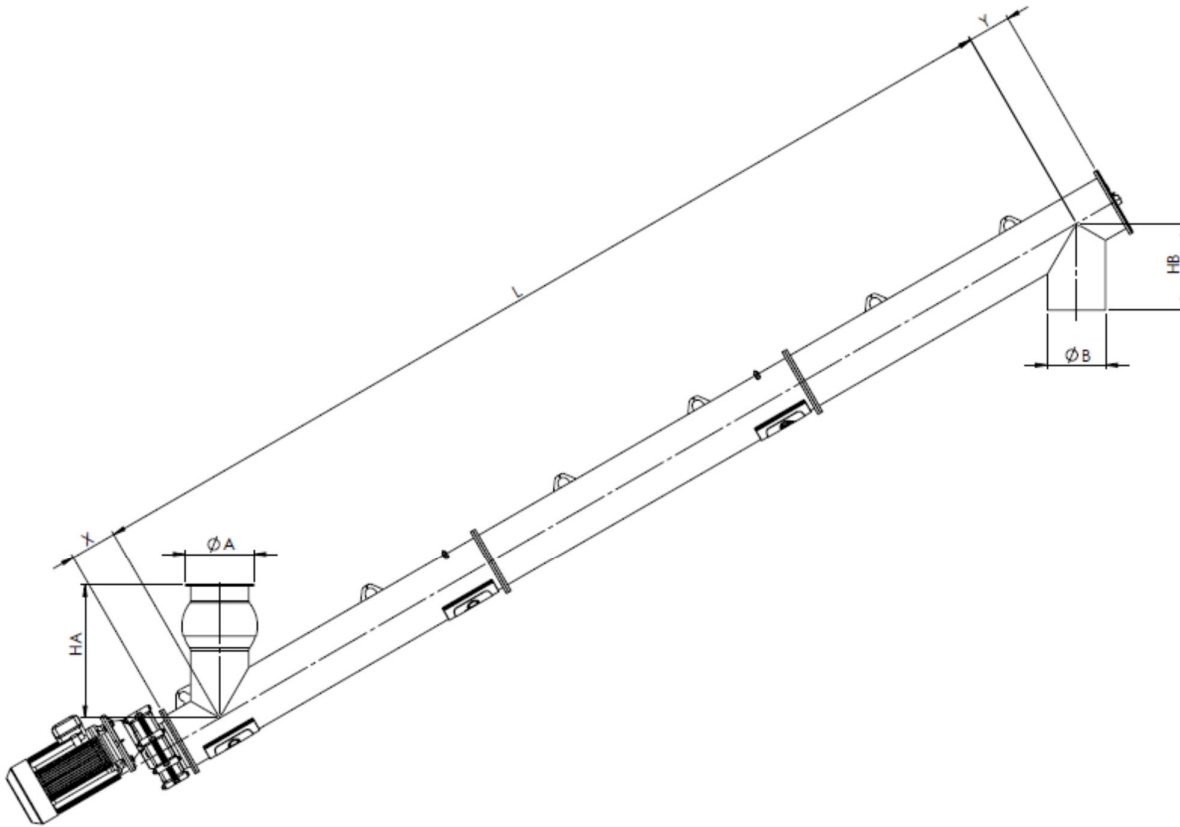
1	Screw conveyor code	Screw conveyor for cement in batching plants within standardized configuration	
2	Outer pipe diameter	114mm (4") , 139mm (5") , 168mm (6") , 193mm (7") , 219mm (8") , 273mm (10") , 323mm (12")	
3	Length from inlet centre to outlet centre	1.000mm(3ft 3") - 20.000 (65ft 7") mm	
4	Gearbox type	HBR	
5	Gear ratio	1/5, 1/7, 1/10	
6	Motor power	kW	1,5 kW (2.0Hp) - 22 kW (30.0 Hp)
7	Inlet Type	C	For 114mm (4") and 139mm (5") diameter conveyors; cylindrical and without flange
		200	For 168mm (6") and 193 mm (7") screw conveyors; swivel inlet with flange for 200 mm (8") butterfly valve
		250	For 219 mm (8") screw conveyors; swivel inlet with flange for 250 mm (10") butterfly valve
		300	For 273mm (10") and 323 mm (12") screw conveyors; swivel inlet with flange for 300 mm (12") butterfly valve
8	Outlet type	C	Cylindrical and without flange
9	Inclination	30	30°

1.7 COMPOSITIONS



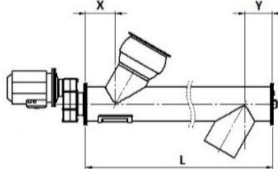
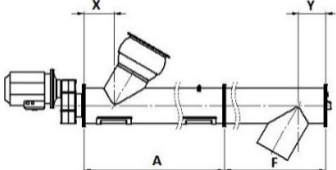
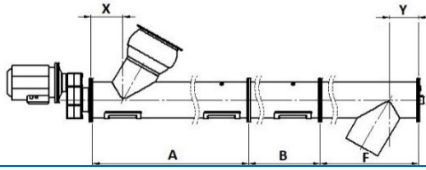
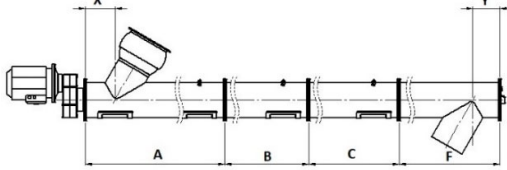
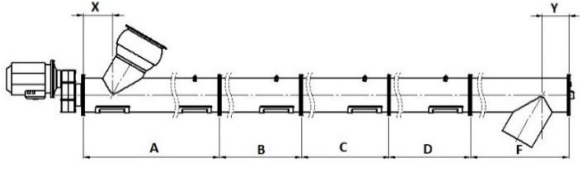
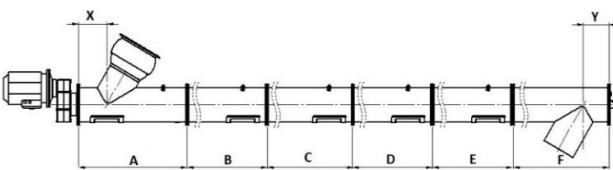
No	Description
1	Electric motor
2	Gearbox
3	Seal / Stuffing Box
4	Outer pipe connection flange
5	Shaft
6	Flight
7	Hanger bearing
8	Inspection hatch
9	End Bearing
10	Swivel inlet
11	Inlet flange
12	Outlet

1.8 OVERALL DIMENSIONS

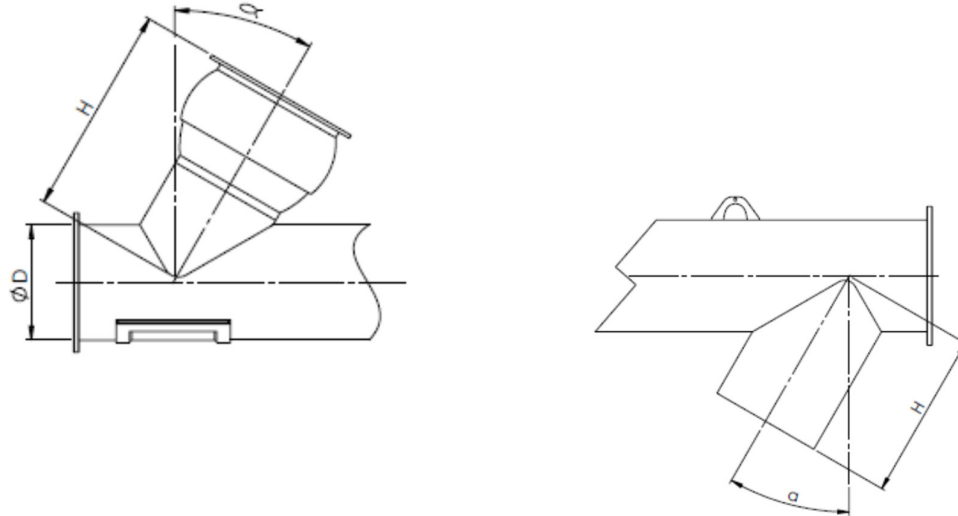


Ø D	4"	5"	6"	7"	8"	10"	12"
X (in)	5.5	5.5	7.8	7.8	7.8	9.2	10
Y (in)	4.7	4.7	7	7	7	8.5	9.5
L	On demand						
M	L + X+ Y						
A	On demand						
B	On demand						
HA	According to diameter						
HB	According to diameter						

	Ø 4"	Ø 5"	Ø 6"	Ø 7"	Ø 8"	Ø 10"	Ø 12"
X in	5.5	5.5	7.8	7.8	7.8	9.2	10
Y in	4.7	4.7	7	7	7	8.5	9.5

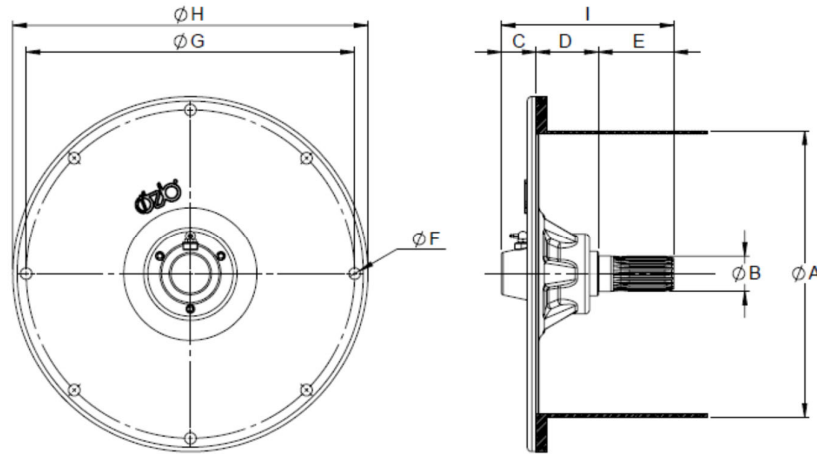
L	A	B	C	D	E	F	Figure
1' 8" - 11' 6"	L + X + Y 4' 1.6" - 13' 1.5"	-	-	-	-	-	
13' 1.5" - 21' 4"	9' 10"	-	-	-	-	4' 1.6" - 13' 1.5"	
22' 12" - 31' 2"	9' 10"	3' 3" - 11' 6"	-	-	-	9' 10" + X + Y	
33' - 41'	9' 10"	9' 10"	3' 3" - 11' 6"	-	-	9' 10" + X + Y	
42' 8" - 50' 10"	9' 10"	9' 10"	9' 10"	3' 3" - 11' 6"	-	9' 10" + X + Y	
52' 6" - 59'	9' 10"	9' 10"	9' 10"	9' 10"	3' 3" - 9' 10"	9' 10" + X + Y	

1.8.1 SWIVEL INLET-CYLINDRICAL OUTLET DIMENSIONS



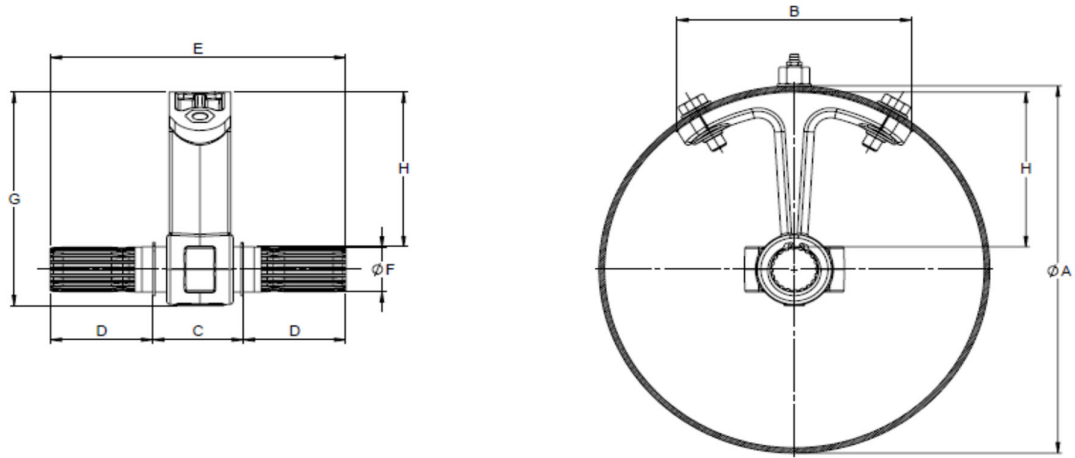
SWIVEL INLET		CYLINDRICAL OUTLET	
ØD	H Inclination $\alpha: 30^\circ$	ØD	H Inclination $\alpha: 30^\circ$
6"	14"	6"	10"
7"	15"	7"	11"
8"	19"	8"	13"
10"	22"	10"	16"
12"	28"	12"	19"

1.8.2 SCEB HEAD/END BEARING



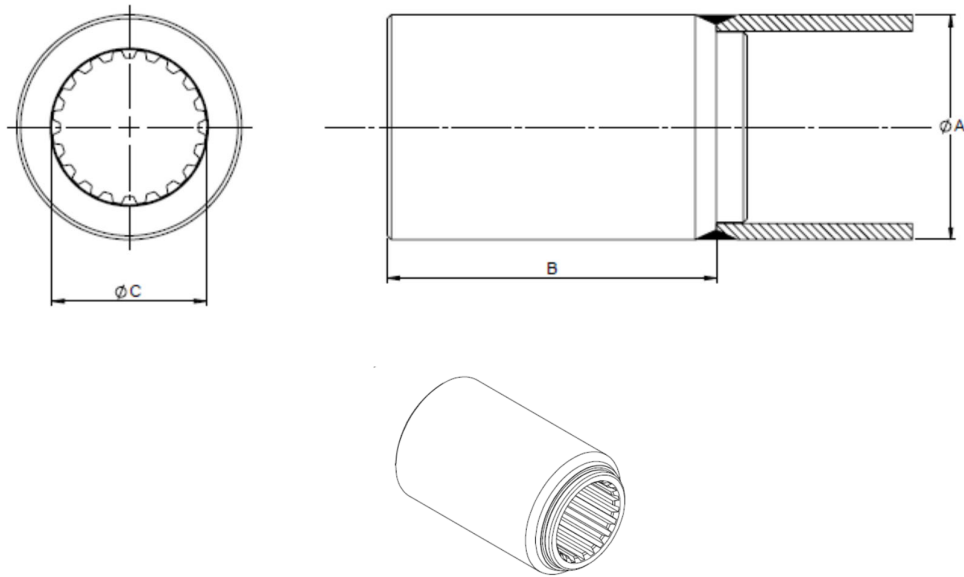
Code	ØA	ØB DIN5482	C (in)	D (in)	E (in)	Pcs x ØF mm	ØG (in)	ØH (in)	I (in)
SCEB.114	4"	28 x 25	2.1	2.1	2.5	4 x Ø0.35	6.7	7.5	6.8
SCEB.139	5"								
SCEB.168	6"	40 x 36	1.5	2.7	3.3	8 x Ø0.43	8.6	10	7.6
SCEB.193	7"						9.8	10.8	
SCEB.219	8"						12	13	
SCEB.273	10"						14.5	15.7	
SCEB.323	12"					8 x Ø0.51	14.5	15.7	

1.8.3 SCIB HANGER BEARING



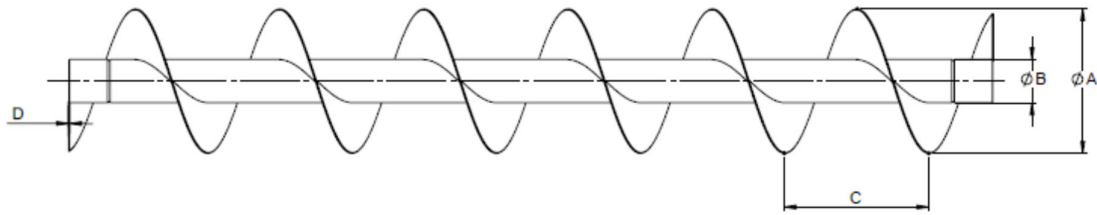
Code	Ø A (in)	B (in)	C (in)	D (in)	E (in)	Ø F DIN 5482	G (in)	H (in)
SCIB.114	4"	2.5	2	2.5	7	28 x 25	3.3	1.5
SCIB.139	5"	3.3					3.5	2
SCIB.168	6"	4.2	3	3.3	9.6	40 x 36	4.4	2.4
SCIB.193	7"	5					4.9	2.9
SCIB.219	8"	5.6					5.4	3.4
SCIB.273	10"	7					6.5	4
SCIB.323	12"	8.3					7.5	5

1.8.4 COUPLING



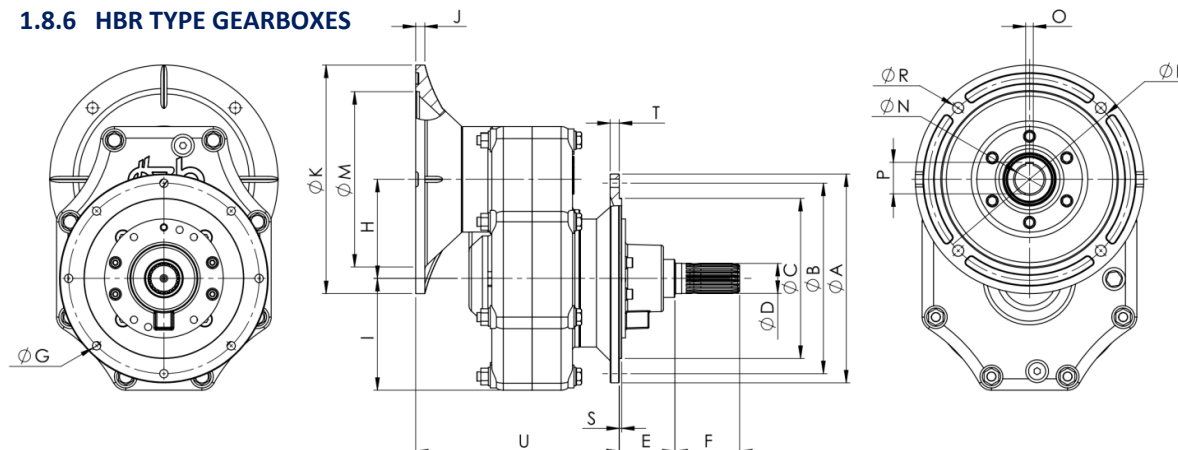
Diameter	$\varnothing A$ (in)	B (in)	$\varnothing C$ DIN 5482
4"	1.3	2.8	28 x 25
5"	1.9		
6"	2.3	3.3	40 x 36
7"			
8"			
10"			
12"	3.5	3.5	60 x 55

1.8.5 SHAFT AND FLIGHT



Diameter	A (in)	B (in)	C (in)	D (in)
4"	3.5	1.3	2.5/3.5	0.24
5"	4.7	1.9	3/5	0.24
6"	5.5	2.3	4/5.5	0.24
7"	6.7	2.3	5/7	0.24
8"	7.5	2.3	6/7.5	0.24
10"	9.5	2.3	8/9.5	0.24
12"	11.8	3.5	8/12	0.31

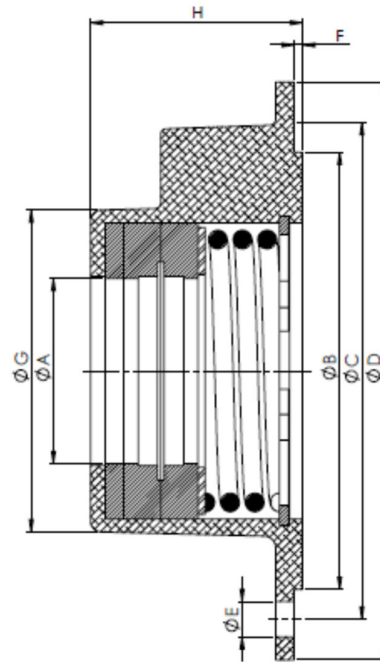
1.8.6 HBR TYPE GEARBOXES



Gearbox Type	ϕ Diameter	ϕA (in)	ϕB (in)	ϕC (in)	ϕD DIN5482	E (in)	F (in)	S (in)	T (in)	H (in)	I (in)	G	
												Pcs	ϕ
HBR 82	6"	9.8	8.6	6.3	40x36	2.8	3.4	0.08	0.4	3.2	3.6	8	M10
	7"			7.3									
HBR 100	6"	9.8	8.6	6.3	40x36	2.8	3.3	0.1	0.5	3.9	4.3	8	M10
	7"			7.3									
	8"	10.8	9.8	8.3									
	10"	13	12	10.5									
HBR 130	6"	9.8	8.6	6.3	40x36	2.8	3.3	0.1	0.5	5.1	5.8	8	M10
	7"			7.3									
	8"	10.8	9.8	8.3									
	10"	13	12	10.5									
HBR 162	12"	15.7	14.7	12.4	60x55	2.5	3.9	0.1	0.5	6.4	5.8	8	M10

Gearbox Type	Electric Motor		ϕK (in)	ϕL (in)	ϕM (in)	J (in)	U (in)				ϕN (in)	O (in)	P (in)	R (mm)
	IEC Size	Hp					$\phi 6$	$\phi 7$	$\phi 8$	$\phi 10$				
HBR 82	100 112	3 4 5	9.8	8.5	7.1	0.5	8		-		1.1	0.3	1.2	M12
HBR 100	112	5	9.8	8.5	7.1	0.5	8		-		1.1	0.3	1.2	M12
	132	7.5 10 12	11.8	10.4	9.1		10.3				1.5	0.4	1.6	M14
HBR 130	132	7.5 10 12	11.8	10.4	9.1	0.5	10.6				1.5	0.4	1.6	M14
	160	15 20	13.8	11.8	9.8		11.7				1.7	0.5	1.8	M16
HBR 162	160	15 20	13.8	11.8	9.8	0.6	-		11.9		1.7	0.5	1.8	M16
	180	25 30									48	14	51,8	

1.8.7 SEAL FOR HBR TYPE GEARBOXES



Type	Gearbox	Ø A (in)	Ø B (in)	Ø C (in)	Ø D (in)	E (in)	F (in)	Ø G (in)	H (in)
SCSS50	HBR 82 HBR 100 HBR 130	1.96	4.6	5.3	6.1	0.35	0.09	3.4	2.4
SCSS70	HBR 162	2.75					0.1	4.1	

1.8.8 ELECTRIC MOTOR

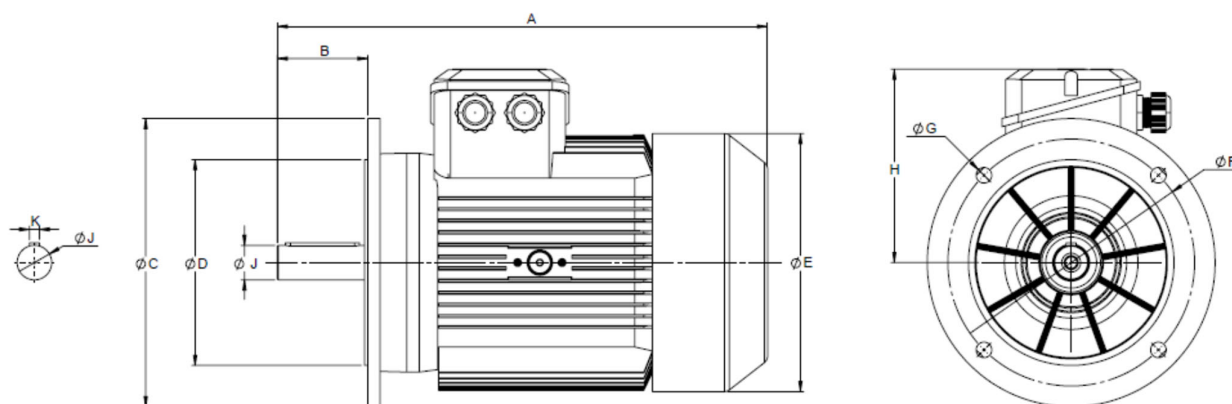
Revolution: nominal 1750 rpm

Voltage: 265/460V 60Hz

Protection class: IP 55

Insulation class: F

Flange: B5



Power (HP)	Body IEC size	A (in)	B (in)	Ø C (in)	Ø D (in)	Ø E (in)	Ø F (in)	Ø G (in)	H (in)	Ø J (in)	K (in)
2	90	14.0	2.0	7.9	5.1	6.9	6.5	0.5	5.6	0.9	0.3
3	100	15.4	2.4	9.8	7.1	7.7	8.5	0.6	6.3	1.1	0.3
4	100	15.6	2.4	9.8	7.1	7.7	84.8	0.6	6.3	1.1	0.3
5.5	112	15.8	3.1	9.8	7.1	8.7	8.5	0.6	6.7	1.1	0.3
7.5	132	17.1	3.1	11.8	9.1	10.2	10.4	0.6	7.6	1.5	0.4
10	132	17.1	3.1	11.8	9.1	10.2	10.4	0.6	7.6	1.5	0.4
12	132	18.9	4.3	11.8	9.1	10.2	10.4	0.6	7.6	1.5	0.4
15	160	23.5	4.3	13.8	9.8	12.4	11.8	0.7	9.3	1.7	0.5
20	160	25.8	4.3	13.8	9.8	12.4	11.8	0.7	9.3	1.7	0.5
25	180	29.3	4.3	13.8	9.8	14.1	11.8	0.7	10.2	1.9	0.6
30	180	29.3	4.3	13.8	9.8	14.1	11.8	0.7	10.2	1.9	0.6

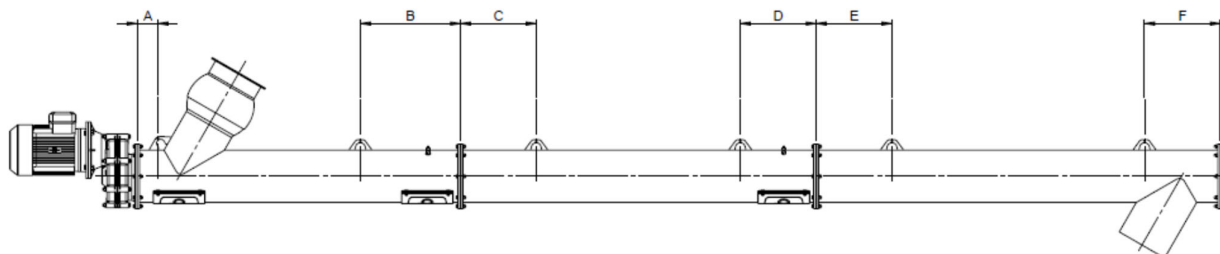
Nominal dimensions are given; dimensions will vary for different trademarks.

1.8.9 INSPECTION HATCH

Inspection hatches are available as standard at the inlet and under the hanger bearings. Inspection hatches; fully covered with EPDM, with its flexible structure connected from four points, it is compatible with the screw conveyor pipe and provides high sealing.

1.8.10 LIFTING EYES

There are two lifting eyes on each conveyor section. Dimensions given are nominal.



Diameter	A in	B (in)	C (in)	D (in)	E (in)	F (in)
4"	4	42	17.9	17.9	32	32
5"	4	42	17.9	17.9	32	32
6"	4	56.5	32.9	32.9	34.2	34.2
7"	4	56.5	26.4	26.4	24.5	24.5
8"	4	56	34.4	34.5	28.8	28.8
10"	4	55.7	32	32	34.5	34.5
12"	4	56.9	33.3	33.3	38	39.8

1.9 TECNICAL PROPERTIES

Specifications	Standard Configuration	Option
Outer pipe diameter	4", 5", 6", 7", 8", 10", 12"	None
Inlet type	4 & 5 inches, cylindrical inlet without flange For other diameters; swivel joint and flange for butterfly valve	None
Outlet type	Cylindrical without flange and same diameters with outer pipe	None
Additional inlet & outlet	None	None
Inlet end bearing	None	None
Outlet end bearing	SCEB	None
Hanger bearing	SCIB	None
Flight	Standard	None
Shaft	Specially formed & designed flight profiles, suitable for heavy duty applications	None
Inspection hatch	Fully cover with EPDM, at the inlet and under the hanger bearings	None
Gearbox	OZB brand, HBR type high efficiency, low noise, long life	None
Gear ratio	4 & 5 & 6 & 7 & 8in: 1/5 10 in: 1/7 12 in : 1/10	None
Electric motor	460V 60Hz Efficiency class: IE3 Protection class: IP 55 Insulation class: F (311°F) (155 °C)	None
Drive group position	Inlet side	None
Inclination	30°	None
Finishing	Sand blasted and powder coated nominal 80 microns	None

1.10 PACKAGING DIMENSIONS AND WEIGHTS

When receiving the units; check if the unit code and quantity are compatible with your order. Possible damages must be reported/informed to the authorized person of cargo/transportation company before taking the goods. The manufacturer is not responsible for any damage that may occur during transportation.

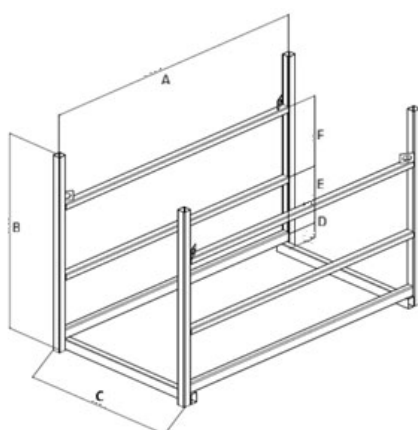
Steel Frame

For more than 3-4 pcs screw conveyors.

6 steel frames fit into one truck. Number of pieces in one steel frame vary due to diameter, given below.

Ø D	Nominal Section Quantity
4"	25-30*
5"	20-25*
6"	20-25*
7"	20-25*
8"	16-20*
10"	9-12*
12"	9-12*

* Pieces do not imply complete screw conveyor. Each one of inlet, intermediate and outlet parts are referred to as a piece.



A: 79"
B: 77"
C: 45"
D: 6"
E: 22"
F: 28"



**NOMINAL SCREW CONVEYOR WEIGHTS
WITH STANDARD DRIVE GROUP**

Length	Weight lb						
	Ø 4"	Ø 5"	Ø 6"	Ø 7"	Ø 8"	Ø 10"	Ø 12"
3' 3"	170	178	258	267	366	399	530
4' 11"	194	209	295	307	411	450	591
6' 6"	218	285	331	347	455	501	682
8' 2"	244	315	368	386	498	552	743
9' 10"	266	346	403	426	542	602	803
11' 6"	291	377	441	466	586	653	865
13'	315	408	461	505	588	779	1123
14' 9"	340	439	485	545	621	818	1195
16' 5"	364	483	511	688	690	874	1264
18'	388	514	536	728	716	911	1348
19' 8"	412	523	582	762	760	966	1482
21' 4"	430	553	613	807	793	1026	1570
22' 11.6"	498	595	696	879	903	1132	1643
24' 7"	522	625	724	912	935	1172	1716
26' 3"	547	655	753	952	970	1213	1846
27' 10.6"	571	685	781	992	1003	1258	1894
29' 6.3"	595	715	809	1032	1034	1294	1949
31' 2"			836	1072	1069	1340	2020
32' 9.7"			916	1112	1219	1442	2137
34' 5.4"			944	1151	1252	1483	2210
36' 1"			975	1191	1288	1523	2273
37' 8.8"			1001	1231	1319	1569	2322
39' 4"			1029	1296	1350	1605	2377
41'			1056	1335	1387	1651	2448
42' 8"			1108	1375	1475	1713	2538
44' 3"			1135		1508	1755	
45' 11"			1167		1543	2028	
47' 6.9"			1193		1576	2074	
49' 2"			1221		1608	2109	



2.

ASSEMBLY-MAINTENANCE CATALOG



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2.1 SAFETY CONDITIONS AND PROTECTIONS

It needs to be kept at nearest position available for the concerned personnel for installation, operation, maintenance, and repair staff.

This catalog is a guide for users. It is the user's responsibility to take all necessary precautions to ensure occupational safety, worker health, and safety of third parties as well as ensuring operations in accordance with local laws and regulations.

In order to perform assembly, maintenance, repair and cleaning on the product, according to 2006/42/EU, 2004/108/EU, 2006/95/EU Directives the user must take all necessary precautions to ensure public safety, safety of the environment and its entities and also take all actions to prevent any harm that may involve third parties.

In case of handling hot material over 140°F, it is the user's responsibility to assemble barriers and warnings in order to secure the workplace.

Apart from normal operating conditions, the product must be in safe position.

This unit may be working on dynamic forces, electrical energy and pressurized air and operates under important level of mechanical risk. Accidents that may arise due to any of the above or any combination of the above may result in catastrophic effects. Therefore, the user is responsible to supply maximum security in all stages and operations.

All related staff should be trained, authorised, and specialised. For all work to be done on the product, other than normal operation, the electrical connection must be cut, all movement stopped, pressurised air supply disconnected and the product must be in good condition and in park mode.

Only fully qualified and authorized electricians should conduct electrical operations. Occupational safety and worker health requirements must be met. Electrical problems and their consequences are out of manufacturer's control and are not covered under warranty. The manufacturer cannot be held responsible for any damages to property, persons or third parties, arising from poor electrical workmanship.

The user who is conducting the assembly is responsible for creating electrical circuits that will overcome all risks that may arise due to misuse during start, stop, emergency stop and maintenance.

It is necessary to check the compatibility of voltage and frequency. Operations should be conducted only by knowledgeable and authorised staff. In case air usage is required via pneumatic connections, the user should assemble a system to meet the requirements given on the technical information section.

The electrical earthing of the product must be proper, safety warnings should be clean and readable, and all operations should be according to EN 60204-1:2018 standard.

Before each operation, always ensure that the power is disconnected before commencing. It is vitally important that power on/off button has to be managed by a qualified person to prevent uncontrolled opening and closing.

Make sure that all moving parts are in absolute stop before each operation.

Always ensure that the dust inside the machine is completely settled.

Operators must use the following protection equipment during the maintenance and cleaning of the machine;

- Antistatic protective clothing
- Protective Helmets
- Antistatic cut-proof gloves
- Safety masks
- Antistatic protective shoes

After assembly, check that all operations are properly and fully completed, all bolts are tightened, all warning labels, barriers and safety accessories are proper.

Do not start operation if the product is not complete and fully mounted. Do not interrupt externally during operation. Never approach while the units are operating. Never let tools, hand or head to approach to the operating zone during operation.

In case modifications are made without written consent of the manufacturer, no responsibility will be assumed by the manufacturer in case of damage and their consequences.

The product may display different wear and results according to material used and working conditions. Therefore the user is required to develop practices other than those given in this catalog.

During the practice of below maintenance notes, situations that may result in harm to humans or machines or which prevent the product from working may occur. All inspections and maintenance must be done when product is in safe position.

Maintenance staff must be fully qualified. Tools for lifting and stabilizing must be used. No humans must be present during lifting and carrying operations.

It is important to use original parts or parts that have the required specifications.

It is possible that problems may occur, and the product may be declared out of warranty in case maintenance work is carried out without full compliance with this maintenance guideline.

2.2 ASSEMBLY

Please consult assembly instructions, which can be found inside of each product package.

Carefully follow all technical, safety and worker health instructions during the assembly and the operation of the unit.

For right terminal connections of the unit, please double check voltage, frequency, local regulations and procedures.

Disconnect from all mains before opening the unit.

Start up the unit only when the cover is closed.

Provide protection for relay contacts and output transistors to protect the device against spikes with inductive loads.

A voltage-disconnecting switch must be provided near the device.

In the case of inexpert handling or handling malpractice, the electric safety of the device cannot be guaranteed.

In the case of a defect, the distribution voltage must automatically be cut off by a protective switch so as to protect the user of the device from indirect contact with dangerous electric tensions.

All field wirings must have insulation suitable for at least 250VAC. The temperature rating must be at least 194°F.

Protect the power of the device by means of a fuse.

The device body has to be earthed to avoid static charges. This is particularly important in pneumatic conveying applications, or with non-metallic containers.

Close the cover when all connections are completed and supply the power. Always check the voltage with a voltmeter.

All electrical connections must be made according to the given connection diagram: make sure the cable is sealed tightly inside the cable gland.

Make sure the electrical connections are made properly and tightly. Setting on the assembled unit is not recommended.

The screw conveyor may be consisting of one or more sections. The unit may be supplied with drive group (electric motor and gearbox or only gearbox without motor) or without drive group.

Open the motor housing and remove the protective packaging from the drive unit and handle the waste accordingly. If the screw conveyor consists of several sections, remove the flight restriction U brackets sequence.

Lay the screw conveyor sections out in the correct. Make sure that the screw flight is free to rotate and check that there are not foreign parts present within the casing. Inspection hatches should be at the bottom, inlet opening at the top and outlet at the bottom.

Fit the parts carefully, place the klingrik gaskets between the flanges. Make sure that the female milling cutter in the coupling hub on the flight is matched with hanger bearing male filling cutter with smooth movements and that male-female matching is ensured. And in this state, assemble the parts.

Place the gasket properly and join the two parts with the bolt/nut set. Tighten the bolts crosswise to get a gap. Assemble the next part in the same way. Open the motor propeller housing. Control the flight by rotating the propeller with hand, 5 turns in both directions and check if it is working.

If there is an abnormal situation in the unit, untie the body joints and reassemble. Make sure that the conveyor is standing on a flat surface with a straight position. Tighten all flange bolts crosswise.

Once the screw has been assembled, lift only using the appropriate lifting eyes mounted to the back of the casing.

Never put your hands into a running screw conveyor.

Never open the inspection hatches screw conveyor is running.

Locate the screw conveyor in the correct position and adjust the swivel joint to the proper angle.

Connect the swivel joint first to the screw conveyor flange and then to the upper body with bolts. Tighten the bolts crosswise and weld the joint of the upper and lower parts of the swivel joint **by stripping welding**.

Hang the screw conveyors with lifting eyes at intervals of 2-3 m or assemble it with U supports from below. In order that the U-s do not restrict the movement of the screw conveyor; seating with rubber wedges and other elements will extend its life.

Never fix the outlet pipe to any fixed point. Make sure that the screw conveyor does not deflect in its loaded position. Inlet and outlet openings should not be kept open.

Do not operate if the electric motor propeller is open. Do not interfere with the conveyor in any way from outside during the operation.

Make sure that the inlets are properly connected to prevent foreign objects from entering the screw conveyor and to reduce the risk of possible accidents. Ideally each inlet should be fitted with a shut off valve.

Do not operate the screw conveyor if the inspection hatches open or removed and if the motor unit protective cover has been removed.

The maximum weight table required for lifting the screw conveyor is given below. Lift from the lifting eyes with the proper lifting angle indicated.

Ø D	Weight lbs
4"	110 + (40 x L)
5"	143 + (66 x L)
6"	298 + (77 x L)
7"	331 + (86 x L)
8"	419 + (99 x L)
10"	584 + (115 x L)
12"	694 + (154 x L)

2.3 START UP

Install the unit properly into the system. Make sure the electrical connection is made properly and tightly. Setting on the assembled unit is not recommended.

Before starting up the unit, make sure that no foreign bodies have entered during assembly if they have, remove them.

Make sure that all inspection hatches are closed before the operating the screw conveyor.

Devices must be designed in such a way that the conveyor and feeder stop as soon as the hatch is opened.

Ensure the intermediate and end support bearings are greased. Check that all the inspection doors are closed.

Provide suitable energy for the motor and check the direction of rotation. The motor should rotate clockwise and flight counterclockwise. Run the unit at idle and record the voltage.

Run the machine for max 2-3 minutes to observe and listen. Re-check the product and observe if heating has occurred on any component and/or abnormal noise, vibration occurs.

Check for noise, vibration and similar abnormalities, if any, fix the problems.

Gradually increase the load by opening the valve and in the meantime, record the current drawn. Compare with the current indicated on the motor label.

If screw conveyor is assembled in succession, ensure that the feeding screw conveyor Through put is lower than the throughput of the secondary screw conveyor. This allows the secondary conveyor to discharge the product quicker than it is being fed and minimizes the potential of product buildup.

IMPORTANT: All connections should be undertaken by qualified electrical personnel only. Occupational safety and employee health requirements must be complied with. Before carrying out any operation on the motor, make sure that the electrical supply is disconnected. The constructor declines to take any responsibility for any damage to property or persons, arising from poor electrical workmanship.

2.4 MAINTENANCE

Before maintenance procedures, all power lines must be disconnected.

Prior to each action, check that the energy lines are cut. It is vitally important to take precautions in order to prevent the on/off button of the power supply from being operated without authorization or control.

In case modifications are done without written consent of the manufacturer, no responsibility will be assumed by the manufacturer in case of damages and their consequences.

The product may display different wear and results according to material used and working conditions. Therefore, the user is required to develop practices other than those given in this manual.

During the practice of below maintenance notes, situations that may result in harm to humans or machines or which prevent the product from working may occur. All inspections and maintenance must be done when product is in safe position.

Supply and use safety equipment and tools that may be required for worker safety.

Maintenance staff must be fully qualified. Tools for lifting and stabilizing must be used. No humans must be present during lifting and carrying operations.

It is important to use original parts or parts that have the required specifications.

It is possible that problems may occur, and the product may be declared out of warranty in case maintenance work is conducted without full compliance to this maintenance guideline.

Daily maintenance:

Check the unit visually.

Check that the warning labels on the machine are present and in good condition.

Check oil level and leakage for gearbox

Check the electric motor cable and connections.

Check all the bolts and nuts present and they are tightened.

Check the inspection hatches.

Weekly maintenance:

Check the outlet chute for free flow the inspection hatches for leakage & hanger bearing bolts and the noise control for hanger bearings for wear.

Monthly maintenance:

Necessary checks for lubrication should be carried out once a month. The frequency of lubrication of the units and replacement of wearing parts depends on the operating conditions of the screw conveyor.

Every three months:

Wearing parts such as gasket, seal, hanger bearing etc. should be checked and replaced when necessary.

2.5 LUBRICATION

2.5.1 SCIB Hanger Bearing and SCEB End Bearing:

The recommended grease brands and codes that can be used for hanger bearings and End Bearings are given below.

Type of Greases	Brand
GR-MU2	AGIP
ARALUP HL2	ARAL
BP-ENGERGREASE L2	BP
CALYPSOLH 433	CALYPSOL
ANDOK B	ESSO
MOBILUX 2	EXXON/MOBIL
MOBIPLX 47	EXXON/MOBIL
ALVANIA 2	SHELL
GLISSANDO FL 20	TEXACO
MULTIFAK 2	CHEVRON

2.5.2 HBR Gearboxes:

After the first 500 hours of operation, replace the oil completely. Then, periodically check the lubricant level and change the oil every 3000 hours of work. Below is a table showing the type and brand name of recommended greases.

TYPE	BRAND
DT-220	API
OMALA 220	SHELL
TIVELA OIL WA	SHELL
PONTIAX HD	IP
ENERGOL SG 150	BP
MOBILGEAR 629	MOBIL

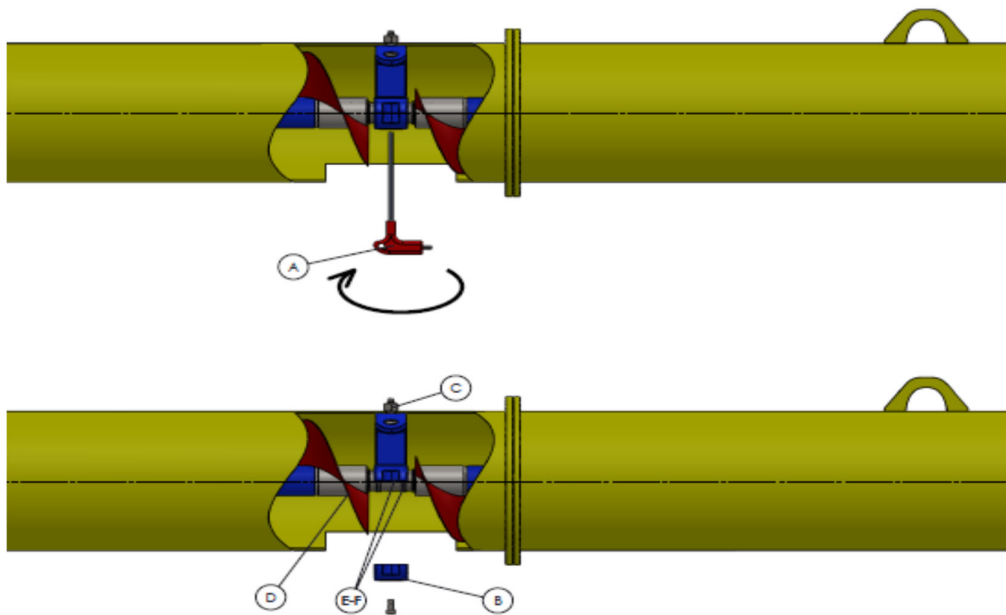
GEARBOX TYPE	RECOMMENDED GEARBOX OIL CAPACITY ACCORDING TO SCREW CONVEYOR INCLINATION	
	$0^{\circ} \leq \alpha \leq 15^{\circ}$	$16^{\circ} \leq \alpha \leq 45^{\circ}$
HBR 82	1.2 L (1.27 qt)	1.4 L (1.48 qt)
	1.5 L (1.59 qt)	1.8 L (1.90 qt)
HBR 100	1.9 L (2.01 qt)	2.4 L (2.54 qt)
HBR 130	2.0 L (2.11 qt)	2.8 L (2.96 qt)
HBR 162	3.5 L (3.70 qt)	4.9 L (5.18 qt)

2.6 REPLACEMENT OF COMPONENTS

2.6.1 SCIB Hanger Bearing

The hanger bearings should be regularly inspected and routinely replaced every 2 years. To replace the hanger bearing, please follow the recommendation below:

1. Ensure that the conveyor is not fed with material.
2. Run the screw conveyor until it is empty.
3. Disconnect voltage supply, if necessary remove wires on motor's terminal board.
4. Open the inspection hatch under the hanger bearing.
5. Remove the fixing screws (B), located on the lower cap of the support, by using a screwdriver (A).
6. Remove the fixing bolts (C).
7. Remove the hanger bearing by rotating upside down and replace it with a new one.
8. Follow this procedure backwards to reassemble the unit.

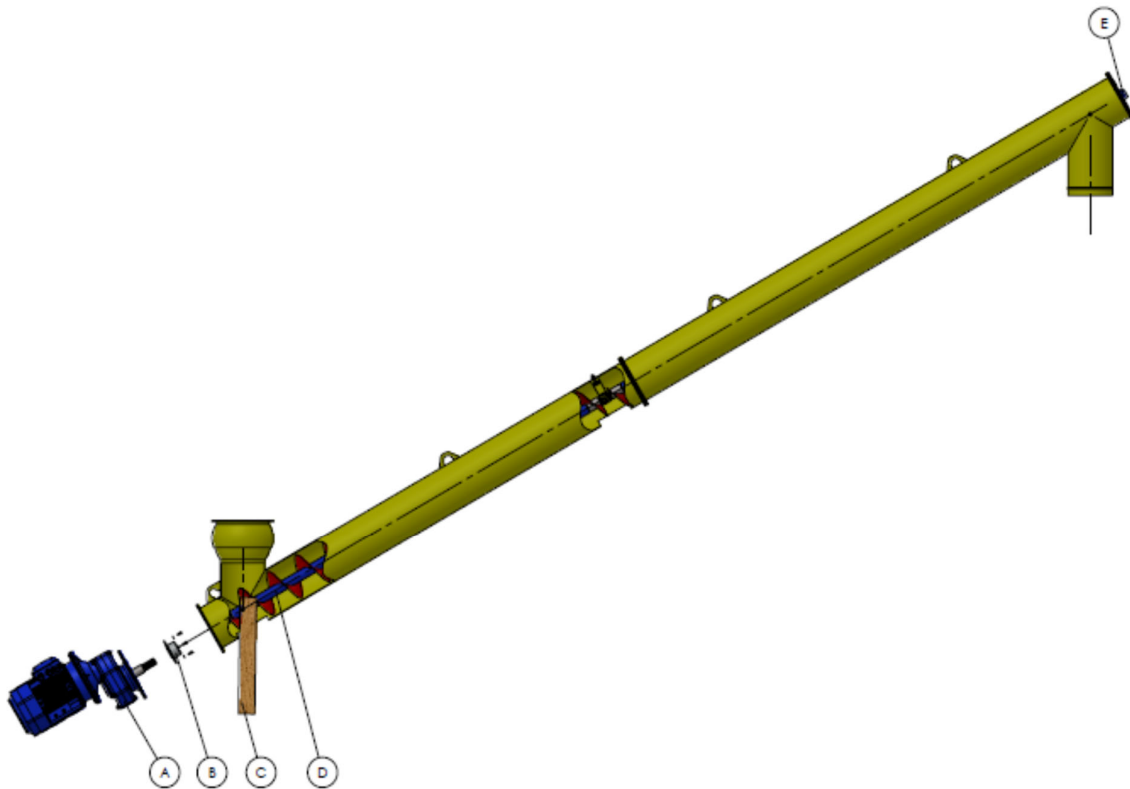


2.6.2 SCSS Seal /Stuffing boxes

This unit, which is directly mounted on the inner flange of the gearbox, should be replaced in 1-2 years depending on the type and source of cement. This period will be shorter for highly abrasive materials and applications. Dust coming from the lower of the gearbox is a sign for the replacement of the seal.

1. Ensure that the conveyor is not fed with material.
2. Run the screw conveyor until it is empty.
3. Disconnect voltage supply, if necessary remove wires on motor's terminal board.
4. Carefully unscrew the inspection hatch under the inlet while ensuring the material inside the conveyor is collected into a bin.
5. To prevent the flight from slipping back, place a 4x4 or 4x2 wooden plank (C) between it and the outer pipe and secure it.
6. Remove the fixing screws (D) to take out the drive group. (A)
7. Remove the stuffing box (B) and replace it with a new one.
8. Follow this procedure backwards to reassemble the unit.

NOTE: Follow same procedure to replace the seal on the end bearing (E)



2.7 DEMOLITION

At the end of the working life of the screw, demolish it according to the following recommendations: plastic parts consigning them to the authorized collection centres.

2.8 DEFINING PROBLEMS AND TROUBLE SHOOTING

Below are some guidelines regarding problems that may occur during the operation of the product.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Motor does not start	Wiring is wrong One of the fuses is burnt Defective motor or failure in supply voltage	Check the wiring on the terminal board Replace the fuse Repair or replace defective part
Motor does start but then stops	Blockage in the screw Outlet is blocked Screw is rotating in the wrong direction Excessive throughput Motor burnt Gearbox or end bearing defective	Remove the obstruction Remove the blockage Inver polarity on the motor Reduce product intake from the silo Replace motor Replace the concerned part
Motor does start but no product is being discharged	Product does not enter the screw because it is not suitably aerated The screw is rotating in the wrong direction	Improve aeration in the silo Invert polarity on the motor

2.8.1 POSSIBLE CAUSES OF FAULT

- a) There is condensed water in pressurized air and lumps, crusts and blocks are formed, such abnormal blocks could enter into screw conveyor which results with blocking of the screw conveyor
- b) Screw conveyor is parked full and result is blocked system.
- c) Excessive loading is applied by motor to overcome the blocking forces, and motor is damaged which results with reduced power. Check the consumed amperes.
- d) If any modification is done on the screw conveyor, please check and supply the original form.

TROUBLE DEFINITION

1) SCREW CONVEYOR:

- a) Is the blocking present on all silos and all the time?
- b) Is the screw conveyor parked empty?
- c) Blocking;
 - Does it occur at start up?
 - Does it occur at any time during normal operation?
 - Are there thermal relay and similar protection facilities and do they run properly?
 - How could you eliminate blockage?
 - Have you inspected any lumps, and /or contaminants or external solid objects?
 - Is there any certain period of time for blockage(s) to occur? e.g.: in the mornings or in the afternoon? Or after filling the silo? Or when silo empty?
- d) Read the consumed current during start up and check if within the limits of the motor?
- e) What is the greasing/maintenance frequency of the head and hanger bearings?
What is the type of grease used?
What is the quantity of grease?
- f) Check the hanger bearings for wear or blocking. Check if the hanger bearings are correctly installed? Are the inspection hatches point down?
- g) Check the mechanical seal on the gearbox?
- h) Check the relief gap opening on the gearbox body. It shall be clean and open?
- i) Check the oil type quantity and service life for the gearbox?
- j) Is there any noise when screw conveyor is running, at idle & at loaded condition, what is it like?

2) ELECTRIC MOTOR:

a) Check the cable and connection star or delta?

b) What is the current consumption? Read and record the amperage when the screw conveyor is idle, filled and at full operation.

c) Check;

- the bearings
- cooling fans
- surfaces of the body (to be clean)
- heat level of the motor

3) SILO AND FEEDING TO THE SCREW CONVEYOR

a) Are the inner surfaces of the silo cone checked? Are the cone inner surfaces clean?

b) The air injection tools, jets / pads should be clean, and penetration of air shall be proper.

c) In the air line to the fluidizing nozzles;

- What is the pressure at the air supply line to fluidifier?
- Is the air injection organized continuous or intermittent?
- Is there air conditioner or dryer on the system?
- What is the filling time of the water drop?

And at what period is the trapped condensed water discharged?

d) Check if the silo outlet valve is opened.

4) MATERIAL INFORMATION

- a) What is the conveying/feeding material?
- b) What is the density of material?
- c) What is the particle size of material?
- d) How is the flowability of material?
- e) How is the abrasiveness of material?
- f) What is the humidity percentages of material?

2.8.2 DEFINING PROBLEMS WITH SCERW CONVEYOR AND INFORMATION FORM

1.) Screw conveyor

Diameter (in):

Length (ft):

Number of parts (pcs):

Serial number:

2.) Control of work done, by consumed current material conveyed to the weighing hopper

Time	Amper	Material weighed (lbs.)
10sec		
20sec		
30sec		
40sec		
50sec		

Please use a simple amperemeter around the energy cable of the electric motor and note the current and material weighed.

3.) Data of electric motor

Power (hp):

Amper (A):

Revolution (rpm):

Frequency (Hz):

4.) Please investigate the actual speed of motor

5.) Data of gearbox

Trademark:

Gear ratio:

Type:

6.) Screw conveyors data

Product code:

Model:

Serial Number:

Complementary:

Commissioning date:

The date the problem started:

Explanations:

Observations:

Requests:



3.

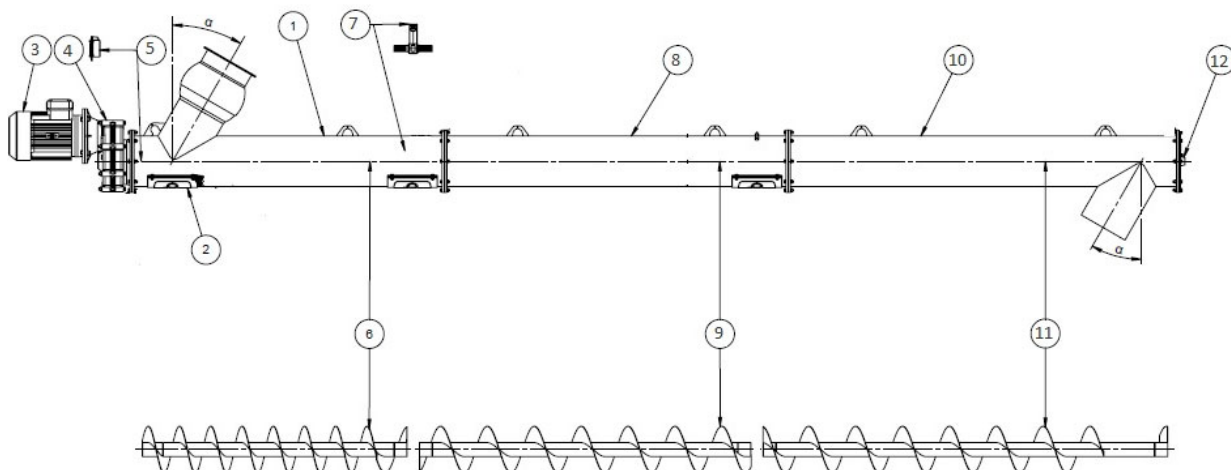
SPARE PARTS CATALOG



OZB USA
2838 Jordan Oaks Ln
Decatur GA, 30033

www.ozb-usa.com
sales@ozb-usa.com
404-610-4334

If you require spares for your unit, please contact the manufacturer and it is necessary to inform all data such as serial number, type etc. which are written on the machine's plate. Do not use non-original parts.



No	Description
1	Outer pipe -inlet part
2	Inspection hatch
3	Electric motor
4	Gearbox
5	Seal
6	Flight + shaft - inlet part
7	Hanger bearing
8	Outer pipe -intermediate part
9	Flight + shaft - intermediate part
10	Outer pipe -outlet part
11	Flight + shaft - outlet part
12	Outlet end bearing

Hanger Bearing 	Ø	Kod Code
	4	SCIB.114
	5	SCIB.139
	6	SCIB.168
	7	SCIB.193
	8	SCIB.219
	10	SCIB.273
	12	SCIB.323

End/End Bearing 	Ø	Code
	4	SCEB.114
	5	SCEB.139
	6	SCEB.168
	7	SCEB.193
	8	SCEB.219
	10	SCEB.273
	12	SCEB.323

Inspection Hatch 	Ø	Code
	4	SCIH.114
	5	SCIH.139
	6	SCIH.168
	7	SCIH.193
	8	SCIH.219
	10	SCIH.273
	12	SCIH.323

Seal/Stuffing Box 	Type	Code
	SCSS050	HBR82 HBR100 HBR130
	SCSS070	HBR162