

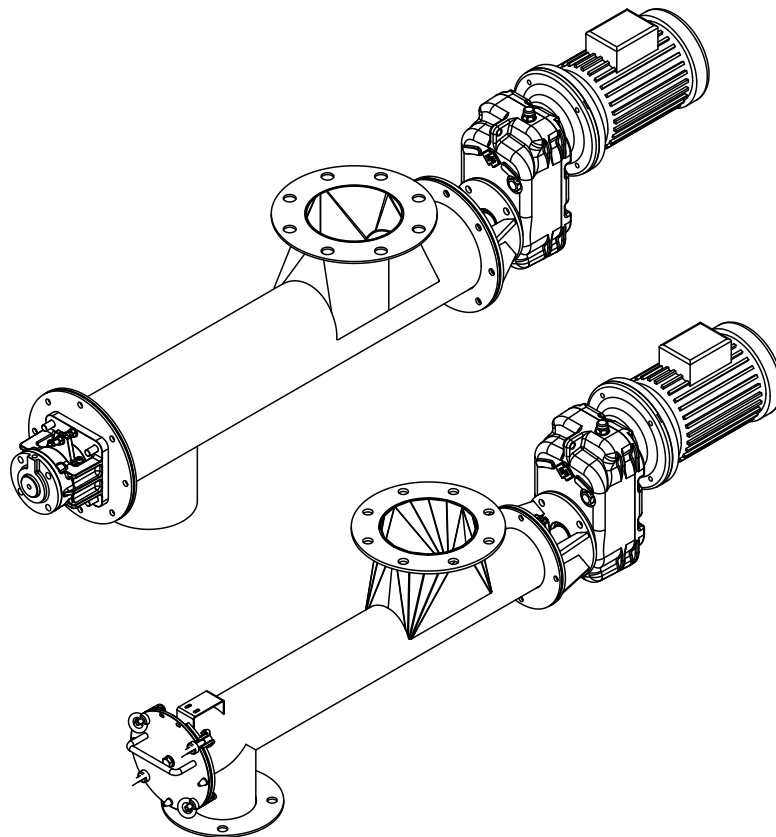


TXF

*SCREW FEEDERS AND
CONVEYORS FOR FOOD*

3

SPARE PARTS CATALOGUE



Manual No. CON.239.--R.EN Issue: A
Latest Update: November 2015

ORIGINAL INSTRUCTIONS IN ENGLISH

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WAM[®]



All the products described in this catalogue are manufactured according to **WAMGROUP S.p.A. Quality System procedures**. The Company's Quality System, certified in July 1994 according to International Standards **UNI EN ISO 9002** and extended to the latest release of **UNI EN ISO 9001**, ensures that the entire production process, starting from the processing of the order to the technical service after delivery, is carried out in a controlled manner that guarantees the quality standard of the product.

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SUMMARY

1.0 SPARE PARTS..... 1

ORDERING SPARE PARTS

A) Steel fabricated parts and bearing assemblies

Please indicate serial n° of the conveyor applied on each trough section, as well as page and item n° in this catalogue of the part concerned. Also indicate the quantity of parts required taking into consideration the minimum supply given in the price list.

B) Gear reduction units and electric motors

Instead of the screw serial n°, indicate serial n° of gear reduction unit or of the electric motor and add information requested in paragraph A).

Parts not included in price list cannot be supplied.

These are:

- 1) Standard parts if not included in kits.
- 2) Item numbers in brackets, i.e. single parts included in kits.

Check minimum supply before making an order.

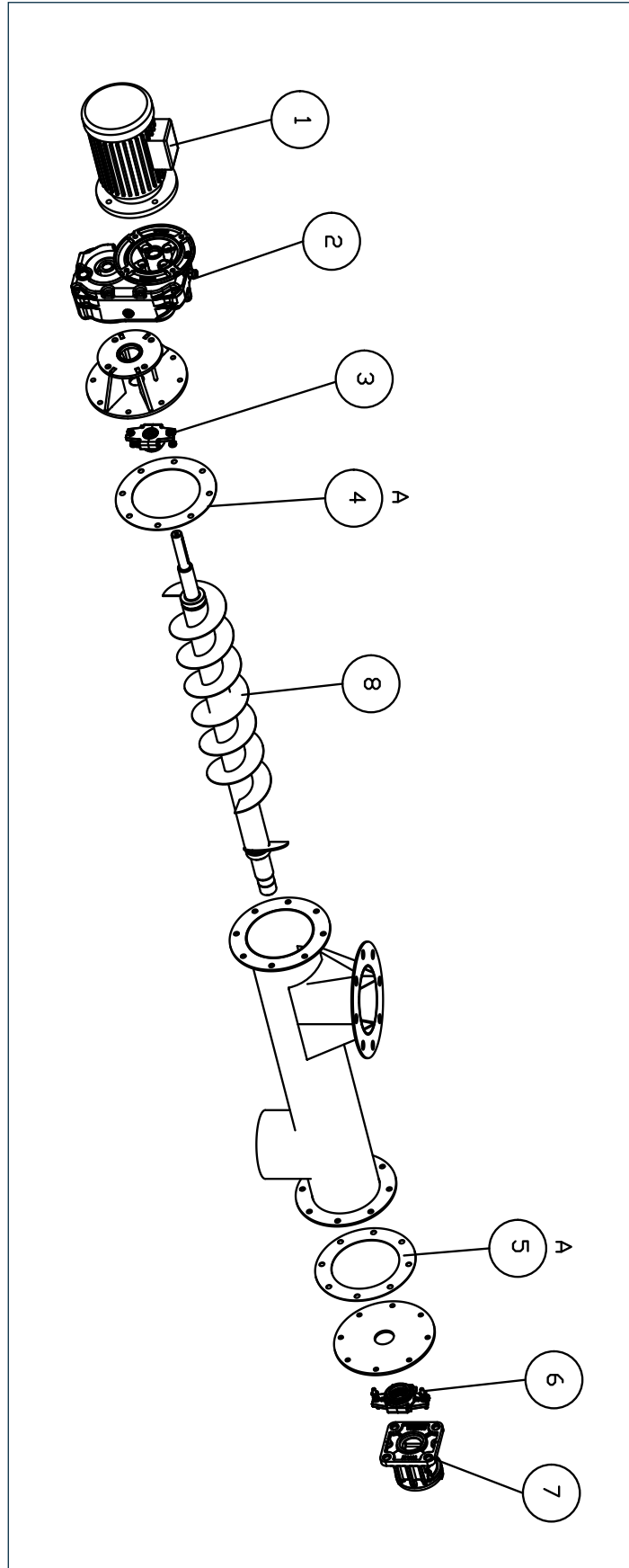
General Supply Conditions are valid.



Important

The spare part must be decontaminated and sanitized prior to the contact with the food; the responsibility of aforesaid operation is to be borne by the product user.

VERSION WITH END BEARING



1.0 SPARE PARTS

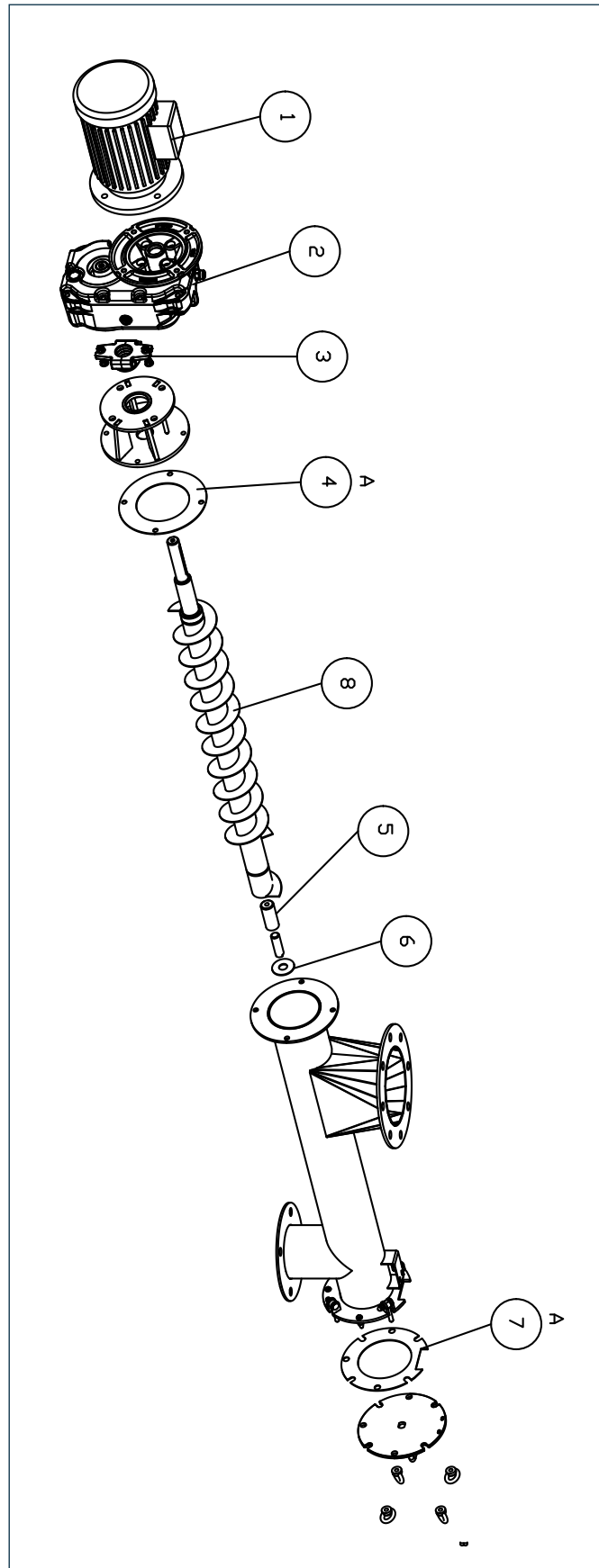
Item	Qty	Description
1	1	Motor*
2	1	Gearbox**
3	1	Sealing for gearbox
4	1	Gasket inlet side (A)
5	1	Gasket outlet side (A)
6	1	Sealing for end bearing
7	1	End bearing
8	1	Complete screw

* see MT spare parts catalogue

** see S4 spare parts catalogue

A - the parts with letter a will be provided as a single kit

VERSION WITHOUT END BEARING



1.0 SPARE PARTS

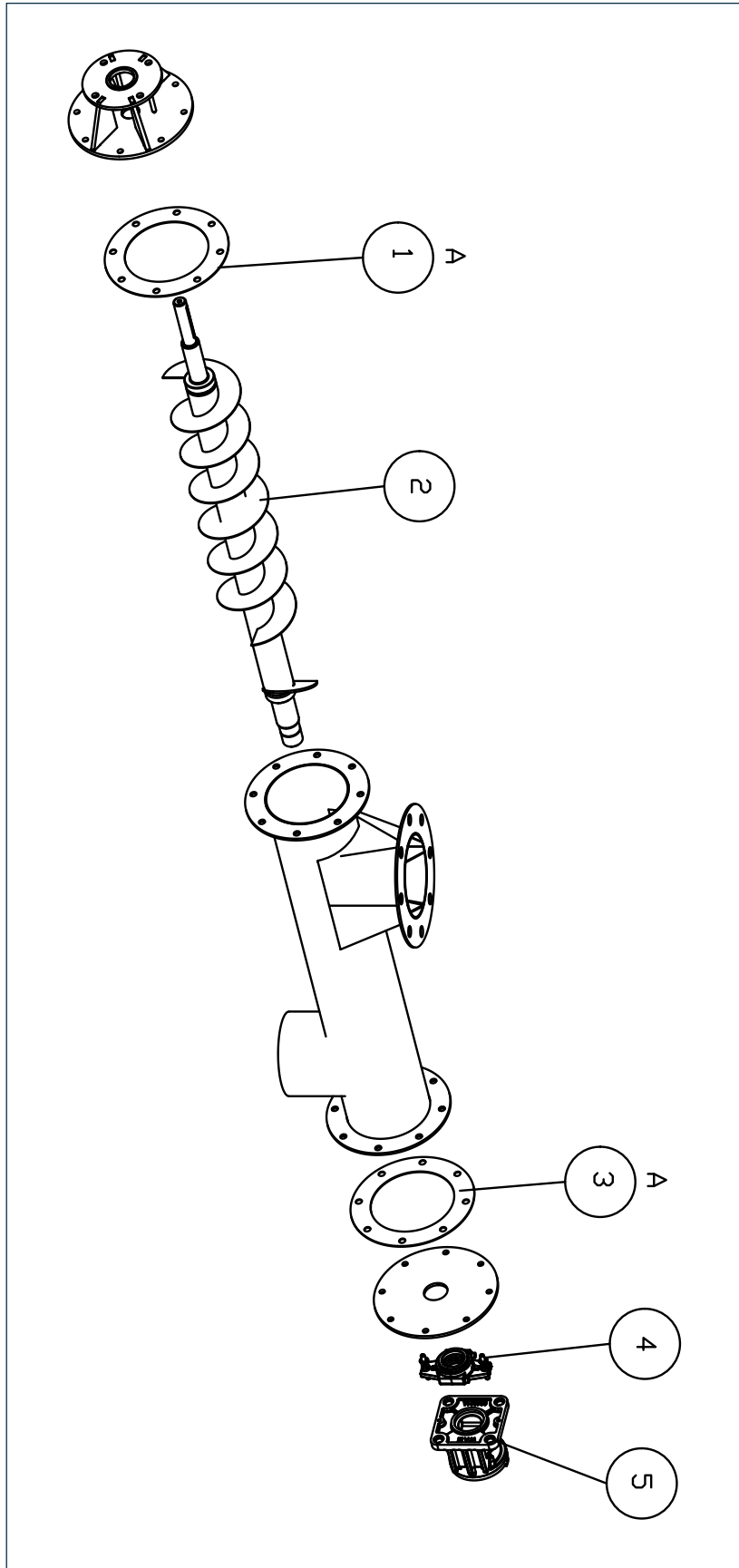
Item	Qty	Description
1	1	Motor*
2	1	Gearbox**
3	1	Sealing for gearbox
4	1	Sealing inlet side (A)
5	1	Plastic wearing bush
6	1	Plastic wearing ring
7	1	Gasket outlet side (A)
8	1	Complete screw

* see MT spare parts catalogue

** see S4 spare parts catalogue

A - the parts with letter a will be provided as a single kit

BARE SHAFT VERSION WITH END BEARING



1.0 SPARE PARTS

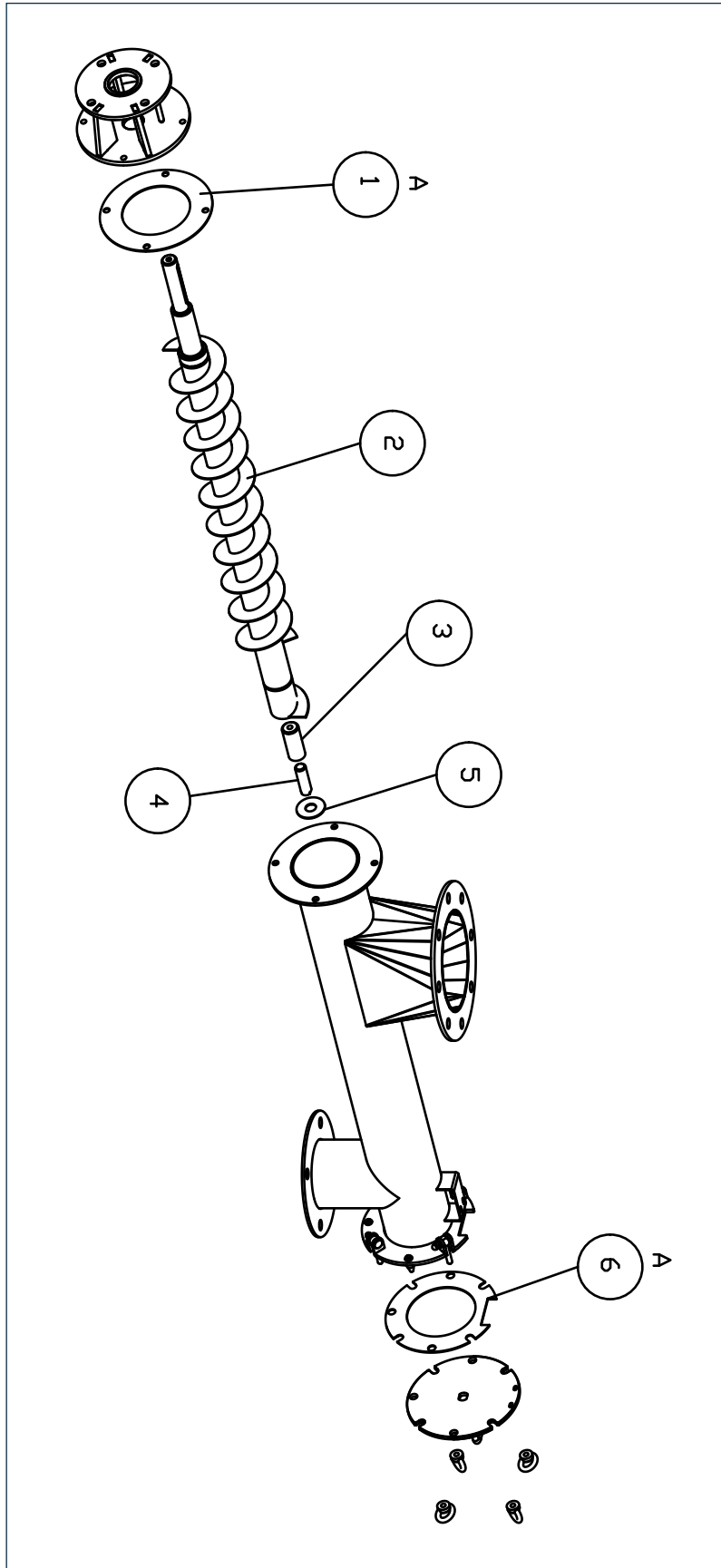
Item	Qty	Description
1	1	Gasket inlet side (A)
2	1	Complete screw
3	1	Gasket outlet side (A)
4	1	Sealing for end bearing
5	1	End bearing

* see MT spare parts catalogue

** see S4 spare parts catalogue

A - the parts with letter a will be provided as a single kit

BARE SHAFT VERSION WITHOUT END BEARING



1.0 SPARE PARTS

Item	Qty	Description
1	1	Sealing inlet side (A)
2	1	Complete screw
3	1	Plastic wearing bush
4	1	Pin for spiral
5	1	Plastic wearing ring
6	1	Gasket outlet side (A)

* see MT spare parts catalogue

** see S4 spare parts catalogue

A - the parts with letter a will be provided as a single kit

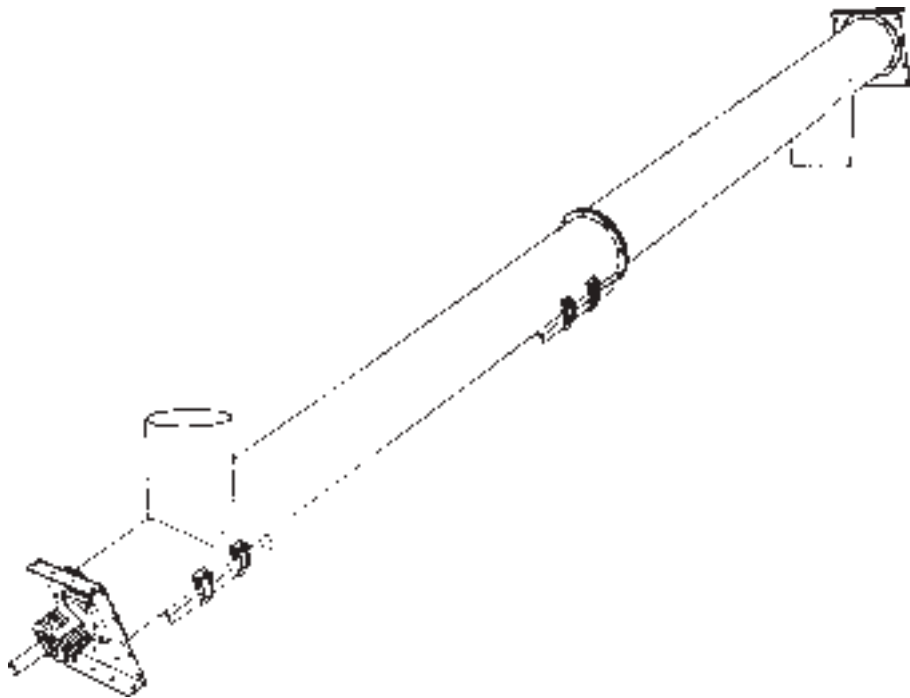


TX-TXF (TX-AN, TO)

*STAINLESS STEEL
TUBULAR SCREW
CONVEYORS*

1

TECHNICAL CATALOGUE



Manual No. CON.116.--.t.EN Issue: A
Latest update: December 2015

ORIGINAL INSTRUCTIONS IN ENGLISH

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TABLE OF CONtEntS

1.0 DESCRIPTION OF THE EQUIPMENT 1

1.1 Description 1

1.2 Codes and abbreviations 2

1.3 Main components TX, TX-AN, TO..... 3

1.4 Main components tXF 4

2.0 ENVIRONMENTAL OPERATING LIMITS 5

3.0 STANDARD MACHINE 6

3.1 Standard machine description..... 6

3.2 Dimensions 16

4.0 OPTIONS AND ACCESSORIES 19

4.1 Spouts 21

4.2 Flanges 35

4.3 Hatches and drop bottoms 42

4.4 Gear reducers and seals 50

4.5 Transmission 57

4.6 Other 63

5.0 WEIGHTS 73

6.0 ELECTRICAL REQUIREMENTS 75

7.0 CONFIGURATIONS 77

1.1 Description

tXE_L = stainless steel tubular screw feeder, (SS 304 L, SS 316 L), equipped with gear reducer.

tXE_N = same as **tXE_L** , but in the bare shaft version.

tXC_L = stainless steel tubular screw conveyor, (SS 304 L, SS 316 L), equipped with gear reducer.

tXC_N = same as **tXC_L** , but in the bare shaft version.

tXS_L = stainless steel tubular screw conveyor, (SS 304 L, SS 316 L), with no intermediate end bearing, equipped with gear reducer.

tXS_N = same as **tXS_L** , but in the bare shaft version.

tXF = stainless steel tubular screw conveyor (AISI 304 L, AISI 316 L) for FOOD applications.



Danger - Warning

It is forbidden to commission the screw feeder/ conveyor before the equipment on which it is installed has been declared compliant with the provisions of directive 14/06/1982 (89/392/EEC).

The plant fitter/installer is in charge with providing and installing the devices/protections necessary to avoid damage to persons and things in case of brake-downs and ensuing falling off pieces (for example: motor failure).

For products which are hazardous or dangerous to contact and/or inhalation, which are flammable, explosive and dangerous from the bacteriological and/or viral point of view, the installers must provide all the necessary devices for the purpose.

These machines have been designed to convey food products.



Important

these machines have been designed to convey food products.

Each WAMGROUP product must undergo DECONTAMINATION and SANITATION (carried out by the customer) before going into contact with food products.

NOTE: By food we intend a substance that is meant for direct or indirect human consumption.

Clean on regular basis the auger with water; the frequency of cleaning depends essentially on the type of product handled and on the plant type: must therefore be selected by the user.

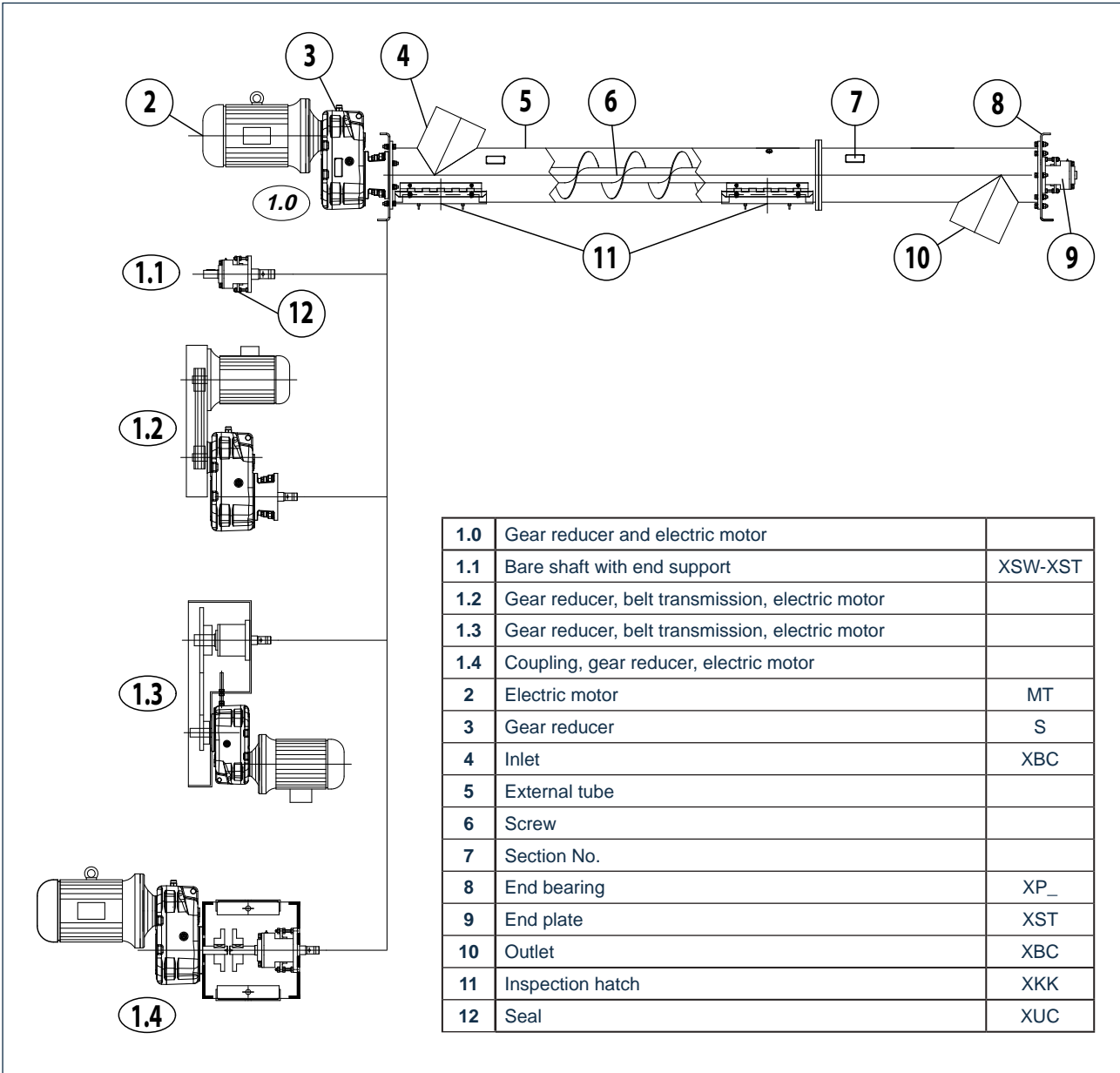
Particular attention should be paid to the cleanliness of some machine parts including intermediate hanger bearings, shaft sealing unit, protections etc.

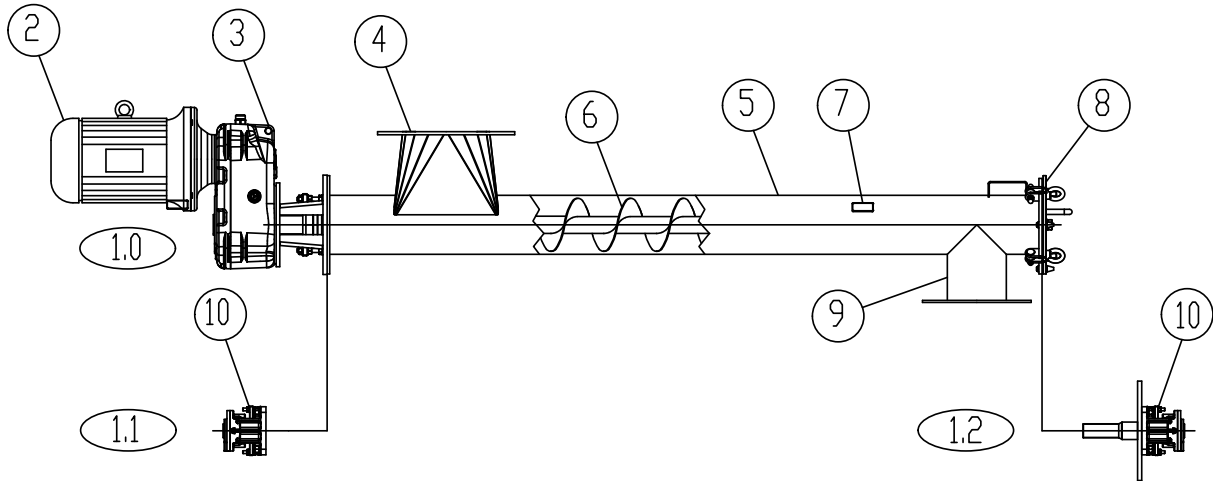
Prior to cleaning with other product and/or systems which are difficult or even impossible to be classified due to the heterogeneity of conveyed materials, it is necessary to inform our Technical Assistance.

All dimensions are expressed in mm unless otherwise specified.

1.2 Codes and abbreviations

E-P	Paddle screw
E-PR	Ribbon flight screw
Mt	Motor
S 41	Gear reducer
S 43	Gear reducer
S 45	Gear reducer
S 47	Gear reducer
St P4	Cable carrier support
XAh-XAK	Bolted coupling
XBA-XBB	Universal inlet and outlet spout
XBC	Special inlet
XBE	Shoe outlet spouts type
XBQ	Square spout
XBR	Rectangular spout
XBS	Shoe outlet
XBt A-XBt B	Volumetric inlet hopper
XBt U-XBt V	Volumetric inlet hopper
XBV	Rectangular spout
XE	Screw
Xh	Transmission
XJh	Metering star
XJM	Spout cover
XJS	Trough foot
XJW	Adjustable ring
XJX	Adjustable support
XJY	Beaded spout edge
XKD	Overflow hatch flap
XKF	Flanges for inlets / outlets
XKFA	Threaded connection
XKFR	Adjustable flange
XKK	Inspections flap hatch
XKL	Base support
XKR	Support extension
XKS	Threaded connections
XKZ	Rotational indicator bracket
XLh	Intermediate bearing
XLR	Intermediate bearing
XLU	Intermediate bearing
XLY	Intermediate bearing
XPt	End plate
XSt	End bearing assembly
XUC	Shaft sealing
XUJ	Purged seal

1.3 Main components tX, tX-AN, tO


1.4 Main components tXF


1.0	Gear reducer and electric motor	
1.1	Bare shaft with end support	XS_
1.2	Bearings with end support	
2	Electric motor	MT
3	Gear reducer	S
4	Inlet	XB_
5	External tube	
6	Screw	
7	No. Section	
8	Bearings with quick opening	XPX
9	Outlet	XB_
10	Seal	XUC

2.0 ENVIRONMENTAL OPERATING LIMITS

Unless otherwise specified, the equipment is intended for being used in the following conditions:

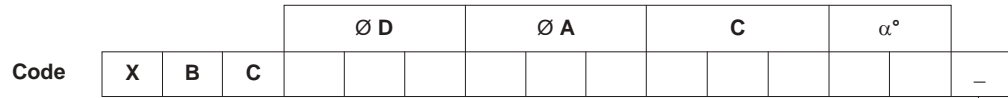
- Under 1000m a.s.l.
- Ambient Temperature between -20°C and + 40 °C, in the bare shaft configuration
- No internal pressure or negative pressure

NOTE: For the electric motors and gear reducers refer to the related manuals.

UNI	AISI - AStM	DIN		AFNOR	BS	SIS	JIS
		W.N. 17006	W.N. 17007				
X5 Cr Ni 18 10	304	X5 Cr Ni 1810	1.4301	Z6CN1809	304S15	2332	SUS 304
X2 Cr Ni 18 11	304L	X2 Cr Ni 1911	1.4306	Z2CN1810	304S11	2352	SUS 304L
X5 Cr Ni Mo 17 12	316	X5 Cr Ni Mo 17122	1.4401	Z6CND1711	~ 316S31	2347	SUS 316
X2 Cr Ni Mo 17 12	316L	X2 Cr Ni Mo 17122	1.4404	Z2CND1712	~ 316S11	2348	SUS 316L
X6 Cr Ni Mo Ti 17 12	316Ti	X6 Cr Ni Mo Ti 17122	1.4571	Z6CNDT1712	~ 320S31	2350	-
X22 Cr Ni 25 20	310	X12 Cr Ni 25 21	1.4845	Z12CN2520	~ 310S24	-	SUH 310

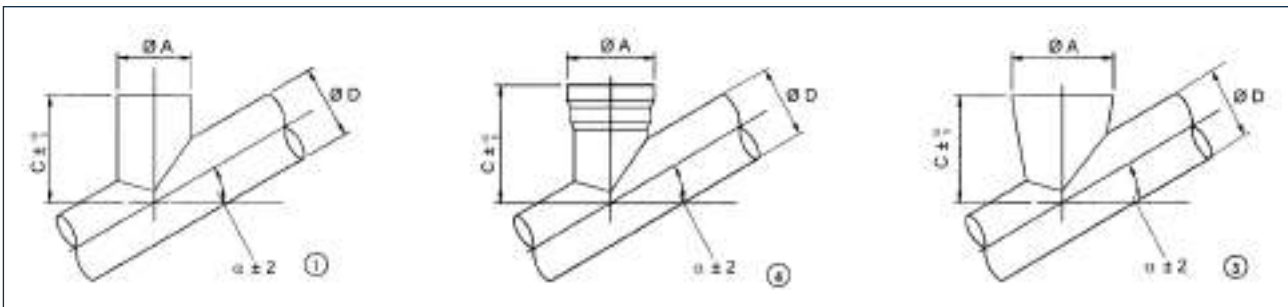
3.1 Standard machine description

ROUND INLET-OUTLET SPOUT XBC



F = with flange
T = with lip

2 = SS 304
3 = SS 316



Type	ø D	ø A	Code	Fig	"C" on the basis of α° - F - T														kg max						
					0°		5°		10°		15°		20°		25°		30°			35°		40°		45°	
					F	T	F	T	F	T	F	T	F	T	F	T	F	T		F	T	F	T	F	T
80	89	89	XBC088088...	1	120	120	120	120	120	120	170	170	170	170	220	220	2								
		§ 114	XBC088114...	3	120	120	120	120	120	170	170	170	170	220	220	2									
		168	XBC088168...	3	170	220	170	220	170	220	170	220	170	220	220	220	3								
		219	XBC088219...	3	225	275	225	275	225	275	225	275	225	275	225#	275	225#	275	225#	275	3				
100	114	§ 114	XBC114114...	1	120	120	120	120	120	170	170	170	170	220	220	2									
		168	XBC114168...	3	170	220	170	220	170	220	170	220	170	220	220	220	2								
		219	XBC114219...	3	225	275	225	275	225	275	225	275	225	275	225#	275	225#	275	225#	275	3				
120	139	114	XBC139114...	1	145	145	145	145	145	145	195	195	195	245	245	2									
		139	XBC139139...	1	200	200	200	200	200	200	275	275	275	275	275	3									
		§ 168	XBC139168...	4	210	210	210	210	210	210	245	245	295	295	295	3									
		219	XBC139219...	3	250	300	250	300	250	300	250	300	250	300	250	300	300#	300	3						
150	168	§ 168	XBC168168...	1	175	175	175	175	175	195	195	225	225	250	250	3									
		219	XBC168219...	4	230	230	230	230	230	290	290	290	350	350	8										
		273	XBC168273...	3	325	375	325	375	325	375	325	375	325	375	325	375	375	5							
200	219	§ 219	XBC219219...	1	205	205	205	205	255	255	395	395	395	395	8										
		273	XBC219273...	4	280	280	280	280	280	335	335	335	405	405	10										
		323	XBC219323...	3	320	370	320	370	320	370	320	370	320	370	320	370	370	370#	370	7					
250	273	219	XBC273219...	1	260	260	260	260	260	260	310	455	455	455	8										
		§ 273	XBC273273...	1	250	250	250	300	300	300	300	400	400	400#	10										
		323	XBC273323...	4	315	315	315	315	315	385	385	375	480	480	480	13									
		356	XBC273356...	3	300	-	300	-	300	-	300	-	-	-	-	-	7								
300	323	273	XBC323273...	1	260	260	260	260	360	360	360	360	460	460	10										
		§ 323	XBC323323...	1	300	300	300	300	300	360	360	360	460	460	13										
		356	XBC323356...	3	310	310	310	310	360	360	360	360	460	460	17										
350	406	406	XBC406406...	1	360	360	360	360	420	420	420	580	580	580	30										
400	457	457	XBC457457...	1	420	420	420	420	480	480	480	680	680	680	40										
500	558	558	XBC558558...	1	520	520	520	520	580	580	580	780	780	780	50										

* Spout type:

1 = round spout

3 = tapered spout

4 = lipped spout

§ Standard diameter

For flanges versions see page 46.

NOTE: - The spouts having a diameter less than the screw conveyor/feeder diameter cannot be installed at the outlet.

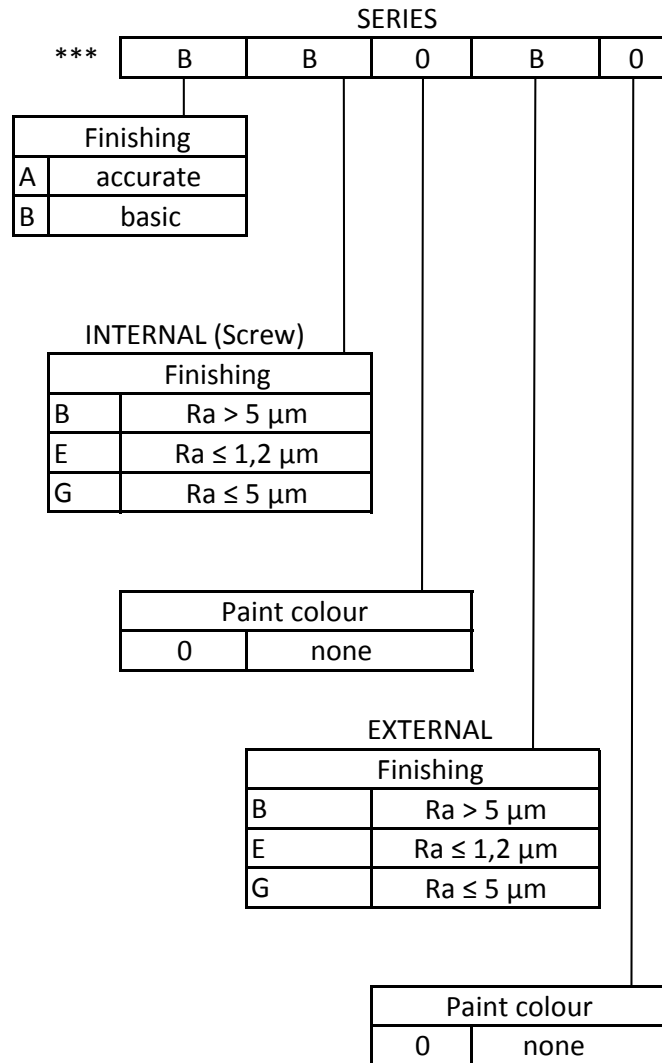
- Do not choose spouts having heights value slower than the ones indicated in table; you can choose higher heights (only for type 1 and 4) up to a maximum 500 mm.

- For inlet and outlet additional spouts fill in the complete spout modular code in the accessories field and specify in the "Notes for the production" field the spout-to spout distance.

- The flanges and lips are not included in the modular key code (see accessories).

- Inclination tolerance $\pm 2^\circ$.

TX FINISHING



N.B.: Standard painting for the mechanical parts = RAL 5010 Gentian Blue
 See possible combinations at page 9.

POSSIBLE COMBINATIONS

Series	B	B	0	B	0
Standard	B	G	0	G	0
	A	G	0	G	0
	A	E	0	E	0

Internal surface finishing**

External surface finishing

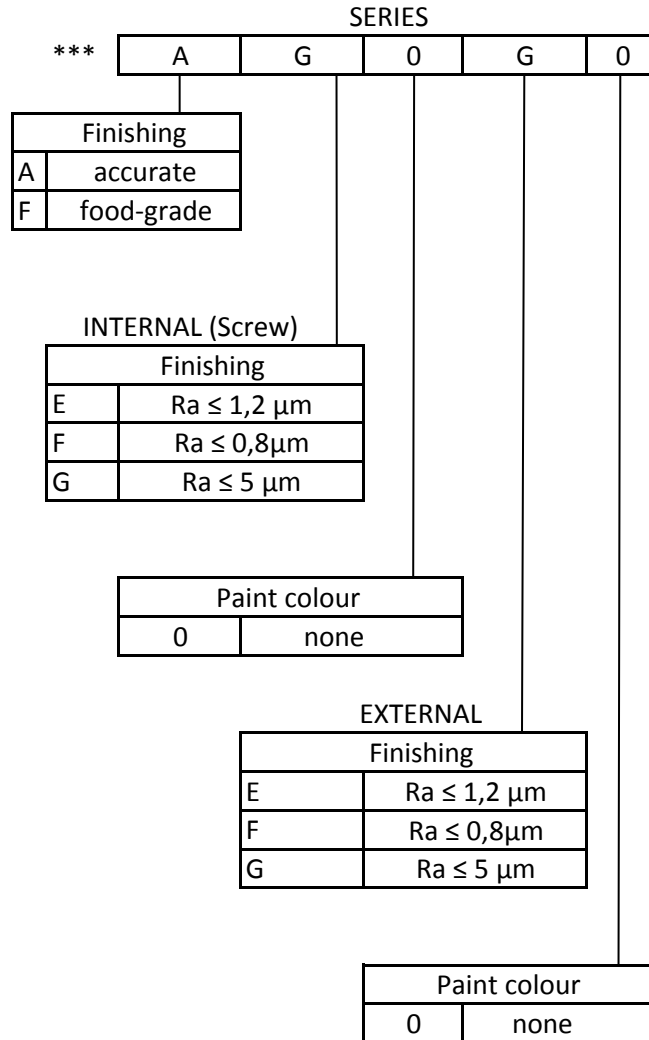
* The special combinations must be agreed upon with the manufacturer.

**** INTERNAL SURFACE FINISHING**

The surface finishing implies the auger and the inlet and outlet spouts.

The internal side of the end bearing and of the base (for food finishing) will be polished or ball-blasted on the basis of the surface finishing. Unless otherwise specified, the tubular trough has F1 internal finishing (hot rolled).

TXF FINISHING



N.B.: Standard painting for the mechanical parts = RAL 5010 Gentian Blue
 See possible combinations at page 10.

POSSIBLE COMBINATIONS

Series	A	G	0	G	0
Standard	A	E	0	E	0
	F	F	0	F	0

Internal surface finishing**	↑			↑	
External surface finishing					

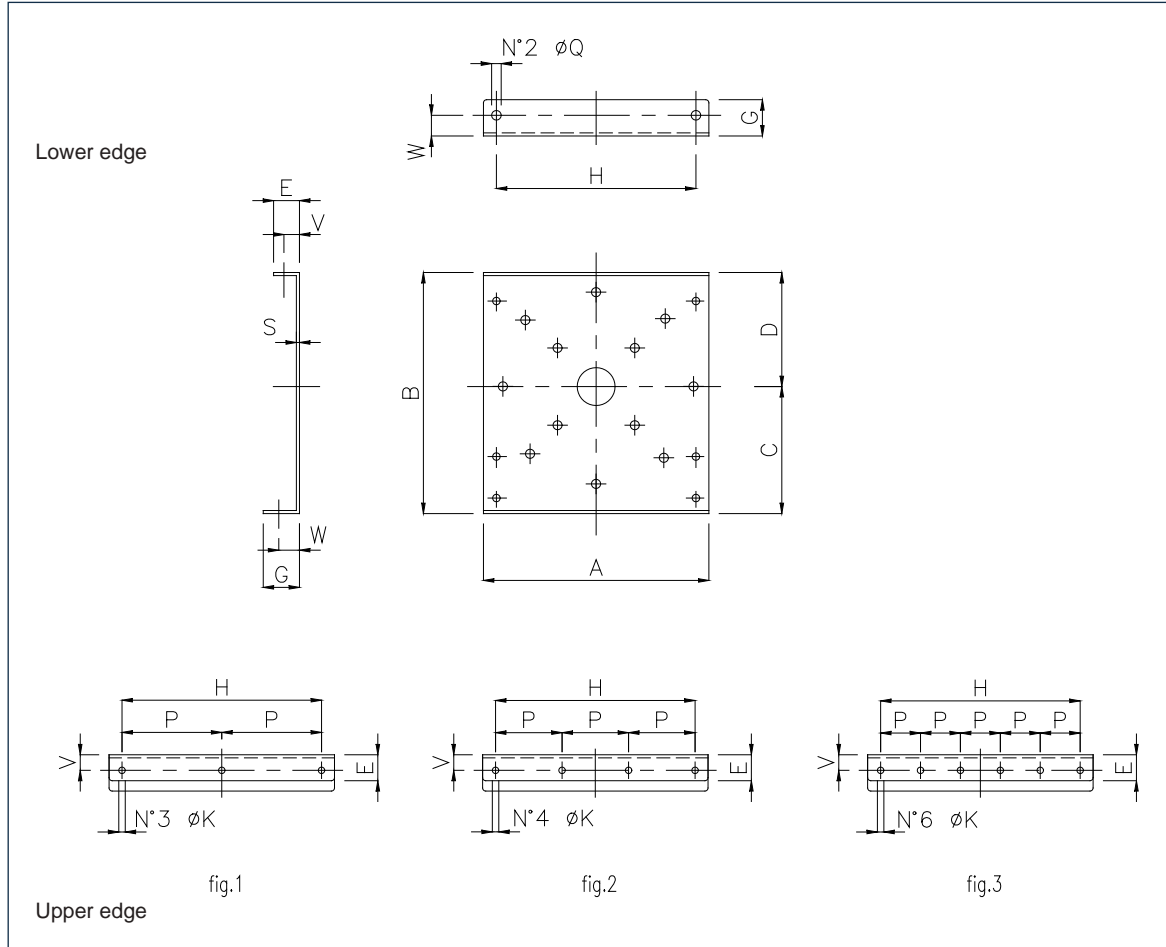
* The special combinations must be agreed upon with the manufacturer.

**** INTERNAL SURFACE FINISHING**

The surface finishing implies the auger and the inlet and outlet spouts.

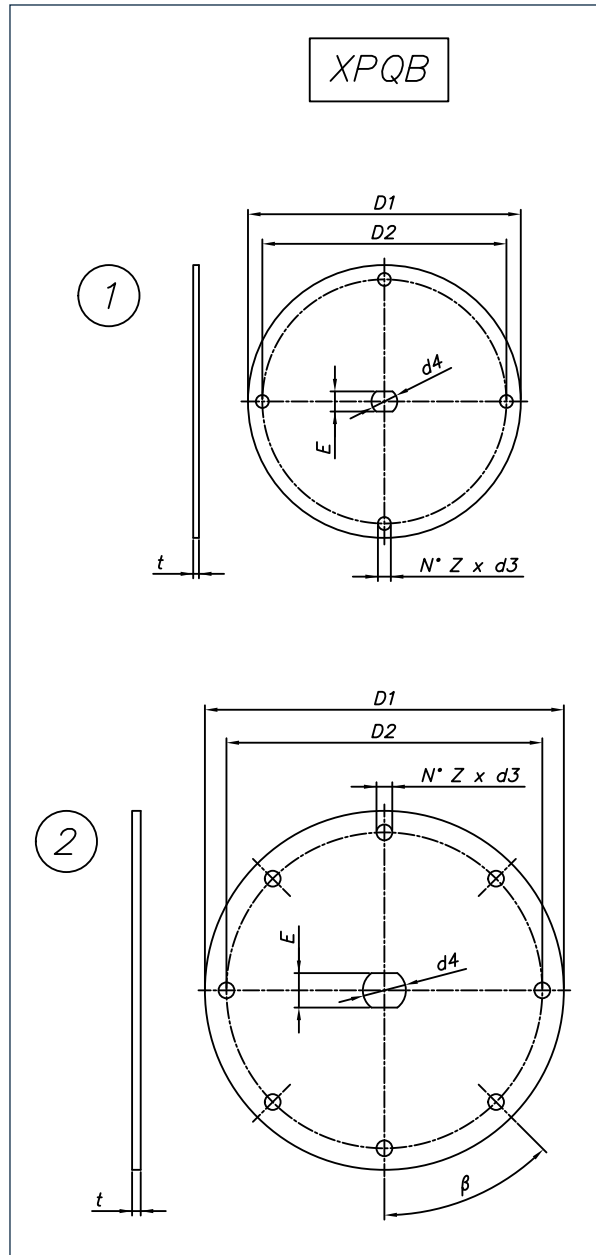
The internal side of the end bearing and of the base (for food finishing) will be polished or ball-blasted on the basis of the surface finishing. Unless otherwise specified, the tubular trough has F1 internal finishing (hot rolled).

END PLATEXPT FOR TX ONLY

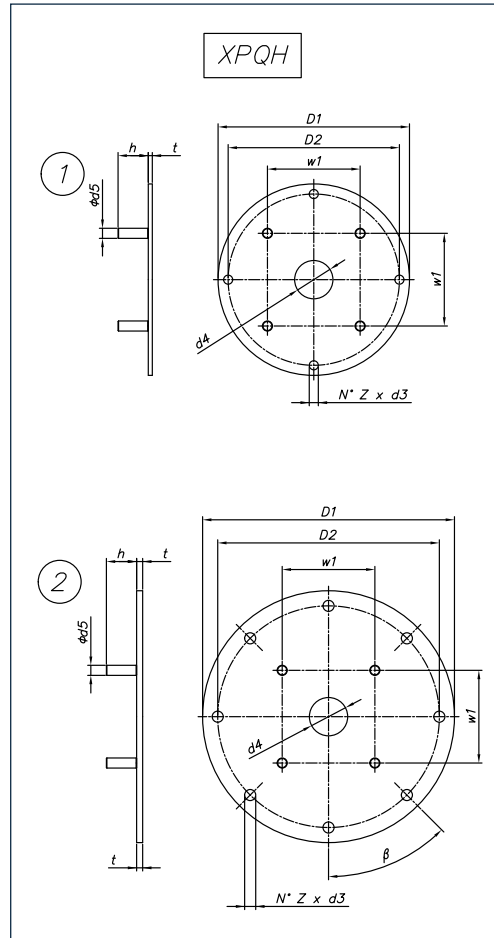
Drilled upper and lower edge


Ø	Code	Fig.	A	B	C	D	E	G	h	K	P	Q	S	V	W	Shipping weight kg
100	XPt 00104.._	1	265	280	145	135	40	50	230	12.5	115	12.5	4	25	30	2.9
120	XPt 00124.._	1	265	280	145	135	40	50	230	12.5	115	12.5	4	25	30	2.9
150	XPt 00156.._	1	265	280	145	135	40	50	230	12.5	115	12.5	5	25	30	3.6
200	XPt 00206.._	2	315	355	185	170	40	50	280	12.5	93.3	14.5	5	25	30	5.3
250	XPt 00256.._	2	365	410	215	195	50	70	330	12.5	110	14.5	5	30	40	7.3
300	XPt 00306.._	2	435	465	245	220	50	70	385	12.5	128.3	18.5	5	30	40	9.6
350	XPt 00358.._	3	485	535	275	260	50	70	445	12.5	89	18.5	6	30.0	40	14.4
400	XPt 00408.._	3	540	590	305	285	60	80	500	12.5	100	18.5	6	37.5	45	18.0
500	XPt 0050A.._	3	655	740	380	360	60	90	600	14.5	120	22	8	37.5	50	35.3

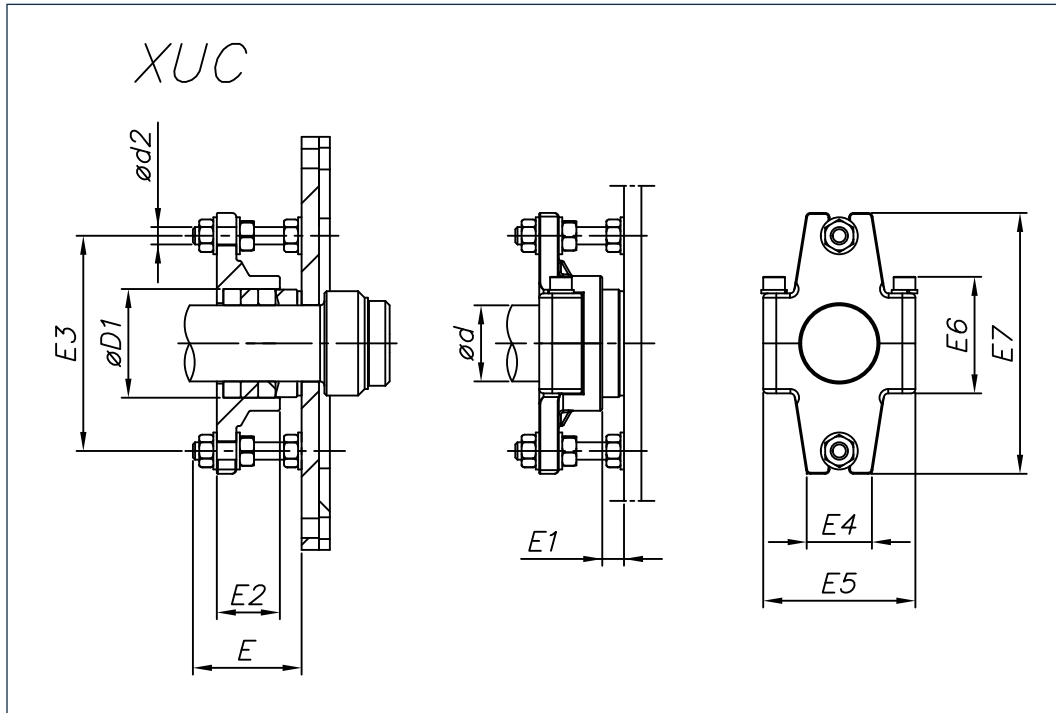
2 = SS 304
3 = SS 316

END PLATE XPT (FOR TXF ONLY)


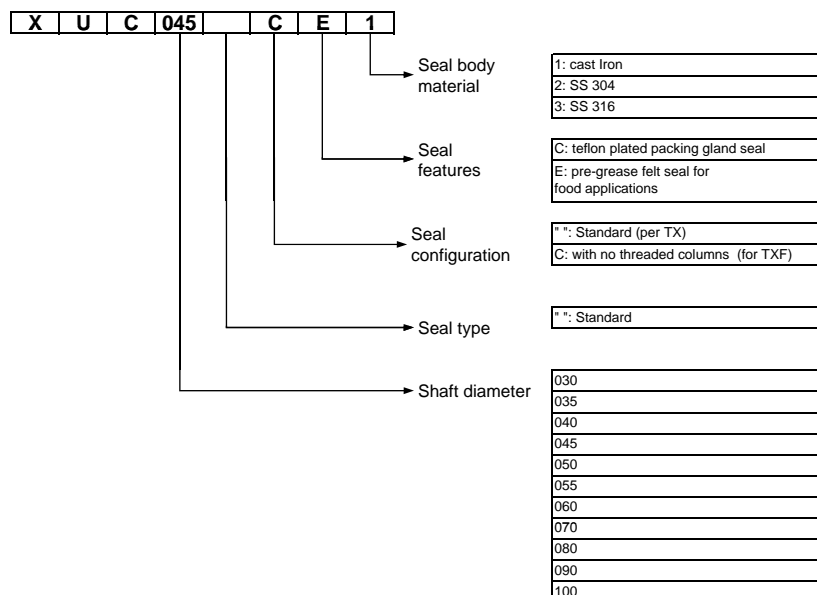
XPQB									
Code	ØD1	ØD2	Ød3	Ød4	E	t	Z	β	fig.
XPQB080400...	190	170	9	18	14	4	4	/	1
XPQB100400...	190	170	9	18	14	4	4	/	1
XPQB120400...	190	170	9	18	14	4	4	/	1
XPQB150600...	250	220	11	30	24	6	8	45°	2
XPQB200600...	275	250	11	30	24	6	8	45°	2
XPQB250600...	330	305	11	30	24	6	8	45°	2
XPQB300600...	405	370	11	38	30	6	8	45°	2

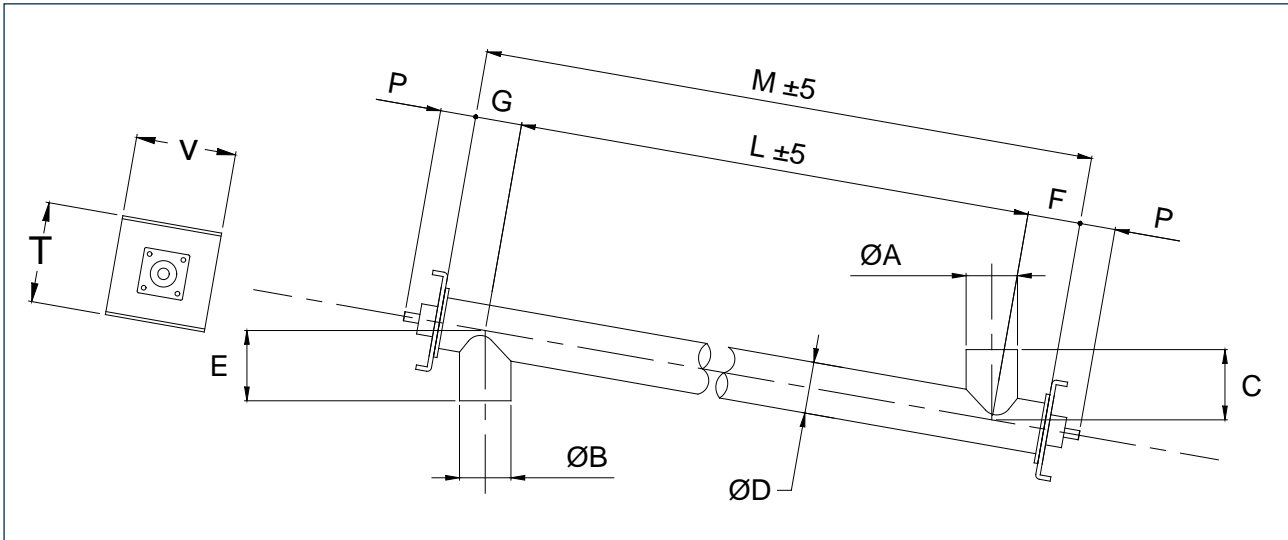
END PLATE XPQH (FOR TX ONLY)


XPQh											
Code	ØD1	ØD2	Ød3	Ød4	Ød5	h	t	w1	Z	β	fig.
XPQH080403...	190	170	9	38	M10	30	4	92	4	/	1
XPQH100403...	190	170	9	38	M10	30	4	92	4	/	1
XPQH120403...	190	170	9	38	M10	30	4	92	4	/	1
XPQH150603...	250	220	11	38	M10	30	6	92	8	45°	2
XPQH150605...	250	220	11	48	M12	35	6	105	8	45°	2
XPQH200603...	275	250	11	38	M10	30	6	92	8	45°	2
XPQH200605...	275	250	11	48	M12	35	6	105	8	45°	2
XPQH200607...	275	250	11	58	M12	35	6	130	8	45°	2
XPQH250603...	330	305	11	38	M10	30	6	92	8	45°	2
XPQH250605...	330	305	11	48	M12	35	6	105	8	45°	2
XPQH250607...	330	305	11	58	M12	35	6	130	8	45°	2
XPQH250611...	330	305	11	73	M16	45	6	149	8	45°	2
XPQH250612...	330	305	11	83	M16	45	6	171	8	45°	2
XPQH300605...	405	370	11	48	M12	35	6	105	8	45°	2
XPQH300607...	405	370	11	58	M12	35	6	130	8	45°	2
XPQH300611...	405	370	11	73	M16	45	6	149	8	45°	2
XPQH300612...	405	370	11	83	M16	45	6	171	8	45°	2

SEAL XUC


Code	Ød	ØD1	Ød3	E	E2	E3	E4	E5	E6	E8	E9
XUC030	30	45	M8	50	12	29	30	70	50	99	120
XUC035	35	50	M8	50	12	29	30	70	50	99	120
XUC040	40	55	M8	50	12	29	30	80	60	121.6	140
XUC045	45	60	M8	50	12	29	30	80	60	121.6	140
XUC050	50	70	M10	60	14	37	45	100	70	141.4	164
XUC055	55	75	M10	60	14	37	45	100	70	141.4	164
XUC060	60	80	M10	60	14	37	45	105	70	183.8	210

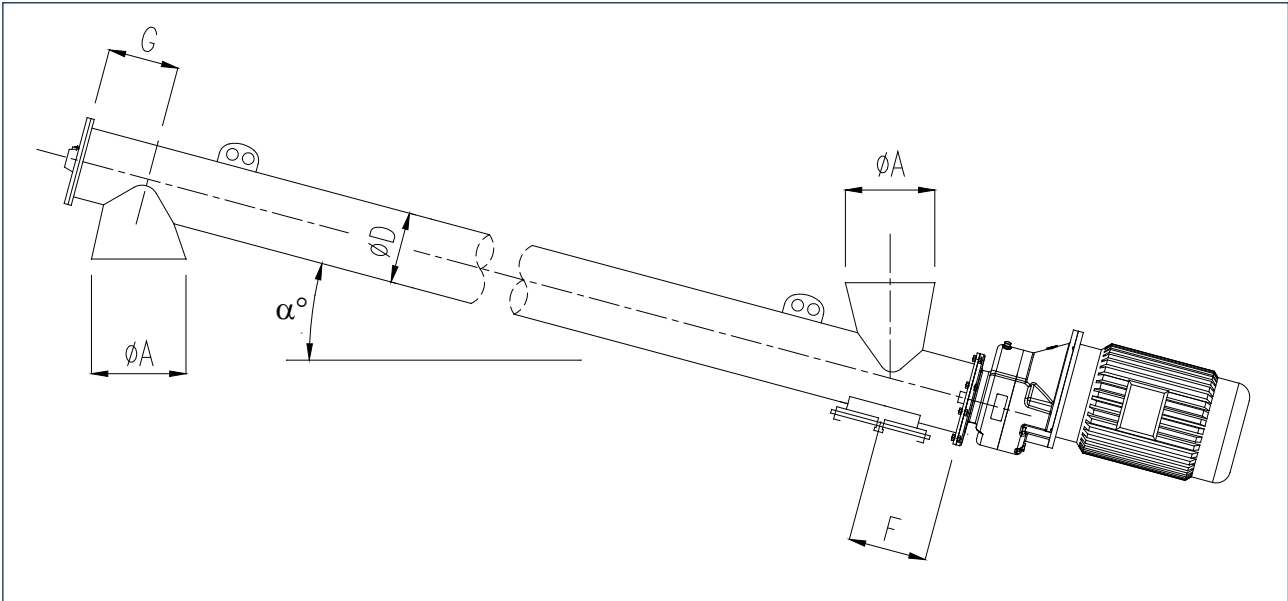


3.2 Dimensions
tX, tX-AN, tO


type	100	120	150	200	250	300	350	400	500
$\varnothing A$	114	139	168	219	273	323	406	457	558
$\varnothing B$	114	139	168	219	273	323	406	457	558
C	1)								
$\varnothing D$	114	139	168	219	273	323	406	457	558
E	1)								
F	140	140	160	180	220	220	280	320	360
G	120	120	140	160	180	220	270	280	340
L	2)								
M	$L + F + G$								
P	114	114	124	124	124	124	151	151	162
t	280	280	280	355	410	465	535	590	740
V	265	265	265	315	365	435	485	540	655

1) See the inlet and outlet spouts

2) Rounded to 10 mm

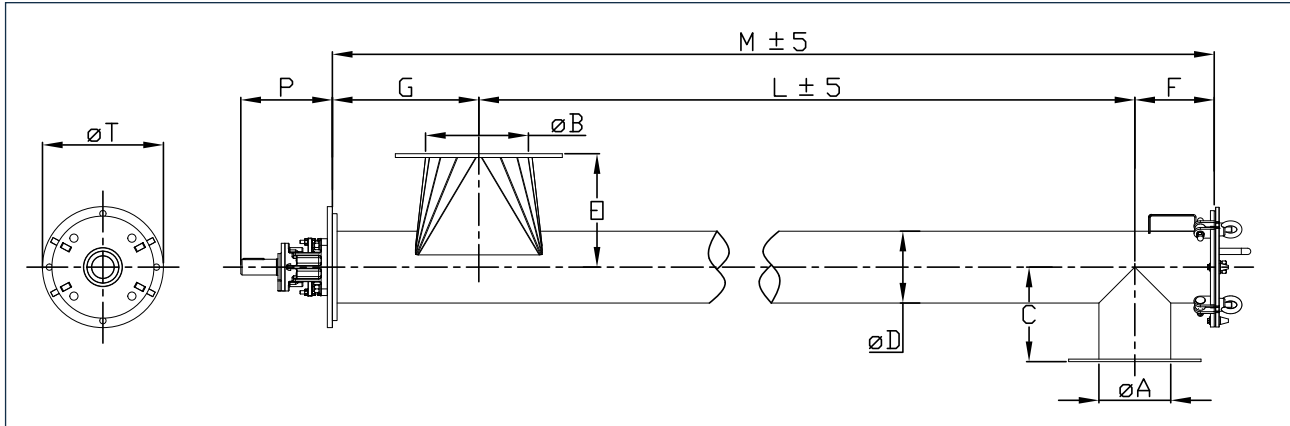


For installation angles up to 20° and for certain spout diameters, it is necessary to change the F and G values on page T.06 according to the following Table:

0° < α ≤ 20°							
∅ D	F	G	Spout ∅ A				
			219	273	323	356	406
	Standard		F = G				
114	140	120	180	/	/	/	/
139	120	120	180	/	/	/	/
168	160	140	/	200	220	240	280
193	170	150	/	200	220	240	280
219	180	160	/	/	220	240	280
273	220	180	/	/	/	240	280
323	220	220	/	/	/	/	280

N.B.: - Control is automatic.

- In some cases an intermediate hanger bearing is mounted, where with standard inlets/outlets none would be present.
- The price varies accordingly.

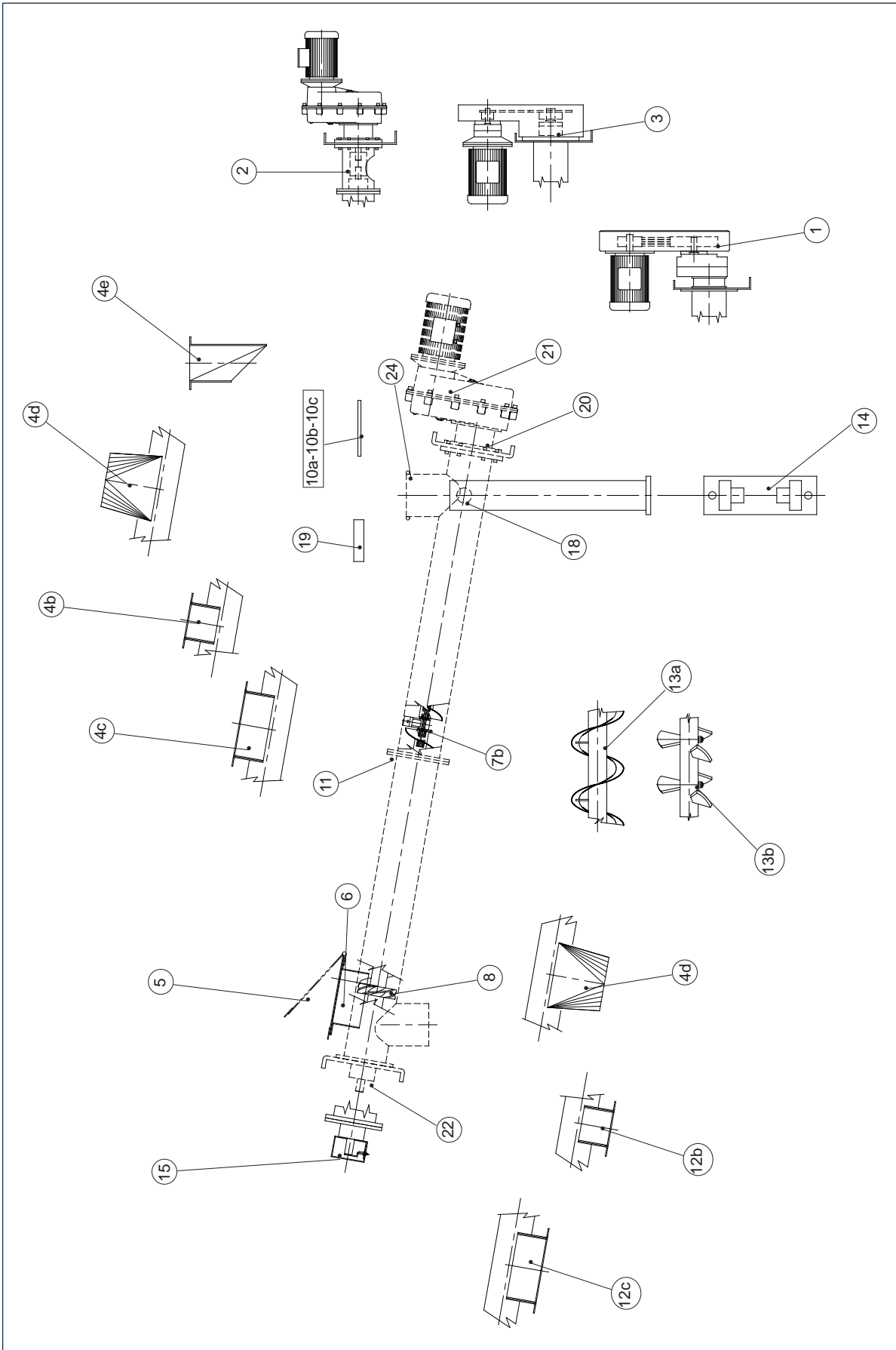
tXF


type	80	100	120	150	200	250	300	350	400	500
Ø A	89	114	139	168	219	273	323	406	457	558
Ø B	89	114	139	168	219	273	323	406	457	558
C	1)									
Ø D	89	114	139	168	219	273	323	406	457	558
E	1)									
F	140	140	140	160	180	220	220	280	320	360
G	120	120	120	140	160	180	220	270	280	340
L	2)									
M	L + F + G									
P	114	114	114	124	124	124	124	151	151	162
t	169	190	190	250	275	330	405	470	520	620

1) See the inlet and outlet spouts

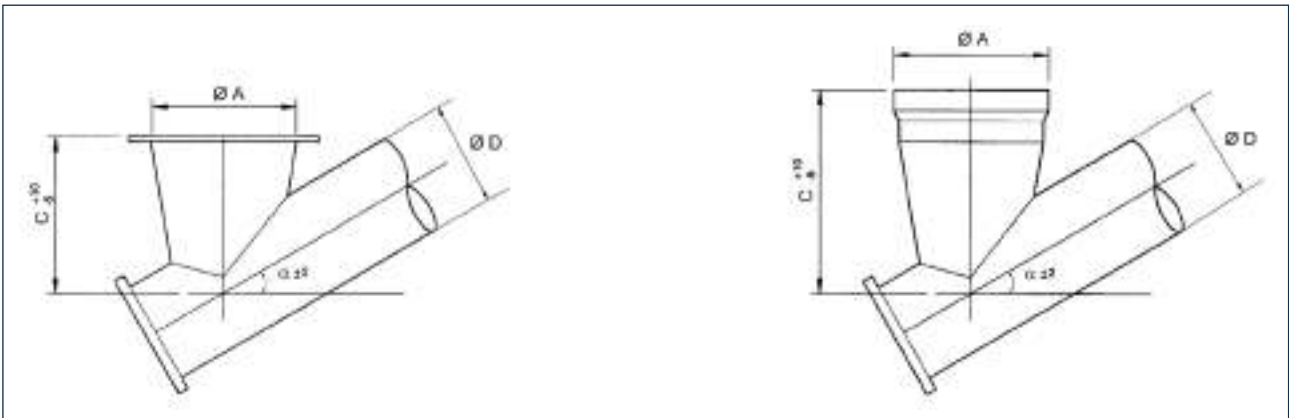
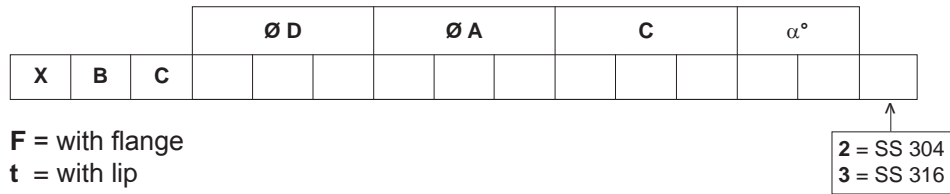
2) Rounded to 10 mm

4.0 OPTIONS AND ACCESSORIES

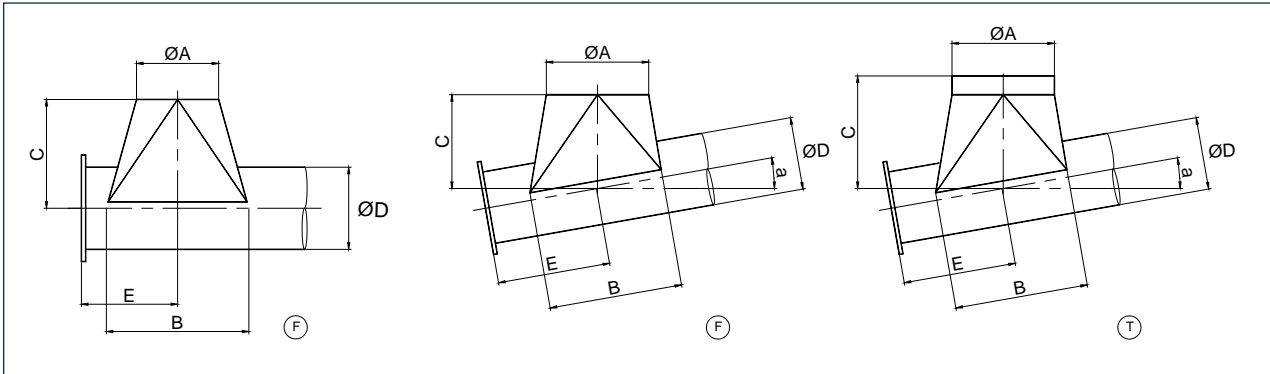
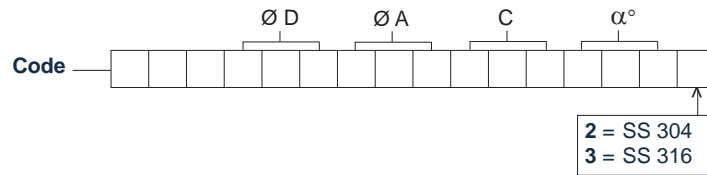


4.0 OPTIONS AND ACCESSORIES

Item pos.	DESCRIPTION	Code
1	Belt transmission	Xh.
2	Joint transmission	Xh.
3	Chain transmission	Xh.
4b	Square inlet	XBQ
4c	Rectangular inlet	XBR-XBV
4d	Shoe outlet	XBS-E
4e	Inlet hopper	XBtA-XBtB
5	Overflow hatch flap	XKD
6	Grille beneath hatch flap	XKX
7b	Intermediate Hanger Bearing	XLR - XLU
8	Feeder star	XJh
10a	Flange	XKF
10b	Slotted flange	XKFA
10c	Turn flange	XKFR
11	Turn ring	XJW
12b	Square outlet	XBQ
12c	Rectangular outlet	XBR-XBV
13a	Ribbon screw	E-PR
13b	Paddle flight	E-P
14	Base support	XKL
15	Rotation indicator bracket	XVA
18	Threaded connections	XKS
19	Rubber spout cover	XJM
20	Purged shaft seal	XUJ
21	Gear reducer	S.
22	END PLATE	XSt
24	Beaded spout edge	XJY

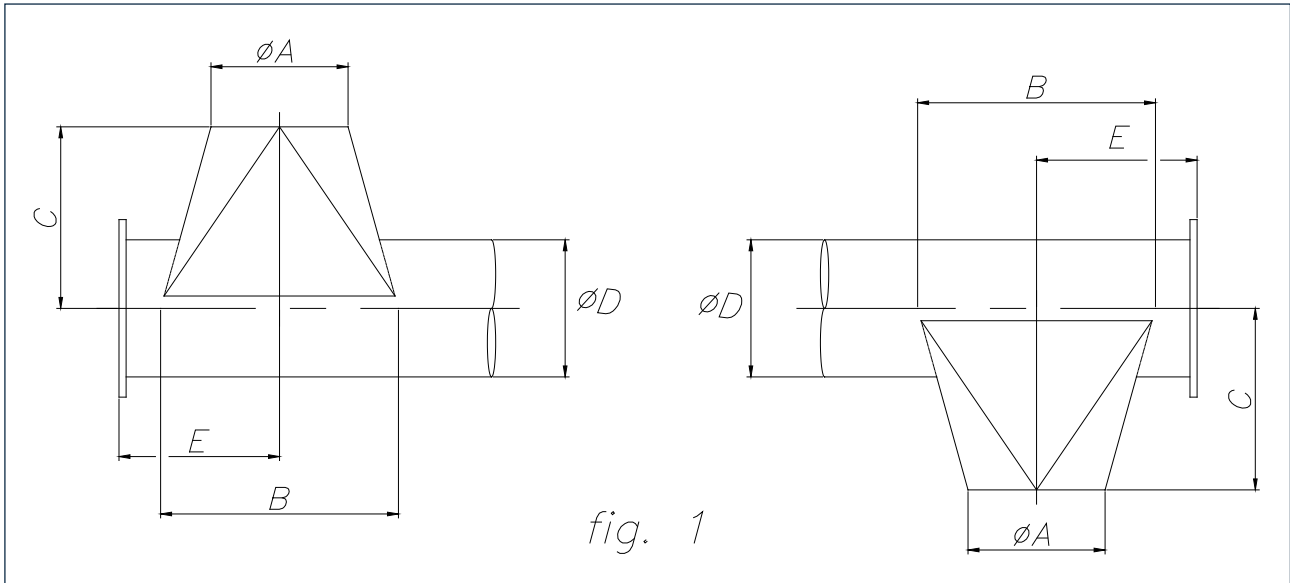
4.1 Spouts
SPECIAL TAPERED SPOUT


$\varnothing D$	$\varnothing A$	Code	"C" on the basis of α° , F, T																			
			0°		5°		10°		15°		20°		25°		30°		35°		40°		45°	
			F	t	F	t	F	t	F	t	F	t	F	t	F	t	F	t	F	t		
139	193	XBC139193..._																			300	
168	323	XBC168323..._	220	270	220	270	220	270	220	270	220	270	220	270	350	270	350	270	350	400	350	400
219	356	XBC219356..._	280	330	280	330	280	330	280	330	280	330	280	330	390	330	390	440	390	440	390	440
	406	XBC219406..._	300	350	300	350	300	350	300	350	300	350	430	350	430	350	430	480	430	480	430	480
273	356	XBC273356..._		350		350		350		350		350		350	350	350	350	350	450	450	490	450
	406	XBC273406..._	320	370	320	370	320	370	320	370	320	370	470	370	470	370	470	520	470	520	470	520
323	406	XBC323406..._	350	400	350	400	350	400	350	400	350	400	500	400	500	400	500	550	500	550	500	550

4.0 OPTIONS AND ACCESSORIES
VARIABLE SECTION SPOUTS XBS


Ø D	Ø A	Code	Fig	E	B	"C" on the basis of												kg max							
						0°		5°		10°		15°		20°		25°			30°						
						F	t	F	t	F	t	F	t	F	t	F	t		F	t					
89	168	XBS089168...		230	200	180	230	180	230	180	230	180	230												
	219	XBS089219...		230	350	230	280	230	280	230	280	230	280												
	273	XBS089273...		230	350	230	280	230	280	230	280	230	280												
114	168	XBS114168...		230	200	180	230	180	230	180	230	180	230												2.5
	219	XBS114219...		230	350	230	280	230	280	230	280	230	280												4
	273	XBS114273...		230	350	230	280	230	280	230	280	230	280												4
168	168	XBS168168...		230	250	180	230	180	230	180	230	180	230												4.3
	219	XBS168219...		250	250	230	280	230	280	230	280	230	280												3.7
	273	XBS168273...		250	350	230	280	230	280	230	280	230	280												4.5
	323	XBS168323...		300	500	250	300	250	300	250	300	250	300												
219	219	XBS219219...		260	250	250	300	250	300	250	300	250	300												4.7
	273	XBS219273...		270	350	250	300	250	300	250	300	250	300												5
	323	XBS219323...		270	400	250	300	250	300	250	300	250	300												5.3
273	273	XBS273273...		280	350	290	320	290	320	290	320	290	320												4.4
	323	XBS273323...		320	400	290	320	290	320	290	320	290	320												5.5
	406	XBS273406...		320	500	290	320	290	320	290	320	290	320												5.8
323	323	XBS323323...		320	400	320	380	320	380	320	380	320	380												6.2
	406	XBS323406...		320	500	320	380	320	380	320	380	320	380												6.5

■ Yet to be produced

VARIABLE SECTION SPOUTS XBE


ϕD	ϕA	Code	Fig	E	B	C	kg max
89	89	XBE089089150...	1	230	200	150	2
114	114	XBE114114150...	1	230	200	150	2
139	139	XBE139139225...	1	230	222	225	3
168	168	XBE168168295...	1	230	332	295	4.3
219	219	XBE219219290...	1	260	380	290	6.2
273	273	XBE273273215...	1	280	400	215	5.8
323	323	XBE323323300...	1	320	450	300	8.2
406	406	XBE406406325...	1	420	645	325	12
457	457	XBE457457350...	1	450	700	350	14.5

SCREW LENGTH WITH XBQ - XBV - XBR - XB_

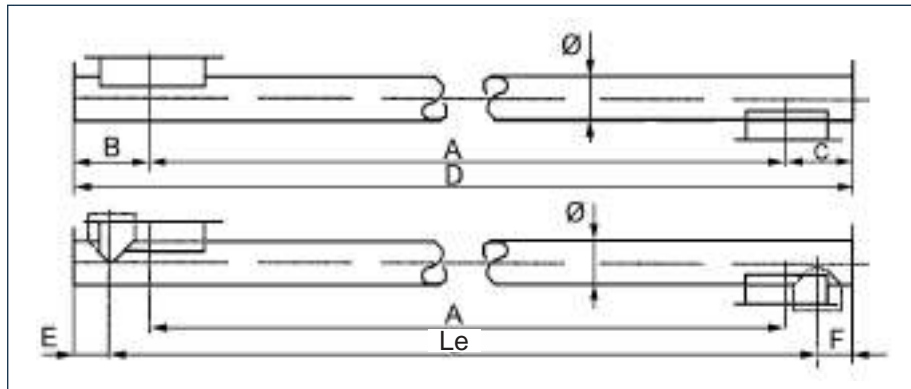
The **WAM® CONFIGURATIONS PROGRAM** automatically calculates the sequence and length of the sections of external pipes and the screws of which the screw conveyor is made up, on the basis of the length of the **DISTANCE BETWEEN CENTRES (REAL)**, irrespective of whether it has circular, square or rectangular spouts. The **EQUIVALENT DISTANCE BETWEEN CENTRES** of a screw conveyor with square and/or rectangular spouts is that distance between centres which, in a screw conveyor with circular spouts, provides the same flange-to-flange length.

(For screw conveyors with circular spouts, of course, distance between centres and equivalent distance between centres are identical).

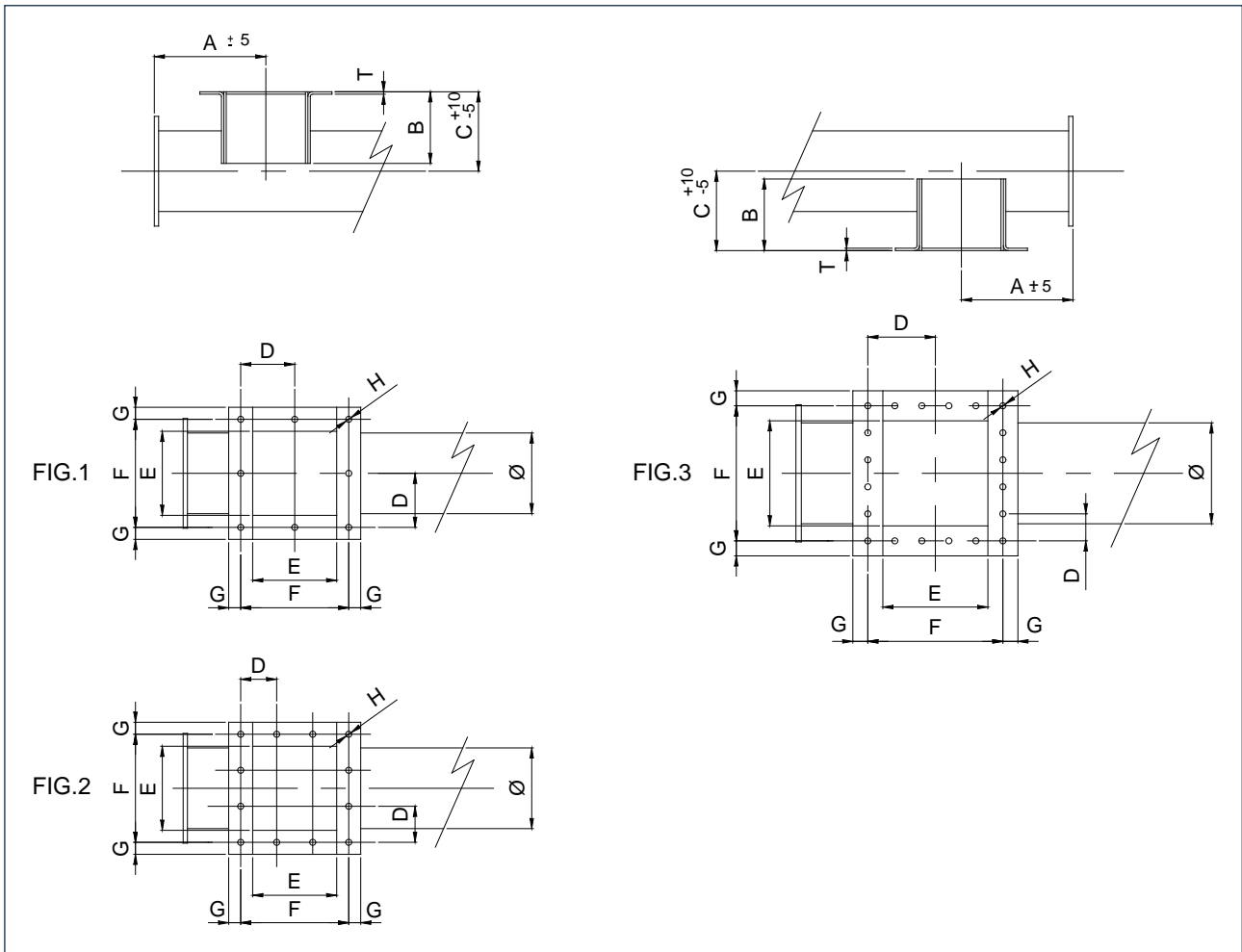
For any given distance between centres, a screw conveyor with square and/or rectangular spouts is longer than one with the same distance between centres with circular spouts, and may comprise a different number of sections and intermediate supports.

The exact configuration of the screw conveyor is shown in the Tables on Pages 79-99, depending on the **EQUIVALENT DISTANCE BETWEEN CENTRES**.

The two Figures (see below) show how the **EQUIVALENT DISTANCE BETWEEN CENTRES** is calculated (**Le**).



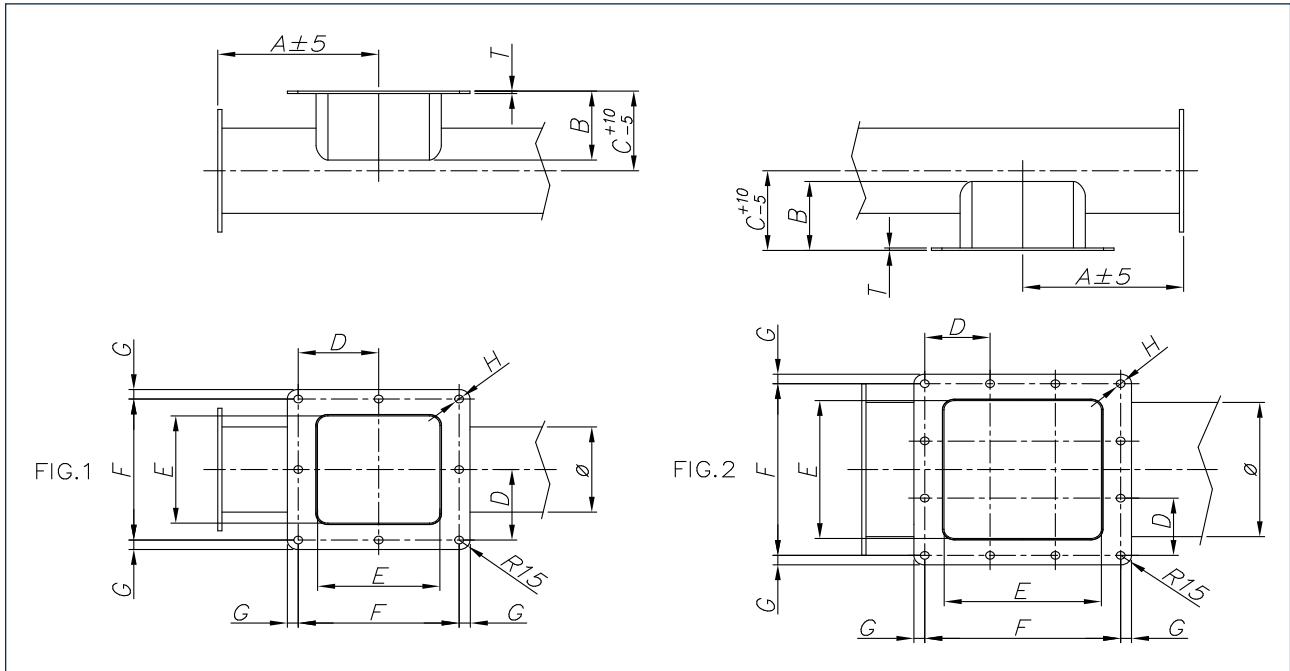
FORMULA			
Value	DATA	WHERE	GIVES
A	Real inlet-outlet distance	$D=A+B+C$	$Le = D-(E+F)$ Equivalent distance between centres in mm
B	see page 36, 37, 38, 39, 40, 41		
C	see page 36, 37, 38, 39, 40, 41		
E	see page 8		
F	see page 8		

SQUARE SPOUT XBQ TX ONLY


type	Ø	Code	Fig.	A	B	C	D	E	F	G	h	t	kg
100	114	XBQ010t_	1	230	110	130	115	175	230	15.5	12.5	2	2.4
120	139	XBQ012t_	1	230	110	130	115	175	230	15.5	12.5	2	2.4
150	168	XBQ015t_	1	230	105	130	115	175	230	15.5	12.5	2	2.6
200	219	XBQ020t_	2	260	135	165	93.3	225	280	15.5	12.5	2	4.3
250	273	XBQ025t_	2	280	160	195	110	275	330	15.5	12.5	2	5.8
300	323	XBQ030t_	2	320	190	225	128.3	325	385	24	12.5	3	11.5
350	406	XBQ035t_	3	340	186	265	89	375	445	20	12.5	3	13
400	437	XBQ040t_	3	370	209	295	100	425	500	17.5	12.5	3	16.5
500	558	XBQ050t_	3	430	255	350	120	525	600	27.5	15	3	18.9

2 = SS 304
3 = SS 316

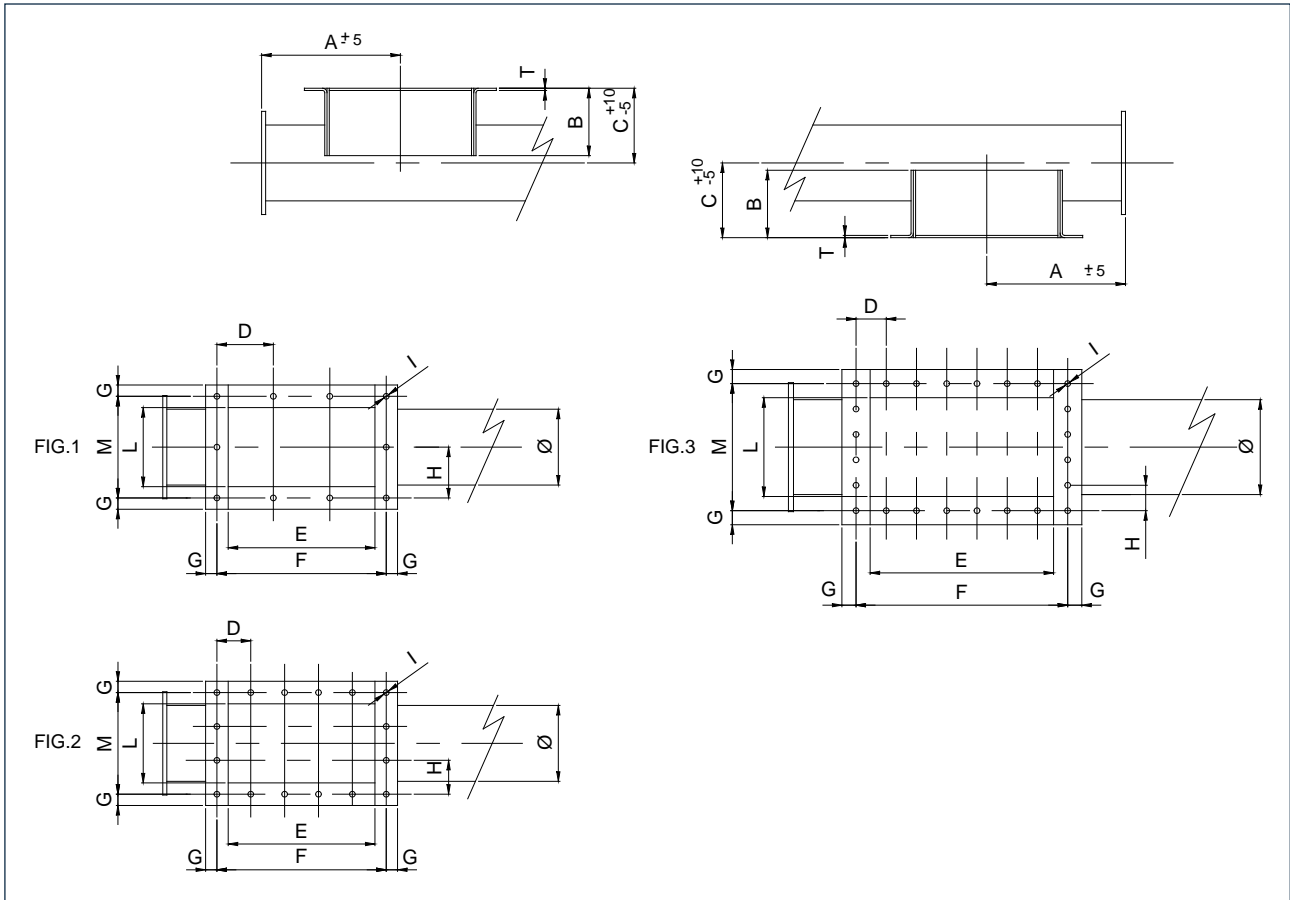
N.B.: For calculation of the end flange - end flange distance in case of square inlets / outlets, see page 68.

SQUARE SPOUT FOR XBQM TXF ONLY


type	ø	Code	Fig.	A	B	C	D	E	F	G	h	t	kg
80	89	XBQM4080T...	1	230	110	130	115	175	230	15.5	12.5	4	
100	114	XBQM4100T...	1	230	110	130	115	175	230	15.5	12.5	4	
120	139	XBQM4120T...	1	230	110	130	115	175	230	15.5	12.5	4	
150	168	XBQM4150T...	1	230	105	130	115	175	230	15.5	12.5	4	
200	219	XBQM4200T...	2	260	135	165	93.3	225	280	15.5	12.5	4	
250	273	XBQM4250T...	2	280	160	195	110	275	330	15.5	12.5	4	
300	323	XBQM4300T...	2	320	190	225	128.3	325	385	24	12.5	4	

2 = SS 304
 3 = SS 316

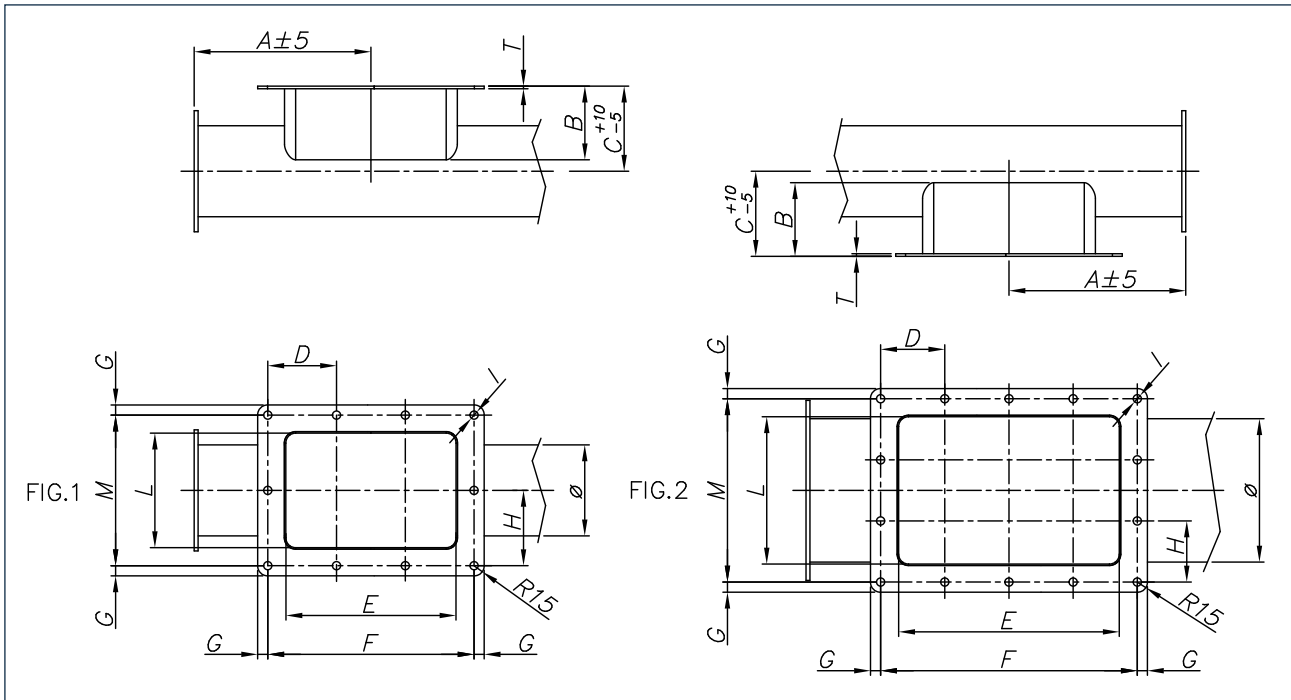
N.B.: For calculation of the end flange - end flange distance in case of XBQM spouts, see page 68.

SQUARE SPOUT XBV TX ONLY


type	Ø	Code	Fig.	A	B	C	D	E	F	G	h	I	L	M	t	kg
100	114	XBV010t_	1	270	110	130	105	260	315	15.5	115	12.5	175	230	2	3.2
120	139	XBV012t_	1	270	110	130	105	260	315	15.5	115	12.5	175	230	2	3.3
150	168	XBV015t_	1	270	105	130	105	260	315	15.5	115	12.5	175	230	2	3.4
200	219	XBV020t_	2	310	135	165	98	337	392	15.5	93.3	12.5	225	280	2	5.1
250	273	XBV025t_	2	350	160	195	116	409	464	15.5	110	12.5	275	330	2	7.1
300	323	XBV030t_	2	400	190	225	136	484	544	24	128.3	12.5	325	385	3	13.2
350	406	XBV035t_	3	440	205	265	90	560	630	19	89	12.5	375	445	3	17.4
400	457	XBV040t_	3	480	235	295	102	639	714	17.5	100	12.5	425	500	3	20.8
500	558	XBV050t_	3	560	285	350	123	786	861	27.5	120	15	525	600	3	25.1

2 = SS 304
3 = SS 316

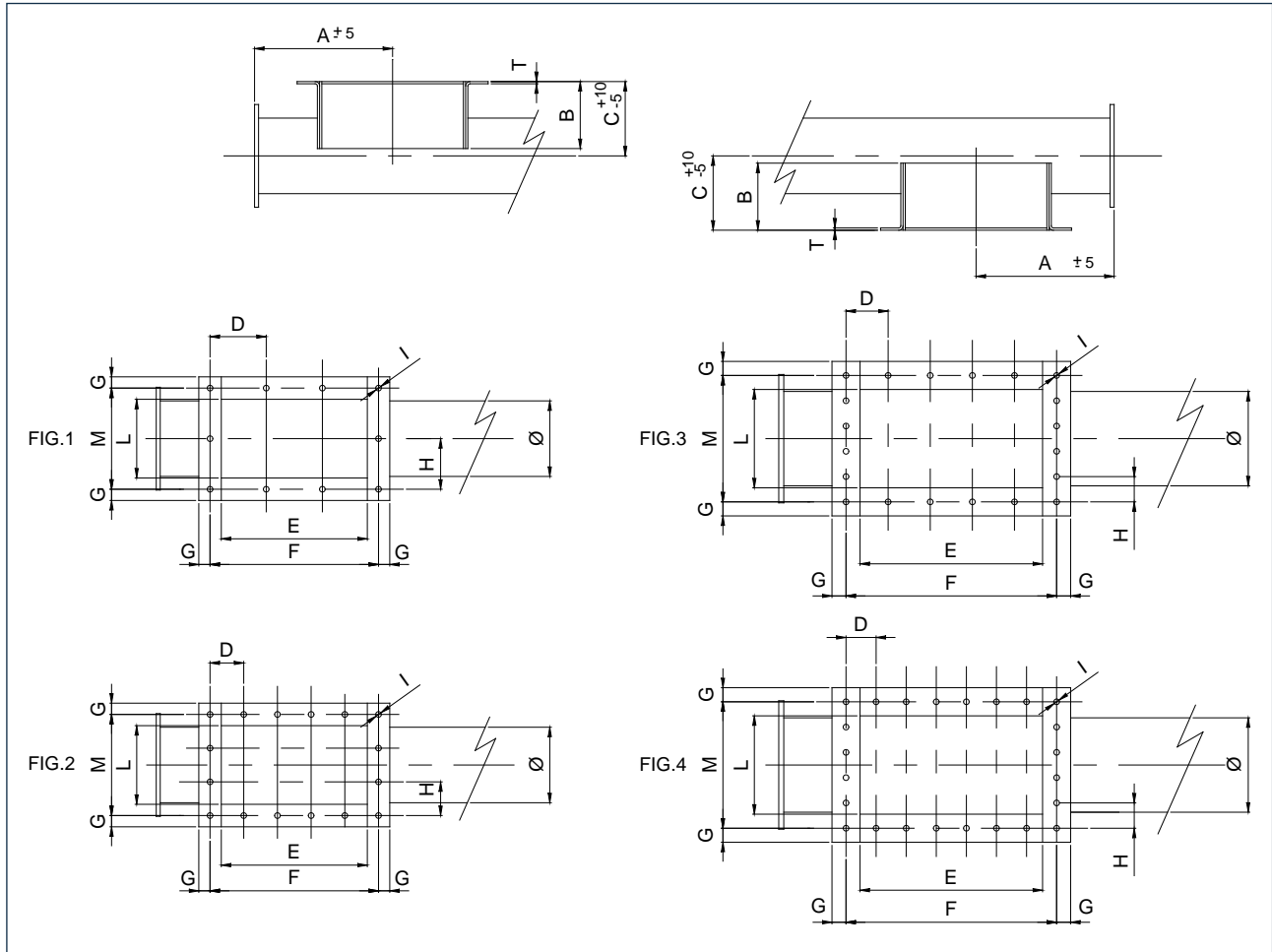
N.B.: For calculation of the end flange - end flange distance in case of XBV spouts, see page 68.

SQUARE SPOUT XBVM TXF ONLY


type	ø	Code	Fig.	A	B	C	D	E	F	G	h	I	L	M	t	kg
80	89	XBVM4080T...	1	270	110	130	105	260	315	15.5	115	12.5	175	230	4	
100	114	XBVM4100T...	1	270	110	130	105	260	315	15.5	115	12.5	175	230	4	
120	139	XBVM4120T...	1	270	110	130	105	260	315	15.5	115	12.5	175	230	4	
150	168	XBVM4150T...	1	270	105	130	105	260	315	15.5	115	12.5	175	230	4	
200	219	XBVM4200T...	2	310	135	165	98	337	392	15.5	93.3	12.5	225	280	4	
250	273	XBVM4250T...	2	350	160	195	116	409	464	15.5	110	12.5	275	330	4	
300	323	XBVM4300T...	2	400	190	225	136	484	544	24	128.3	12.5	325	385	4	

2 = SS 304
 3 = SS 316

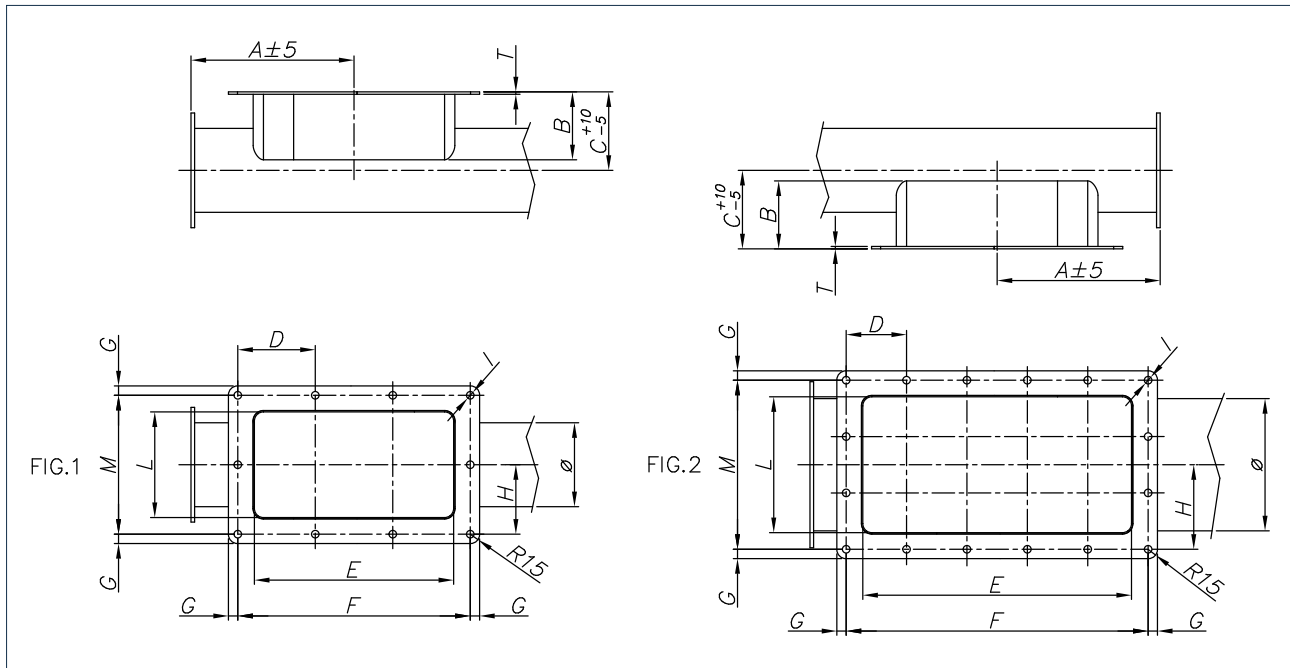
N.B.: For calculation of the end flange - end flange distance in case of XBVM spouts, see page 68.

SQUARE SPOUT XBR TX ONLY


type	Ø	Code	Fig.	A	B	C	D	E	F	G	h	l	L	M	t	kg
100	114	XBR010t_	1	310	110	130	128.3	330	385	15.5	115	12.5	175	230	2	4.0
120	139	XBR012t_	1	310	110	130	128.3	330	385	15.5	115	12.5	175	230	2	4.2
150	168	XBR015t_	1	310	105	130	128.3	330	385	15.5	115	12.5	175	230	2	4.3
200	219	XBR020t_	2	360	135	165	100	445	500	15.5	93.3	12.5	225	280	2	6.5
250	273	XBR025t_	2	410	160	195	120	545	600	15.5	110	12.5	275	330	2	8.6
300	323	XBR030t_	2	470	190	225	140	640	700	24	128.3	12.5	325	385	3	16.2
350	406	XBR035t_	3	530	186	265	165	755	825	19	89	12.5	375	445	3	22.6
400	457	XBR040t_	3	580	209	295	185	850	925	17.5	100	12.5	425	500	3	28.9
500	558	XBR050t_	4	710	255	350	165	1080	1155	27.5	120	15	525	600	3	32.4

2 = SS 304
 3 = SS 316

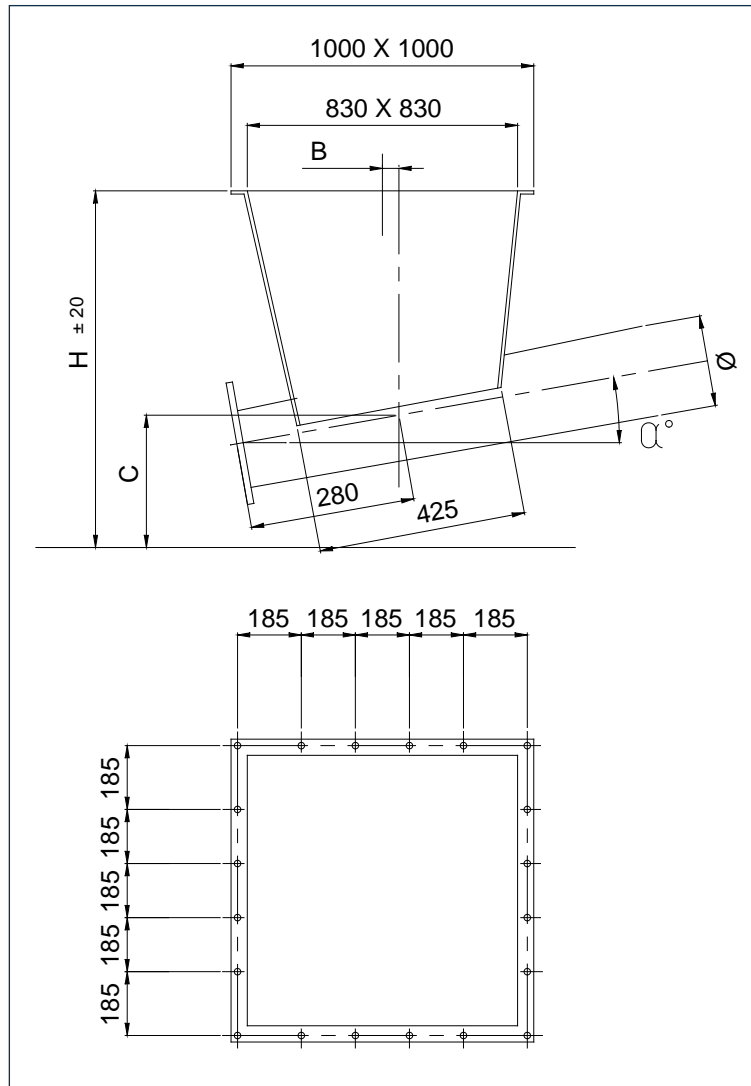
N.B.: For calculation of distance end flange - end flange in case of XBR spouts, see page 68.

SQUARE SPOUT XBRM TXF ONLY


type	ø	Code	Fig.	A	B	C	D	E	F	G	h	I	L	M	t	kg
80	89	XBRM4080T...	1	310	110	130	128.3	330	385	15.5	115	12.5	175	230	4	
100	114	XBRM4100T...	1	310	110	130	128.3	330	385	15.5	115	12.5	175	230	4	
120	139	XBRM4120T...	1	310	110	130	128.3	330	385	15.5	115	12.5	175	230	4	
150	168	XBRM4150T...	1	310	105	130	128.3	330	385	15.5	115	12.5	175	230	4	
200	219	XBRM4200T...	2	360	135	165	100	445	500	15.5	93.3	12.5	225	280	4	
250	273	XBRM4250T...	2	410	160	195	120	545	600	15.5	110	12.5	275	330	4	
300	323	XBRM4300T...	2	470	190	225	140	640	700	24	128.3	12.5	325	385	4	

2 = SS 304
 3 = SS 316

N.B.: For calculation of the end flange - end flange distance in case of XBRM spouts, see page 68.

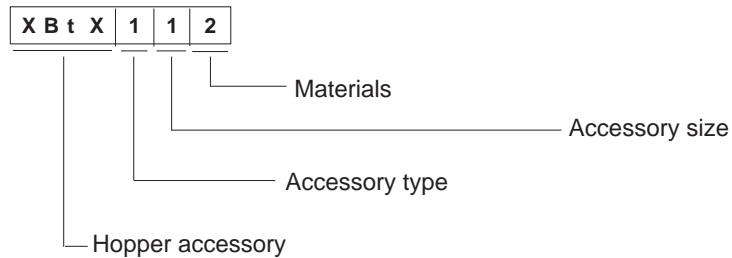
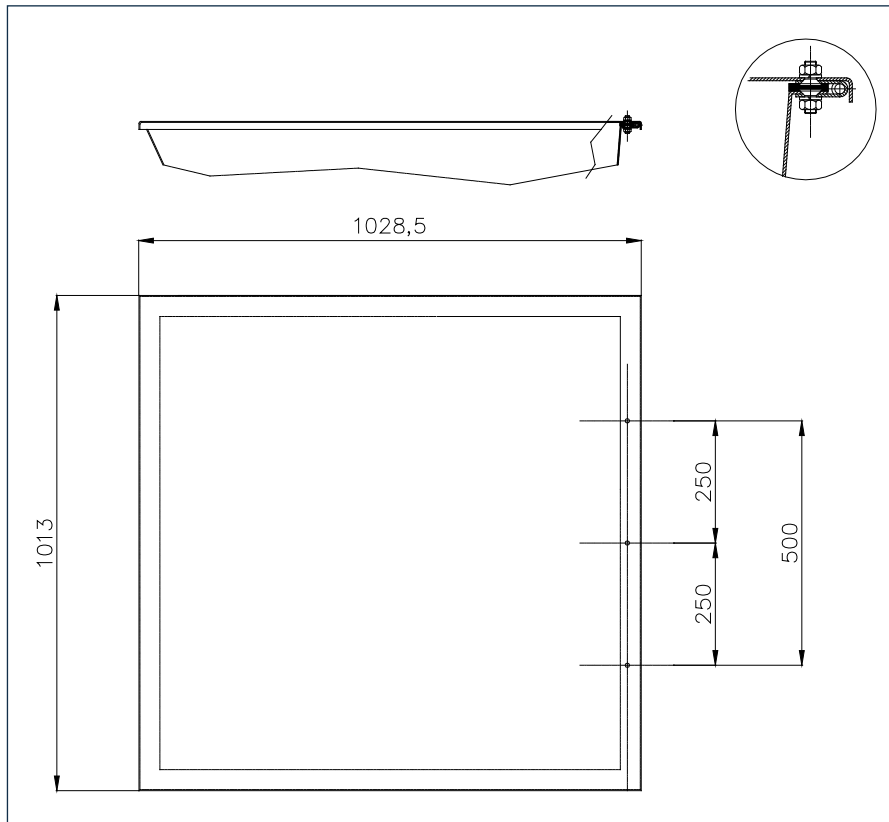
INLET HOPPER XBTA - XBTB FOR TX ONLY


Code	∅	B	C	de < α° < a° - da < α° < a	Welded at
XBt A1906__2	139 - 168	80	260	0° - 11°	6°
XBt A1917__2	139 - 168	80	270	12° - 22°	17°
XBt A1828__2	139 - 168	80	280	23° - 33°	28°
XBt A1839__2	139 - 168	120	310	34° - 45°	39°
XBt B1906__2	219 - 273 - 323	80	260	0° - 11°	6°
XBt B1917__2	219 - 273 - 323	80	270	12° - 22°	17°
XBt B1828__2	219 - 273 - 323	80	280	23° - 33°	28°
XBt B1839__2	219 - 273 - 323	120	310	34° - 45°	39°

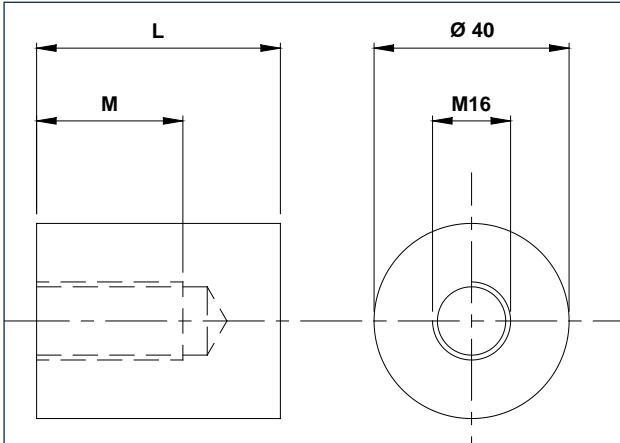
∅	h
139	900
168	930
219	900
273	960
323	1000

↑ Screw
 2 = SS 304
 3 = SS 316

The bag-splitting grille, cover and handles are not included in the supply and must be ordered separately.

COVER FOR XBTA_A XBTX2_ _ INLET HOPPER

In combination with XBTA / XBTB hoppers and their accessories

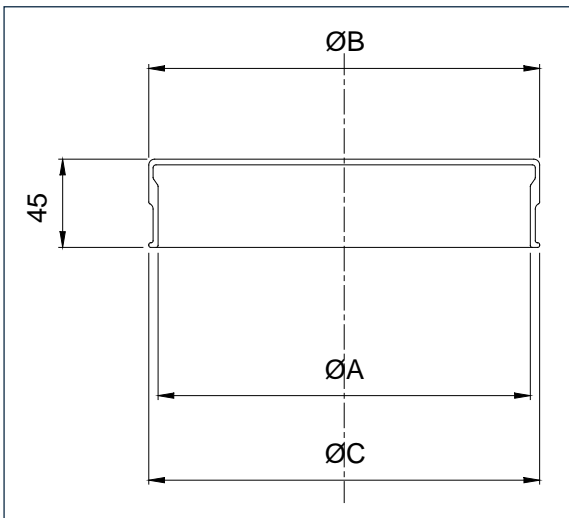
hopper	handle	Cover	Grille
XBTA1906_	XBTX11_	XBTX21_	XBTX35_
XBTA1917_	XBTX11_	XBTX21_	XBTX35_
XBTA1828_	XBTX11_	XBTX21_	XBTX35_
XBTA1839_	XBTX11_	XBTX21_	XBTX34_
XBTB1906_	XBTX11_	XBTX21_	XBTX35_
XBTB1917_	XBTX11_	XBTX21_	XBTX35_
XBTB1828_	XBTX11_	XBTX21_	XBTX35_
XBTB1839_	XBTX11_	XBTX21_	XBTX34_

THREADED PIPE FITTINGS XKS / RUBBER SPOUT COVER XJM
PAIRS OF THREADED PIPE FITTINGS


Code	L	M	kg*
XKS202	20	20	0.4
XKS282	28	28	0.54
XKS332	33	30	0.64
XKS402	40	30	0.8
XKS502	50	30	1.0
XKS632	63	30	1.2
XKS682	68	30	1.3
XKS752	75	30	1.4

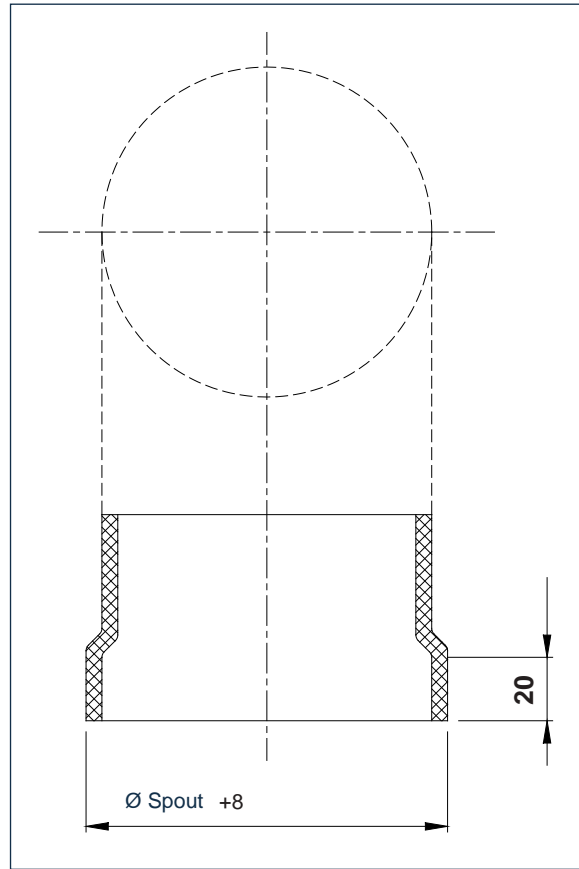
* per pair

N.B.: Pairs of XKS..1 pipe fittings can be used to attach the feeder to any type of mount and are welded onto the feeder pipe axis 120 mm from the inlet centre.

RUBBER SPOUT COVERS FOR ROUND SPOUTS With BEADED EDGE


Ø Spout	Code	Ø A	Ø B	Ø C	thickness	kg*
168	XJM168	168	180	178	4	0.13
193	XJM193	193	205	203	4	0.17
219	XJM219	219	232	229	4	0.19
273	XJM272	273	286	283	4	0.35
323	XJM323	323	336	333	4	0.36

N.B.: The covers are supplied with a steel clamp to be applied in the area indicated.

BEADED SPOUT EDGE


Ø Spout	Code
114	XJY114_
168	XJY168_
193	XJY193_
219	XJY219_
273	XJY273_
323	XJY323_
356	XJY356_
406	XJY406_

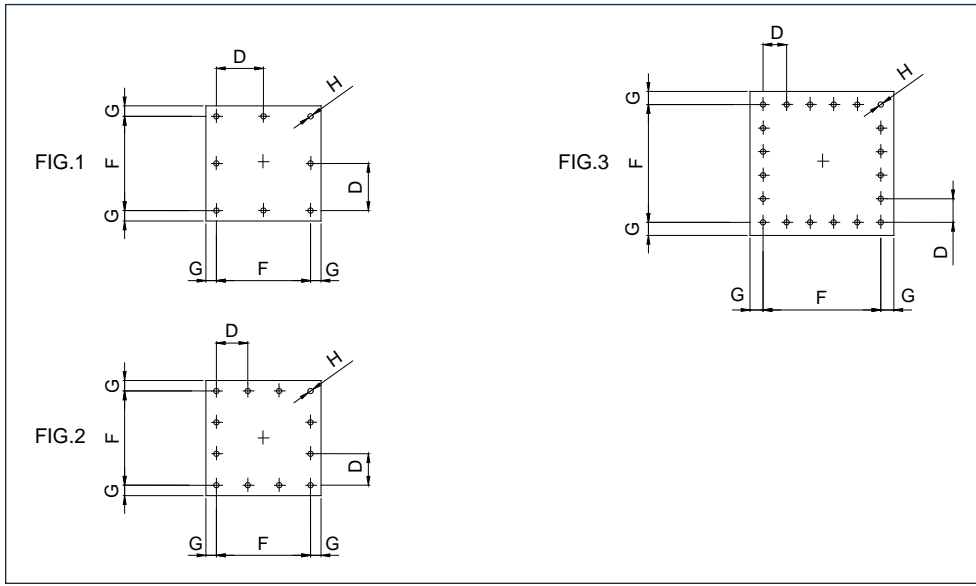
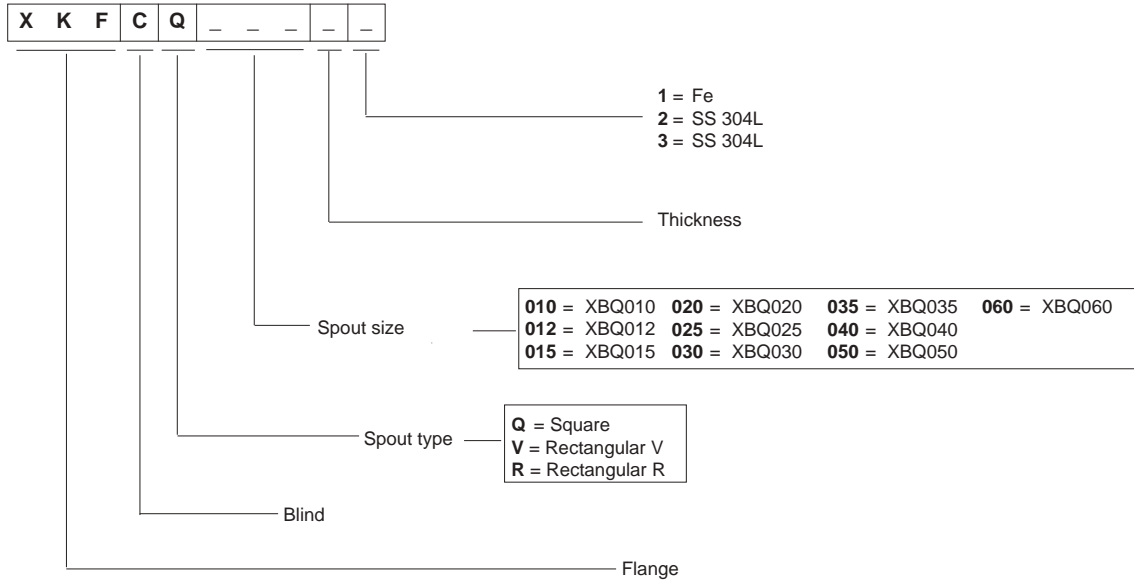
not standard

2 = SS 304
3 = SS 316

The collars are made up by mechanically deforming the end of the spout.

4.2 Flanges

BLIND FLANGE XKFCQ FOR XBQ



type	Code	Fig.	D	F	G	h	Sp	kg
100	XKFCQ0102_	1	115	230	15.5	12.5	2	1
120	XKFCQ0122_	1	115	230	15.5	12.5	2	1
150	XKFCQ0152_	1	115	230	15.5	12.5	2	1
200	XKFCQ0202_	2	93.3	280	15.5	12.5	2	1.5
250	XKFCQ0252_	2	110	330	15.5	12.5	2	2
300	XKFCQ0302_	2	128.3	385	24	12.5	2	2.9
350	XKFCQ0352_	3	89	445	20	12.5	2	3.7
400	XKFCQ0402_	3	100	500	17.5	12.5	2	4.5
500	XKFCQ0503_	3	120	600	27.5	15	3	10

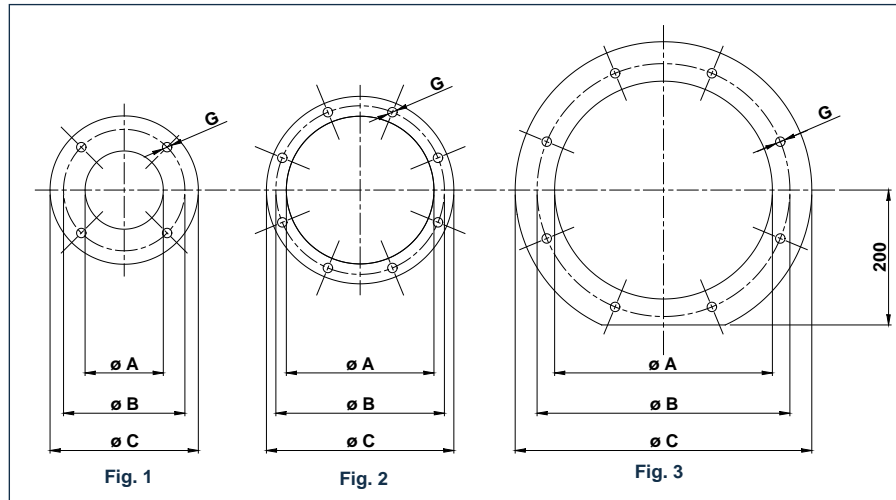
FLANGE XKF

STANDARD thickness

Fig.	Code	Ø A	Ø B	Ø C	G		thickness	VFS	kg
					N°	Ø			
1	XKF29_	141	180	220	4	13.5	4	100	0.8
1	XKF30_	116	180	220	4	14	4	100	1.3
1	XKF31_	168	200	228	4	14	4	150	0.8
1	XKF32_	193	250	278	4	14	4	200	1.4
2	XKF33_	219	250	278	8	14	4	200	1.1
2	XKF34_	273	300	328	8	14	4	250	1.3
2	XKF35_	323	350	378	8	14	4	300	1.4
3	XKF36_	323	375	440	8	14	4	300	3.4
2	XKF37_	357	400	440	8	14	4	350	2.5
2	XKF38_	408	470	530	8	14	4	400	4.2
2	XKF59_	460	490	520	8	17.5	8	/	8
2	XKF60_	560	590	620	8	17.5	8	/	10
2	XKF62_	663	700	755	8	19	10	/	12.5

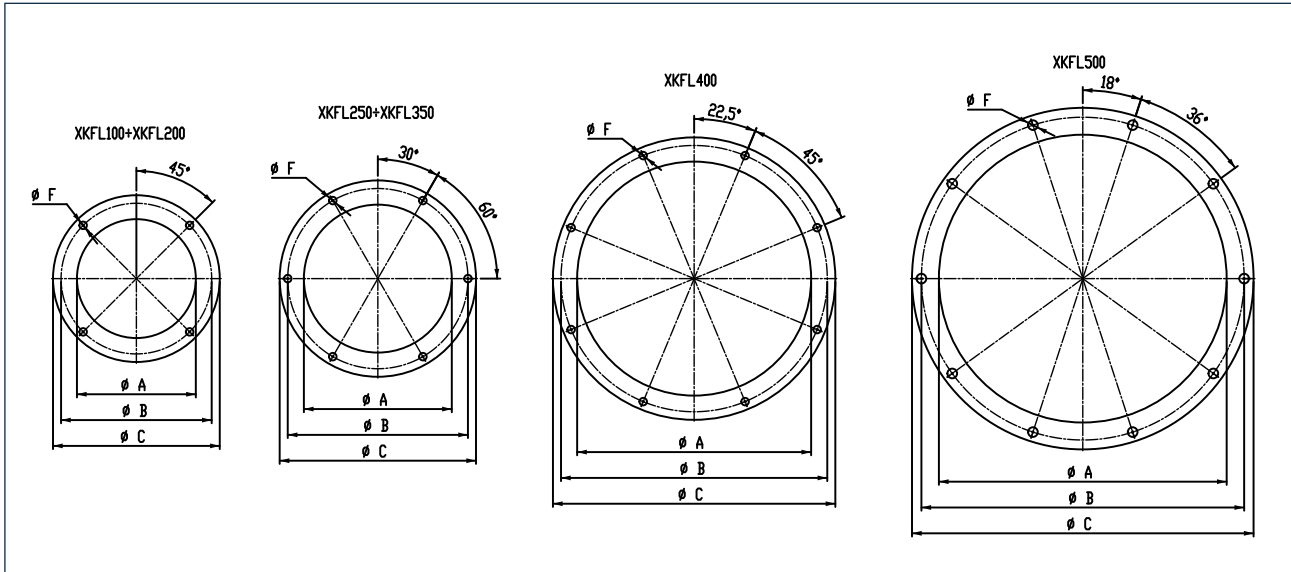
HEAVY thickness

Fig.	Code	Ø A	Ø B	Ø C	G		thickness
					N°	Ø	
1	XKF296_	141	180	220	4	13.5	6
1	XKF306_	116	180	220	4	13.5	6
1	XKF316_	170	200	228	4	13.5	6
1	XKF326_	195	250	278	4	13.5	6
2	XKF336_	221	250	278	8	13.5	6
2	XKF346_	275	300	328	8	13.5	6
2	XKF356_	325	350	378	8	13.5	6
2	XKF376_	357	400	440	8	13.5	6
2	XKF386_	408	470	530	8	13.5	6

EXTRA thickness

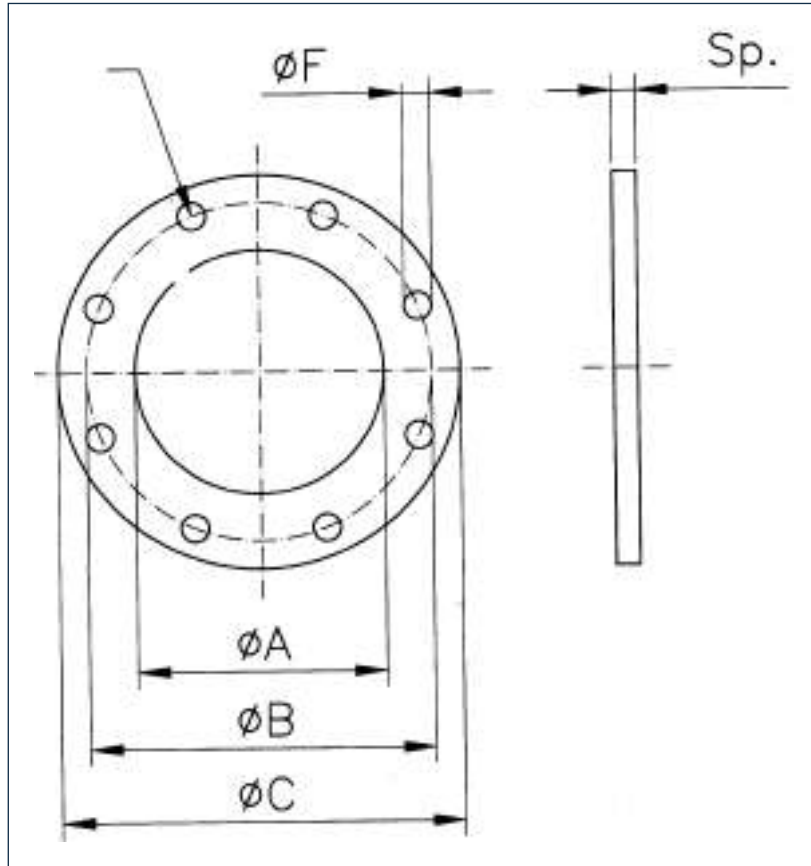
Fig.	Code	Ø A	Ø B	Ø C	G		thickness
					N°	Ø	
1	XKFM30_	116	180	220	4	13.5	10
1	XKFM31_	170	200	228	4	13.5	10
2	XKFM33_	221	250	278	8	13.5	10
2	XKFM34_	275	300	328	8	13.5	10
2	XKFM35_	325	350	378	8	13.5	10
2	XKFM37_	357	400	440	8	13.5	10
2	XKFM38_	408	470	530	8	13.5	10

2 = SS 304
3 = SS 316

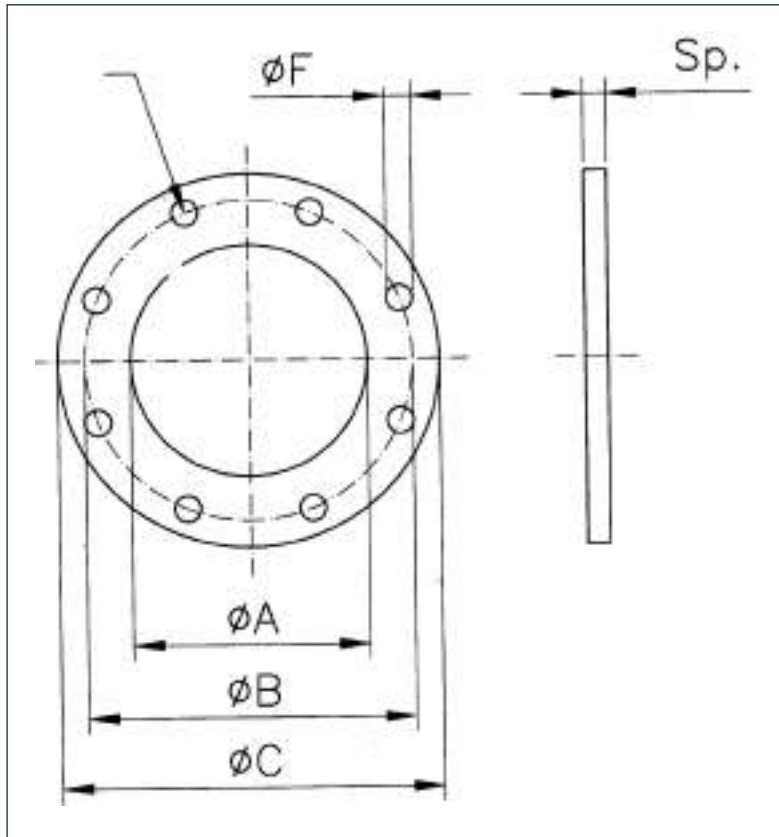
FLANGE XKFL


Materials	
2	SS 304L
3	SS 316L

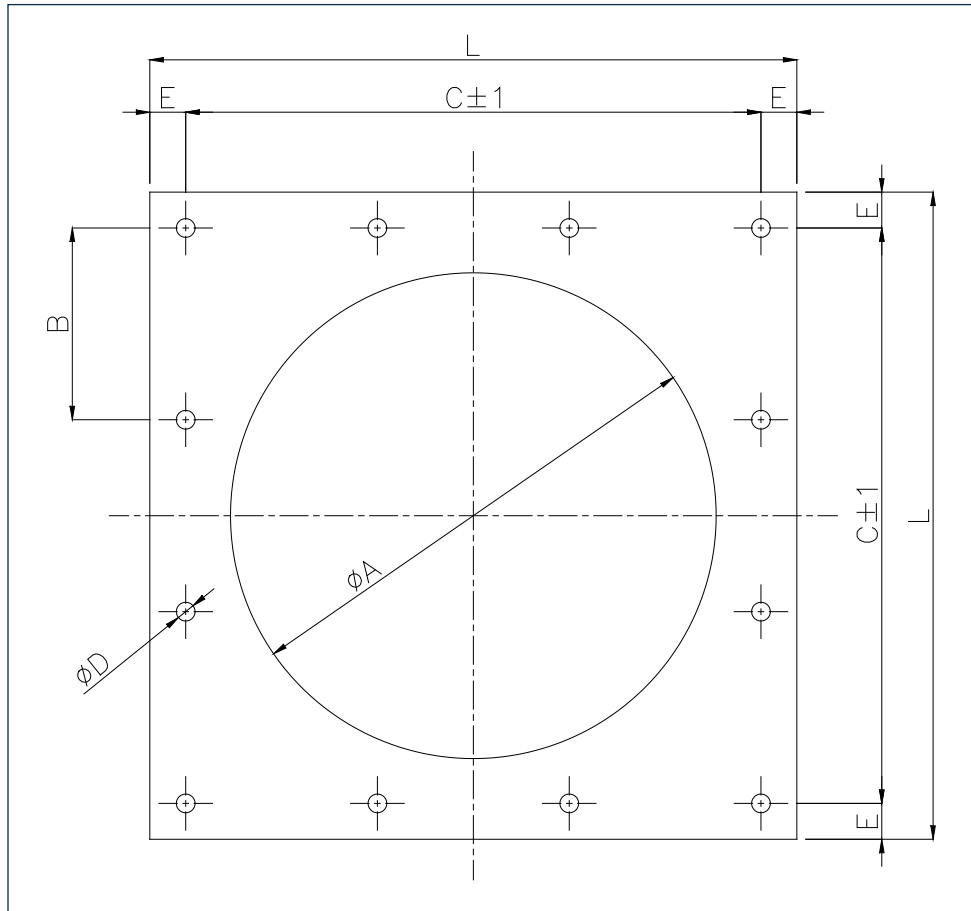
Code	ØA	ØB	ØC	ØF	N°F	thick.	WEIGHT (Kg)	VALVE VFP
XKFL100_	116	170	200	14	4	4	0.65	100
XKFL125_	142	200	230	14	4	4	0.80	125
XKFL150_	170	225	255	14	4	4	0.89	150
XKFL175_	196	250	280	14	4	4	0.99	175
XKFL200_	221	280	310	14	4	4	1.17	200
XKFL250_	275	335	365	14	6	4	1.42	250
XKFL300_	326	395	425	14	6	4	1.84	300
XKFL350_	385	445	475	14	6	4	1.92	350
XKFL400_	435	495	525	14	8	4	2.13	400
XKFL500_	535	600	635	18	10	6	4.29	500

XKF-U UNI 2277-67 PN10 ROUND FLANGES
PN10 XKF-U-tYPE StAINLESS StEEL ROUND FLANGES With DRILLINGS ACCORDING TO UNI 2277-67 StANDARDS


Rounded flanges XKF (PN10 - 16) IN AISI						
	$\varnothing A$	$\varnothing B$	$\varnothing C$	Sp.	$\varnothing F$	N° Fori
XKFU10 - D050	62	125	165	4	17.5	4
XKFU10 - D080	90	160	200	4	17.5	4
XKFU10 - D100	116	180	220	4	17.5	8
XKFU10 - D125	141	210	250	4	17.5	8
XKFU10 - D150	170	240	285	4	22	8
XKFU10 - D175	195	270	315	4	22	8
Rounded flanges XKF (PN10) IN AISI						
	$\varnothing A$	$\varnothing B$	$\varnothing C$	Sp.	$\varnothing F$	N° Fori
XKFU10 - D200	221	295	340	4	22	8
XKFU10 - D250	275	350	395	4	22	12
XKFU10 - D300	326	400	445	4	22	12
XKFU10 - D350	358	460	505	4	22	16
XKFU10 - D400	409	515	565	4	25	16
XKFU10 - D500	511	620	670	4	25	20

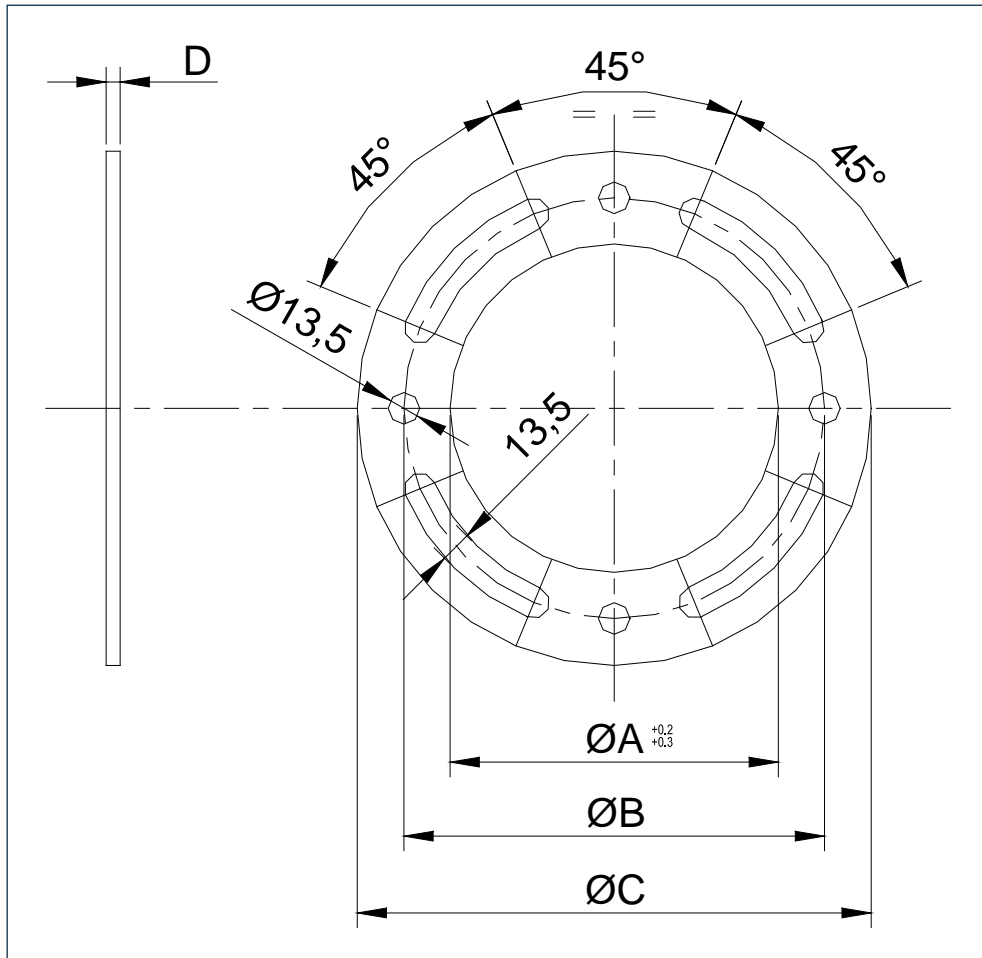
XKF-U UNI 2278-67 PN16 ROUND FLANGES
PN16 XKF-U-tYPE STAINLESS STEEL ROUND FLANGES WITH DRILLINGS ACCORDING TO UNI 2278-67 STANDARDS


Rounded flanges XKF (PN10 - 16) IN AISI						
	ϕA	ϕB	ϕC	Sp.	ϕF	N° Fori
XKFU10 - D050	62	125	165	4	17.5	4
XKFU10 - D080	90	160	200	4	17.5	4
XKFU10 - D100	116	180	220	4	17.5	8
XKFU10 - D125	141	210	250	4	17.5	8
XKFU10 - D150	170	240	285	4	22.0	8
XKFU10 - D175	195	270	315	4	22.0	8
Rounded flanges XKF (PN16) IN AISI						
	ϕA	ϕB	ϕC	Sp.	ϕF	N° Fori
XKFU16 - D200	221	295	340	4	22.0	12
XKFU16 - D250	275	355	405	4	25.0	12
XKFU16 - D300	325	410	460	4	25.0	12
XKFU16 - D350	357	470	520	4	25.0	16
XKFU16 - D400	408	525	580	4	30.0	16
XKFU16 - D500	511	650	715	4	33.0	20

FLANGE FOR SLIDE VALVE CONNECTION


Code	Slide valve VLC..., VLQ...	A	B	C	D		E	L	thickness	kg
					∅	N°				
XKF 71._	150	170	115	230	12.5	8	15.5	261	5	2.3
XKF 73._	200	221	93.3	280	12.5	12	15.5	311	5	2.8
XKF 74._	250	275	110	330	12.5	12	15.5	361	5	3.3
XKF 75._	300	325	128.3	385	12.5	12	24	433	5	5.2
XKF 76._	350	357	89	445	12.5	20	19	483	5	6.1
XKF 77._	400	408	100	500	12.5	20	17.5	535	5	7.5
XKF 78._	500	510	120	600	15	20	27.5	655	5	10.8

2 = SS 304
3 = SS 316

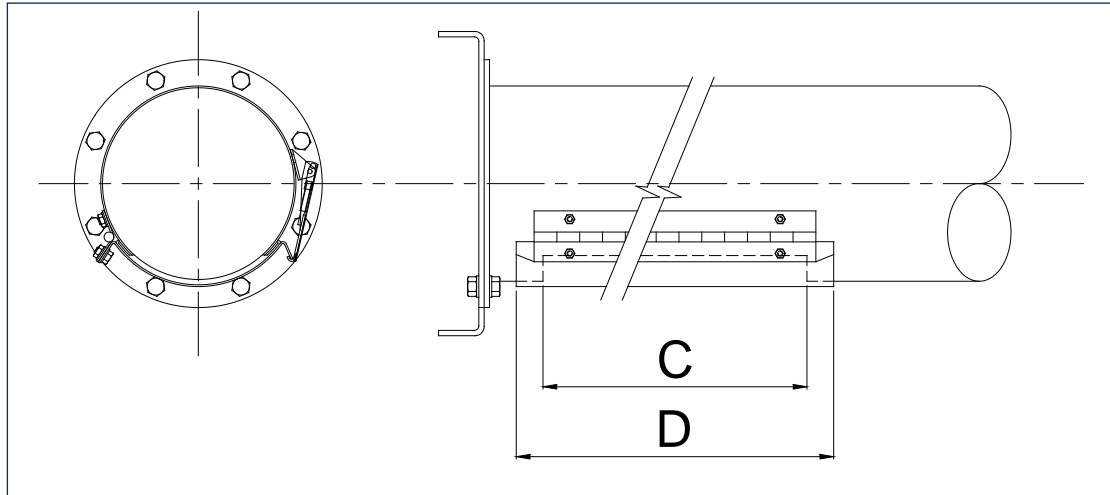
SLOTTED FLANGE XKFA


Code	Ø A	Ø B	Ø C	D	kg
XKFA30_	115	180	220	5	1.3
XKFA291_	140.5	180	220	5	1.4
XKFA311_	169.3	200	228	5	0.9
XKFA321_	195	250	278	5	1.5
XKFA331_	220.4	250	278	5	1.1
XKFA341_	274.8	300	328	5	1.25
XKFA351_	326	350	378	5	1.45
XKFA361_	326	375	440	5	3.35
XKFA371_	359.1	400	440	5	2.5
XKFA381	410	470	530	5	4.3

2 = SS 304
3 = SS 316

4.3 hatches and drop bottoms

HINGED INSPECTION HATCH XKE FOR TX ONLY



Viewed from inlet end hinge is on the right, clamps on the left

Ø	Code	C	D
100	XKE06_	330	350
120	XKE08_	330	350
150	XKE10_	310	350
200	XKE12_	310	350
250	XKE14_	310	350
300	XKE16_	320	360
350	XKE18_	320	360
400	XKE20_	320	360
500	XKE22_	280	360

2 = SS 304
3 = SS 316

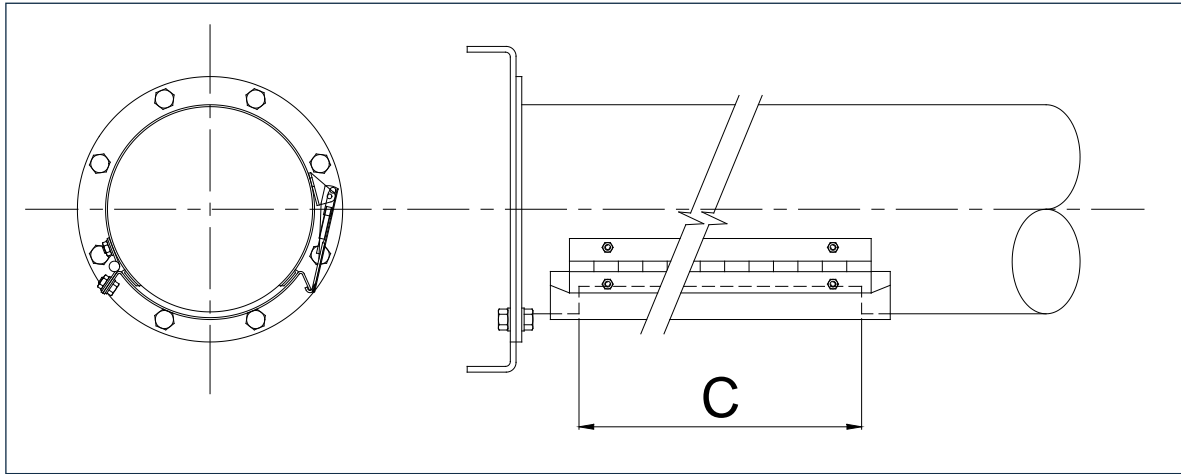
Inspection hatch with insert made of steel sheet, TIG seam welded.

Finishing:

- 4/4/V (polishing 120 ÷ 180)

According to UNI - EN 10088 (1997) / AISI (1974) / DIN 17440 (1985)

- INOX hinges
- Chrome-plated hooks

INSPECTIONS FLAP HATCH XKK FOR TX ONLY


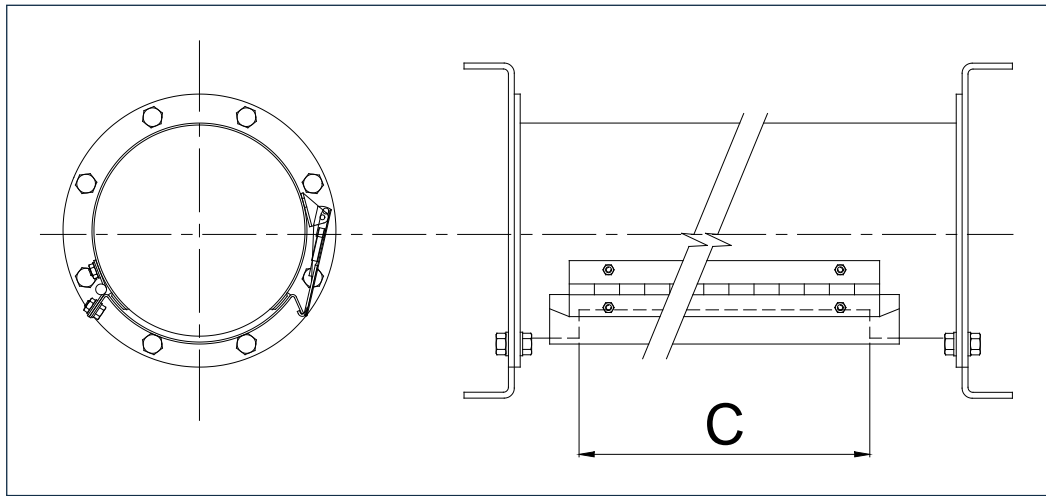
Viewed from inlet end hinge is on the right, clamps on the left

Ø	Code	C
100	XKKE1L_	310
120	XKKF1L_	
150	XKKG1L_	
200	XKKJ1L_	
250	XKKK1L_	
300	XKKL1L_	
350	XKKM1L_	
400	XKKN1L_	
500	XKKP1L_	

2 = SS 304
3 = SS 316

- Inspection hatch with insert and seal made from food engineering polymer
- Finishing: 4/4/V (polishing 120-180)
- INOX hinges
- Chrome-plated hooks

DROP BOTTOM XKK FOR TX ONLY



X K K L 2

Materials

2	SS 304
3	SS 316

Version

L *light*

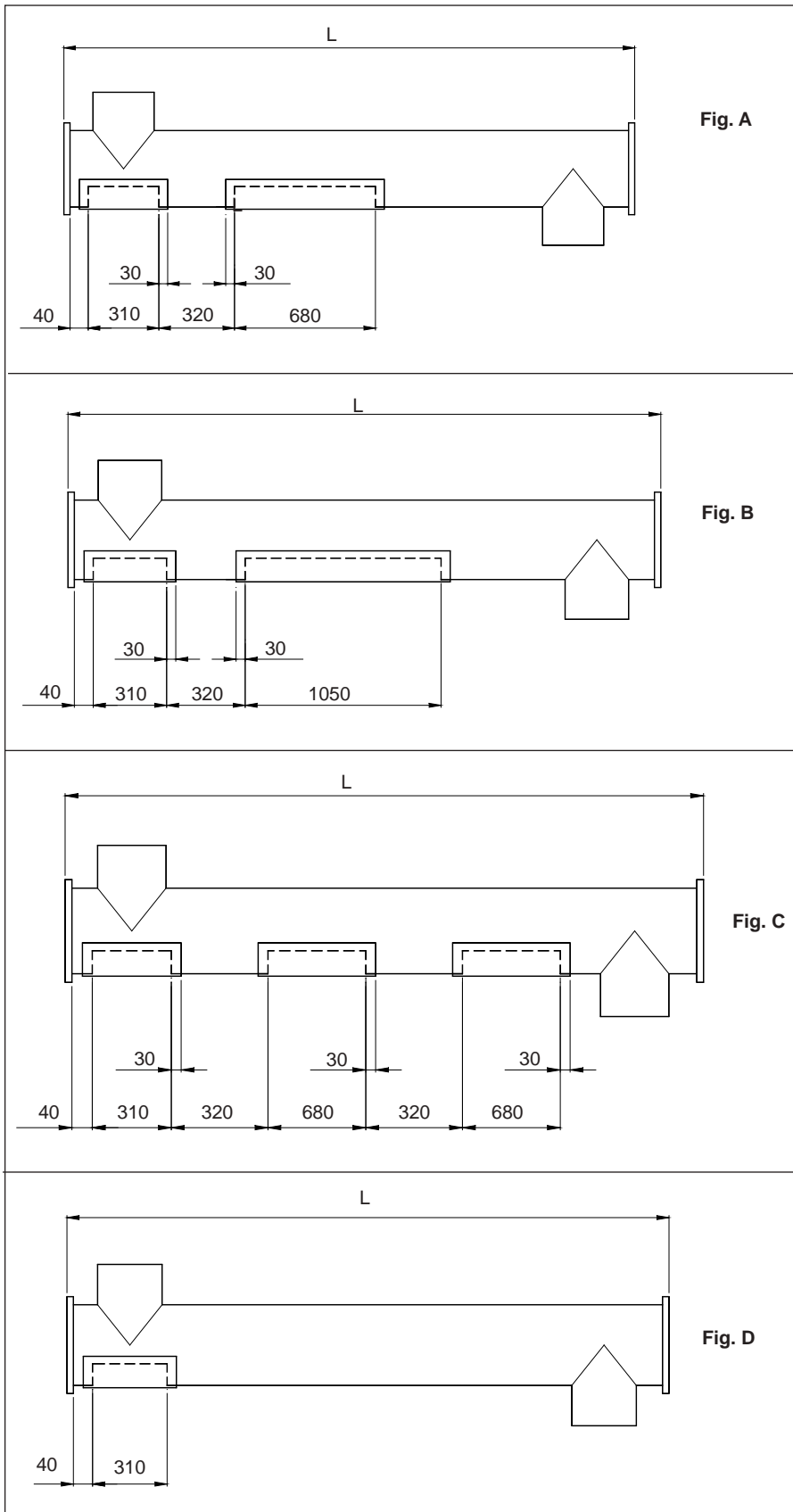
3 = 680
7 = 1050

Ø E F G J K L M N P
100 120 150 200 250 300 350 400 500

Ø	C	
O - 100	680	1050
O - 120		
O - 150		
O - 200		
O - 250		
O - 300		
O - 350		
O - 400		
O - 500		

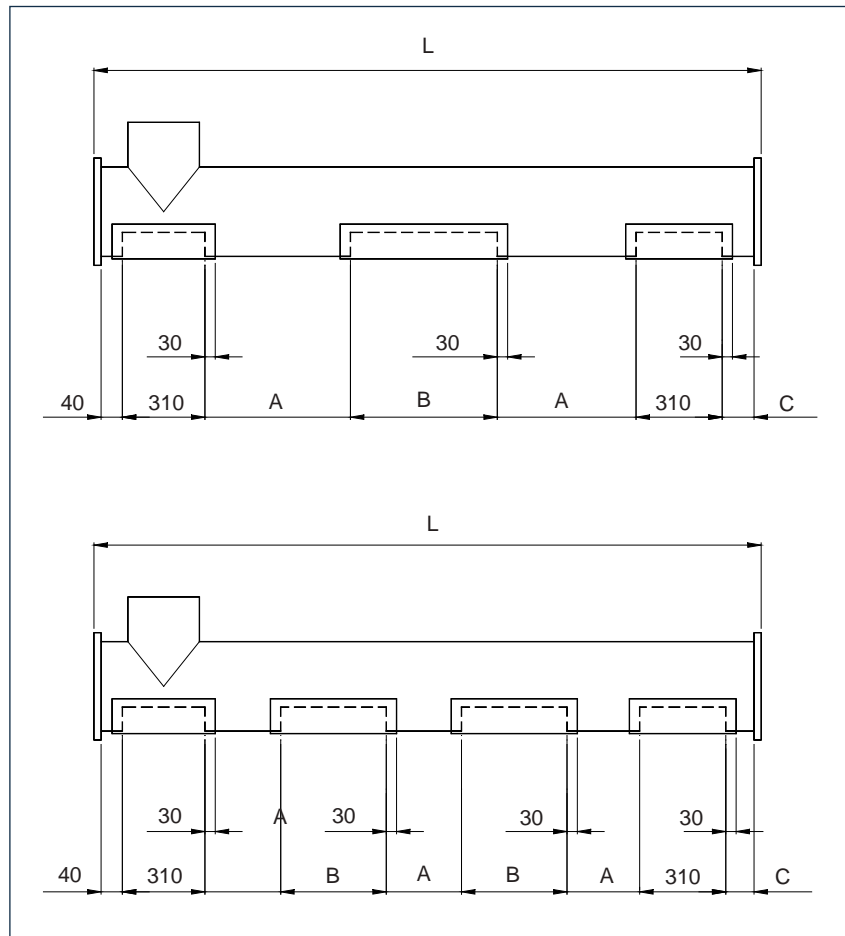
Viewed from inlet end hinge is on the right, clamps on the left

- Finishing: 4/4/V (polishing 120-180)
- Insert and seal made from food engineering polymer
- INOX hinges
- Chrome-plated hooks

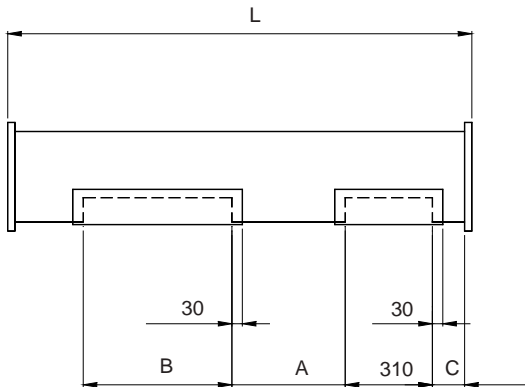
SINGLE PIECE DROP BOTTOM TROUGH XKK


L	Fig.	Ø
1600 ÷ 1970	A	100
1980 ÷ 3000	B	
1610 ÷ 1980	A	120
1990 ÷ 3000	B	
1650 ÷ 2020	A	150
2030 ÷ 3000	B	
1700 ÷ 2120	A	200
2130 ÷ 3000	B	
1750 ÷ 2100	A	250
2110 ÷ 3000	B	
1800 ÷ 2170	A	300
2180 ÷ 3180	B	
3180 ÷ 3500	C	350
1900 ÷ 2270	A	
2280 ÷ 3280	B	
3280 ÷ 3500	C	400
1930 ÷ 2300	A	
2310 ÷ 3310	B	
3310 ÷ 3500	C	500
2050 ÷ 2420	A	
2430 ÷ 3500	B	

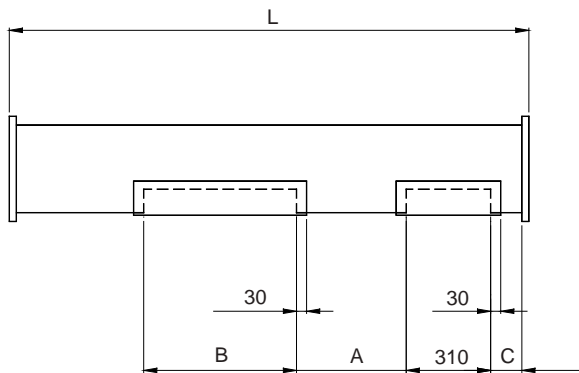
For shorter lengths "L" the screw conveyors are supplied with one only hatch beneath the inlet, see fig.D.

DROP BOTTOM TROUGH INLET SECTION


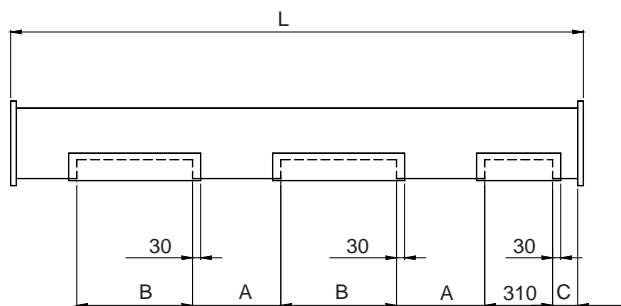
Ø	100 ÷ 250		300 ÷ 600	
	L	A	B	C
L	2200	3200	2300	3800
A	410	380	415	426
B	680	2 x 680	680	680 + 1050
C	40	40	130	130

DROP BOTTOM TROUGH INTERMEDIATE SECTION XKK


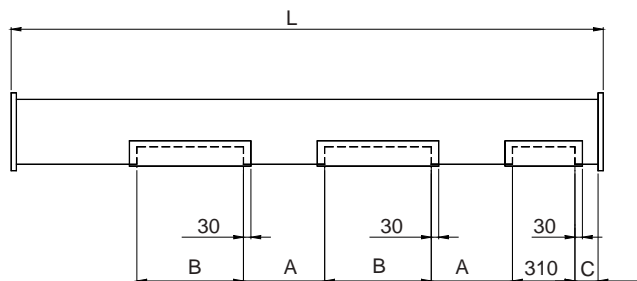
Ø	100	120	150	200	250	300	350	400	500	600
L	1510 ≤ L ≤ 1880					1600 ≤ L ≤ 1970				
C	40					130				
B	1 x 680									
A	320									



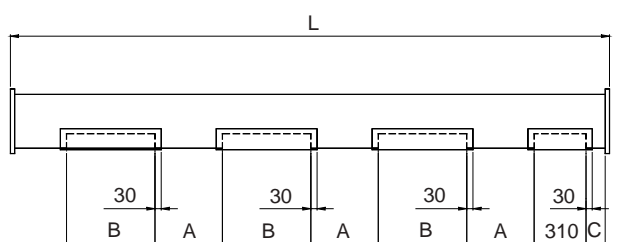
Ø	100	120	150	200	250	300	350	400	500	600
L	1880 ≤ L ≤ 2510					1970 ≤ L ≤ 2600				
C	40					130				
B	1 x 1050									
A	320									



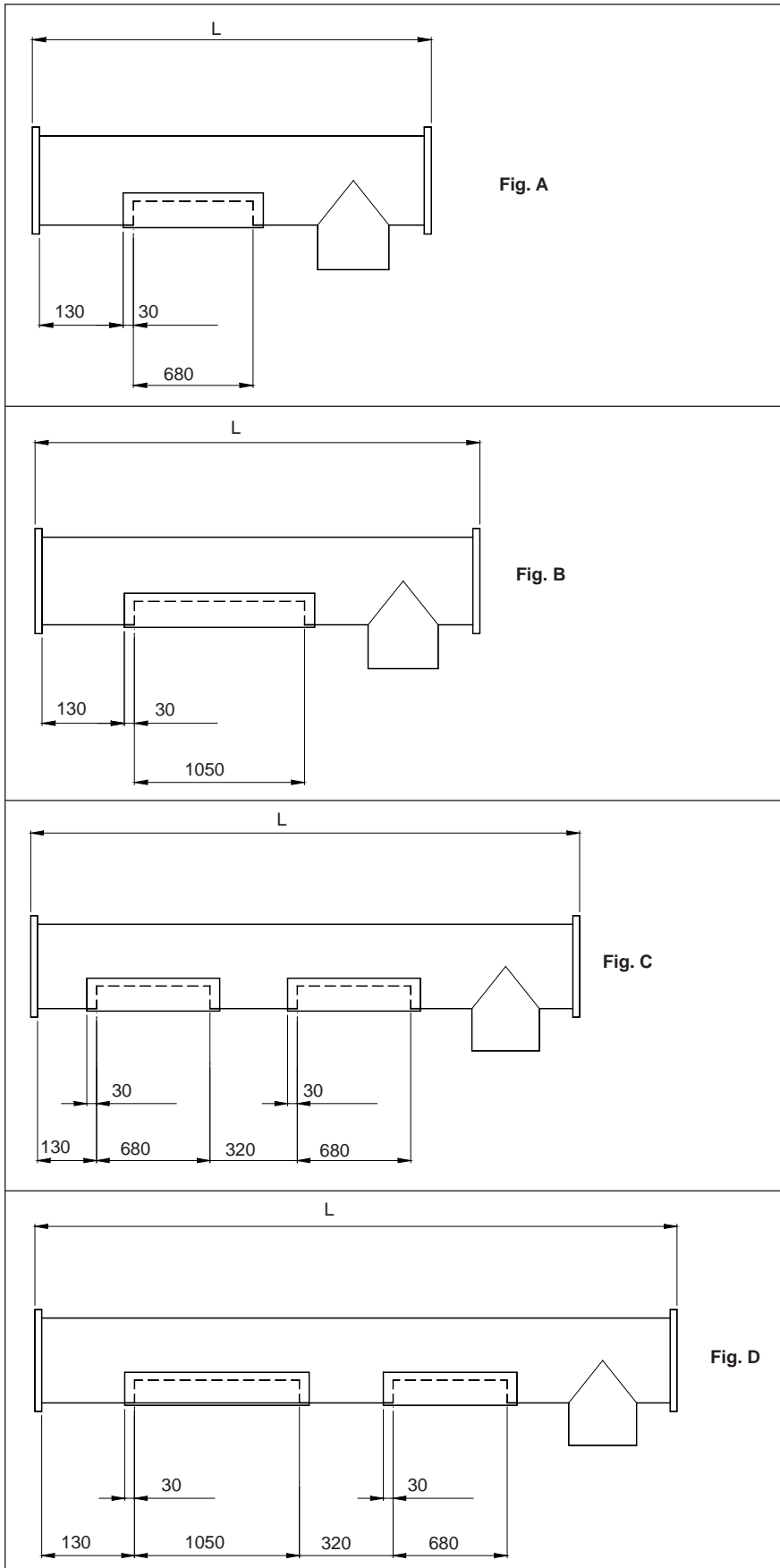
Ø	100	120	150	200	250	300	350	400	500	600
L	2510 ≤ L ≤ 3000					2600 ≤ L ≤ 2970				
C	40					130				
B	2 x 680									
A	320									



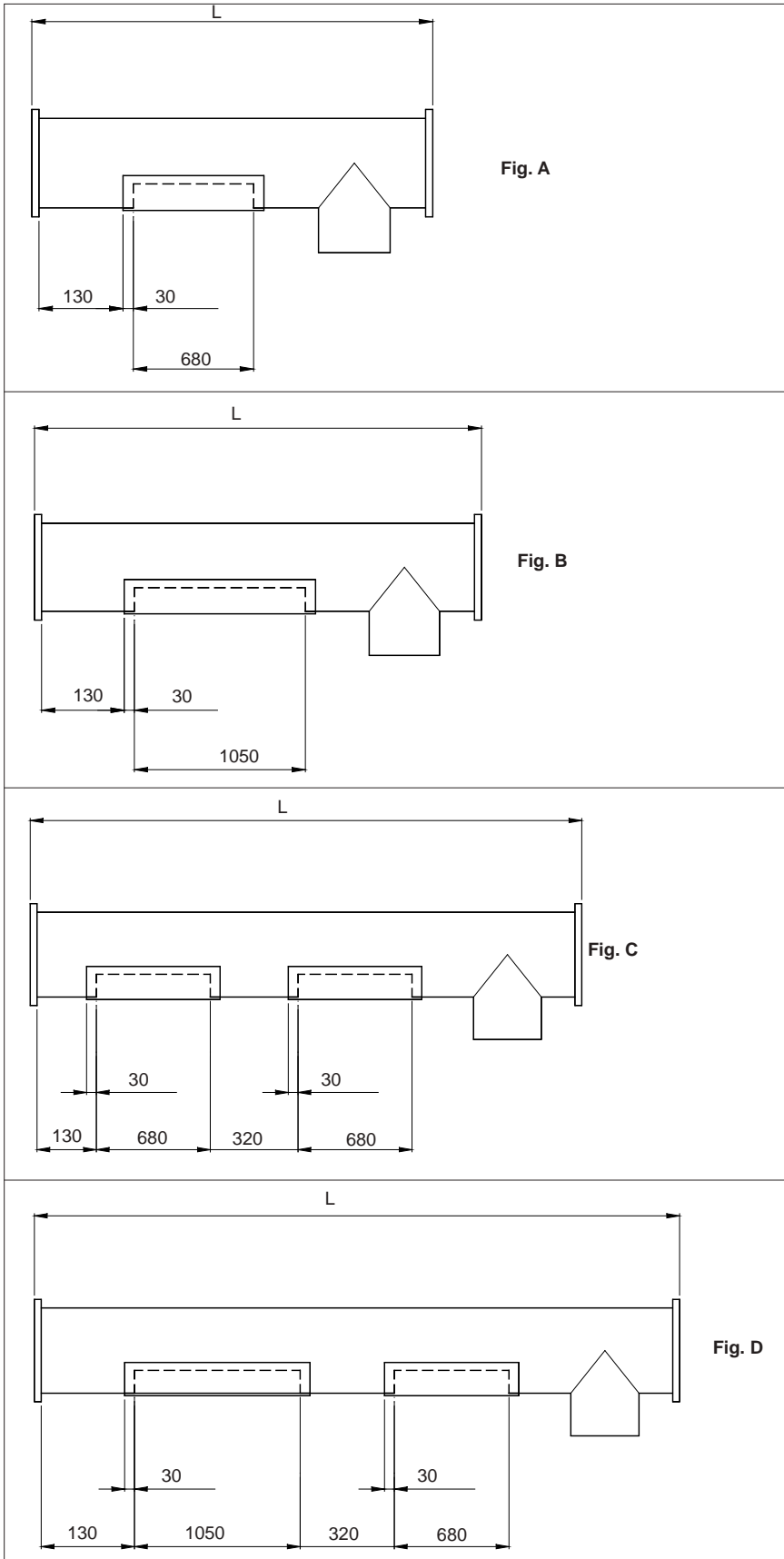
Ø	100	120	150	200	250	300	350	400	500	600
L						2970 ≤ L ≤ 3340				
C	40					130				
B	1 x 680 + 1 x 1050									
A	320									



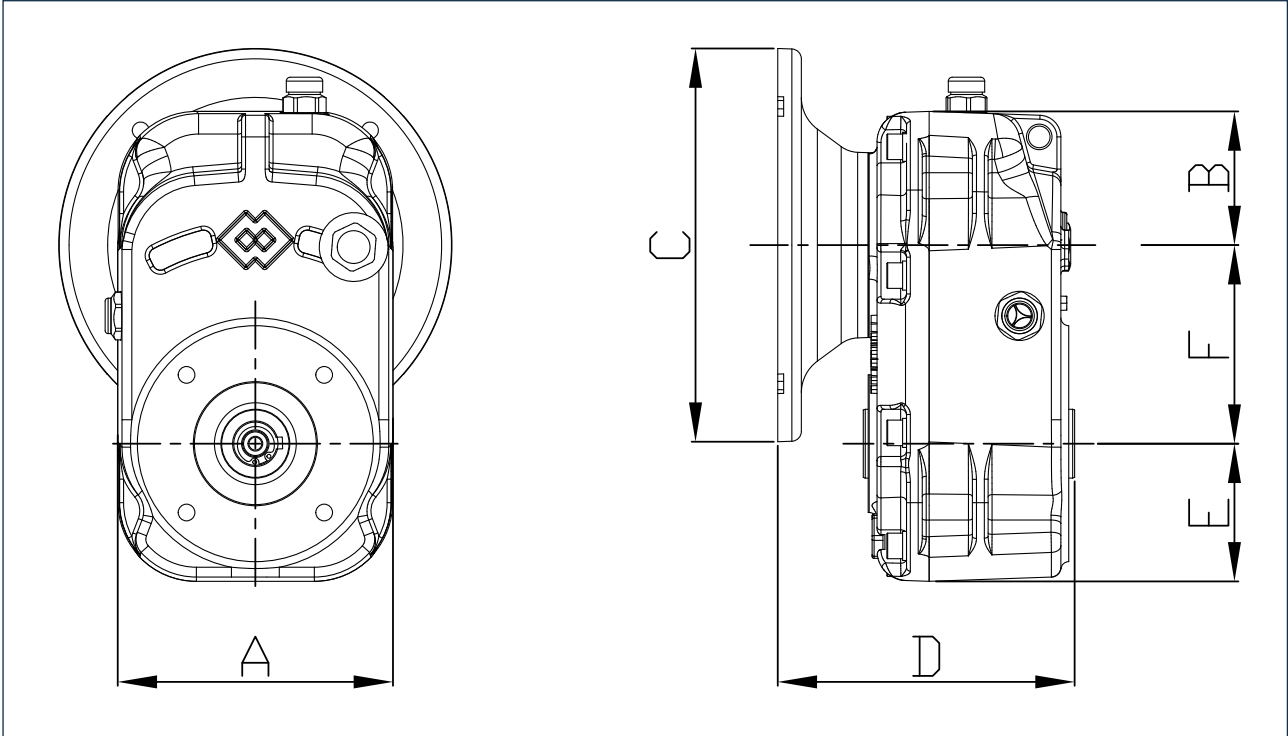
Ø	100	120	150	200	250	300	350	400	500	600
L						3340 ≤ L ≤ 3500				
C	40					130				
B	3 x 680									
A	320									

DROP BOTTOM TROUGH OUTLET Ø 100 ÷ 250 XKK


L	Fig.	Ø
1100 ÷ 1470	A	100
1480 ÷ 2100	B	
2110 ÷ 2470	C	
2470 ÷ 2800	D	
1120 ÷ 1490	A	120
1500 ÷ 2120	B	
2130 ÷ 2490	C	
2500 ÷ 2800	D	
1160 ÷ 1530	A	150
1540 ÷ 2160	B	
2170 ÷ 2530	C	
2540 ÷ 2800	D	
1200 ÷ 1570	A	200
1580 ÷ 2200	B	
2210 ÷ 2570	C	
2580 ÷ 2800	D	
1250 ÷ 1620	A	250
1630 ÷ 2250	B	
2260 ÷ 2620	C	
2630 ÷ 2800	D	

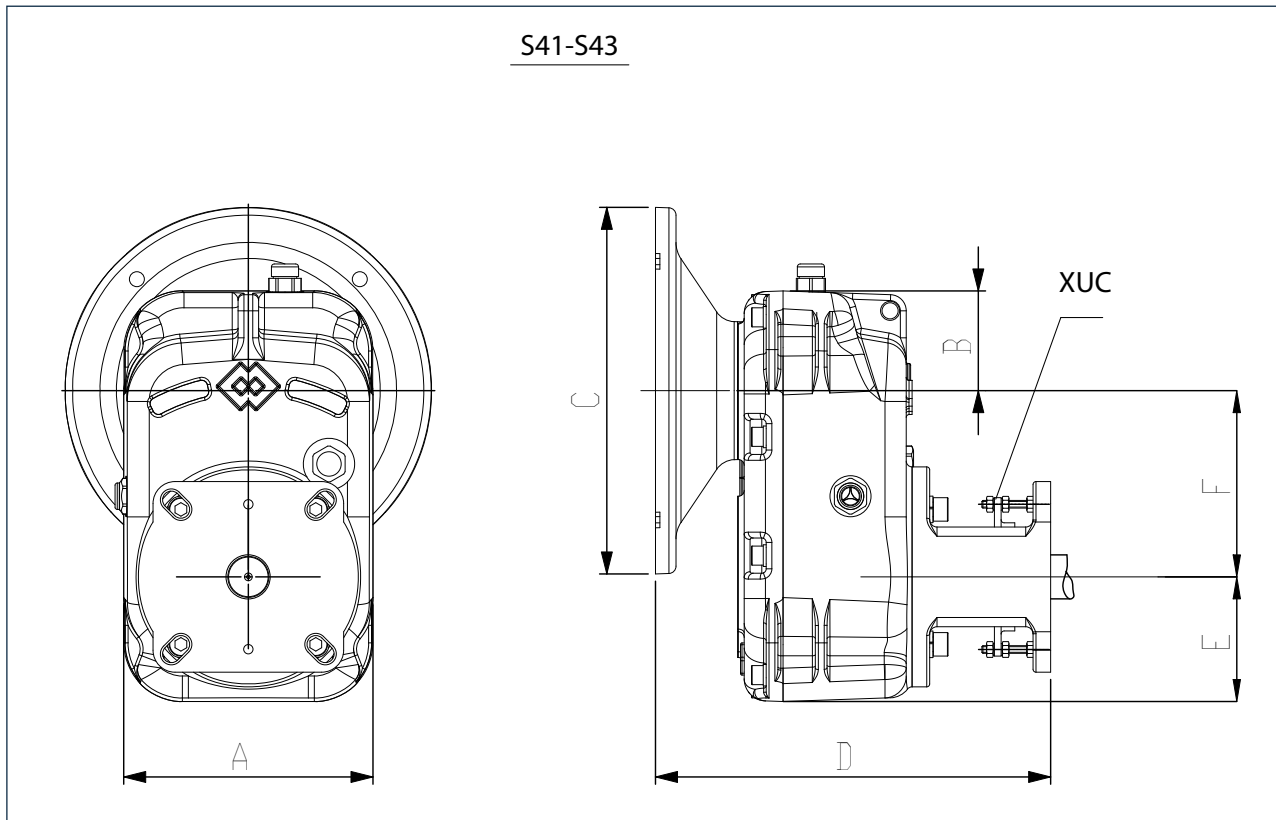
DROP BOTTOM TROUGH OUTLET Ø 300 ÷ 500 XKK


L	Fig.	Ø
1310 ÷ 1680	A	300
1690 ÷ 2310	B	
2320 ÷ 2680	C	
2690 ÷ 3200	D	
1400 ÷ 1770	A	350
1780 ÷ 2400	B	
2410 ÷ 2770	C	
2780 ÷ 3200	D	
1430 ÷ 1800	A	400
1810 ÷ 2430	B	
2440 ÷ 2800	C	
2810 ÷ 3200	D	
1550 ÷ 1920	A	500
1930 ÷ 2550	B	
2560 ÷ 2920	C	
2930 ÷ 3200	D	

4.4 Gear reducers and seals
S39 GEAR REDUCER DIMENSIONS WITH HOLLOW SHAFT (CV)


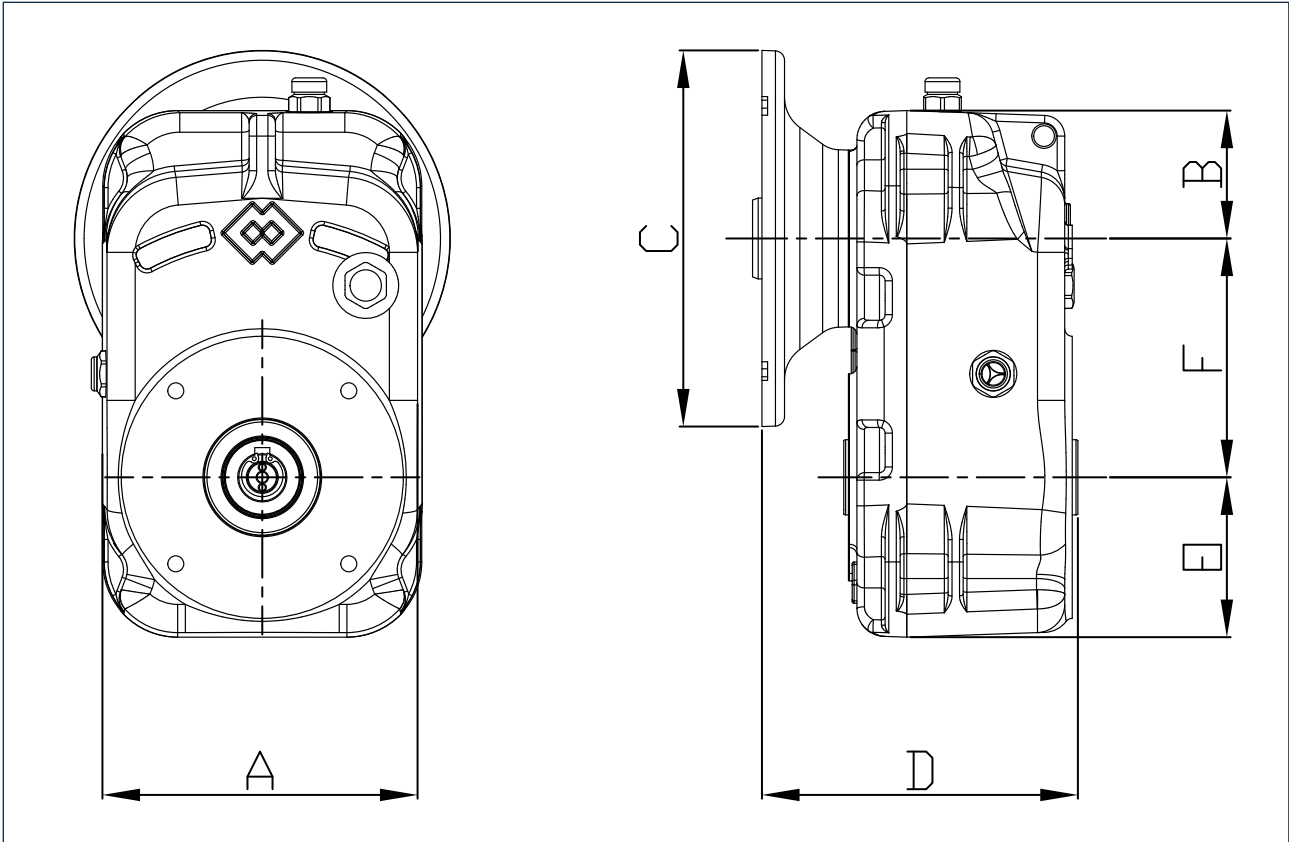
Gear reducer	Φ Screw	A	B	E	F
S39	/	140	68	70	101

Motor dimensions	C	D	Weight [kg]
90	200	148	14
100-112	250	158	15.9

S41 - S43 GEAR REDUCER DIMENSIONS


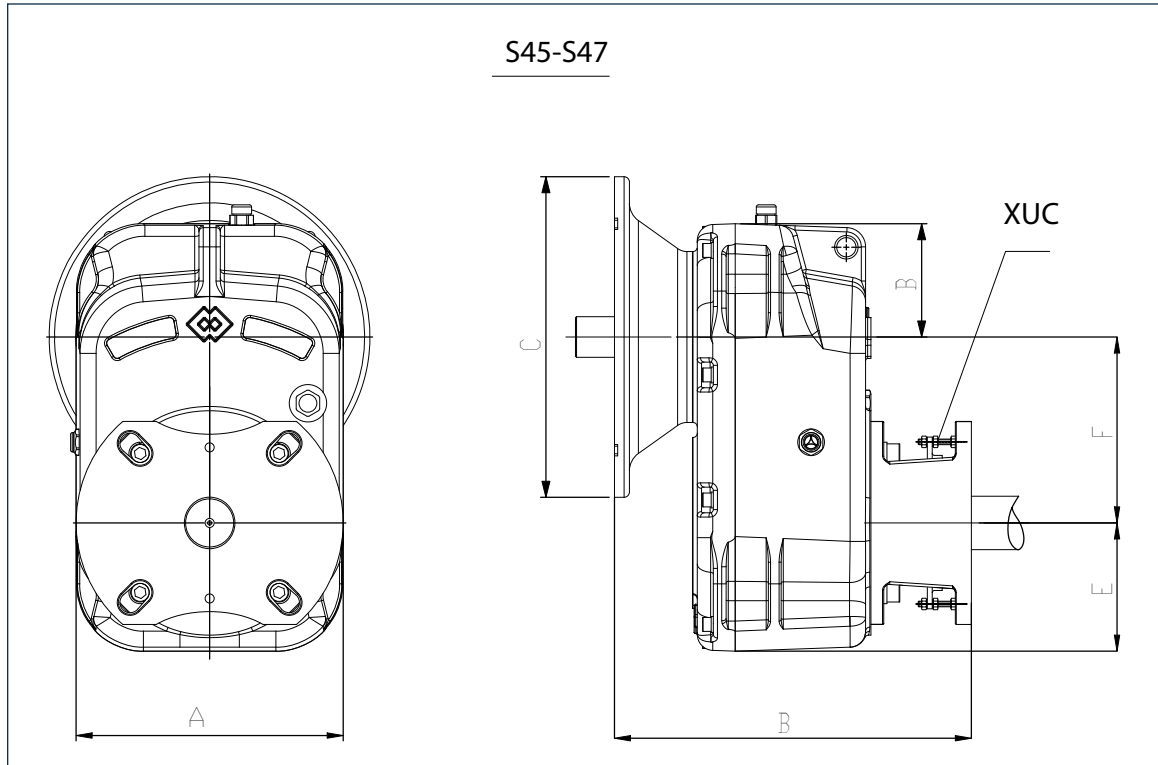
Gear reducer	Outlet	Ø Screw	A	B	E	F
S41	28	100 ... 120	170	68	85	127
	40	150 - 200 - 250				
S43		150	200	83	99	138

Motor dimensions	C	D	Weight [kg]	
			(28)	(40)
71	160	243	27	28
80	200	259	28	29.5
90	200	259	28	29.5
100 ... 112	250	269	30	31.5
			B63	
80	200	280.5	42	
90	200	280.5	42	
100 ... 112	250	289.5	43.5	
132	300	309.5	46	

S41 AND S43 GEAR REDUCER DIMENSIONS WITH HOLLOW SHAFT (CV)


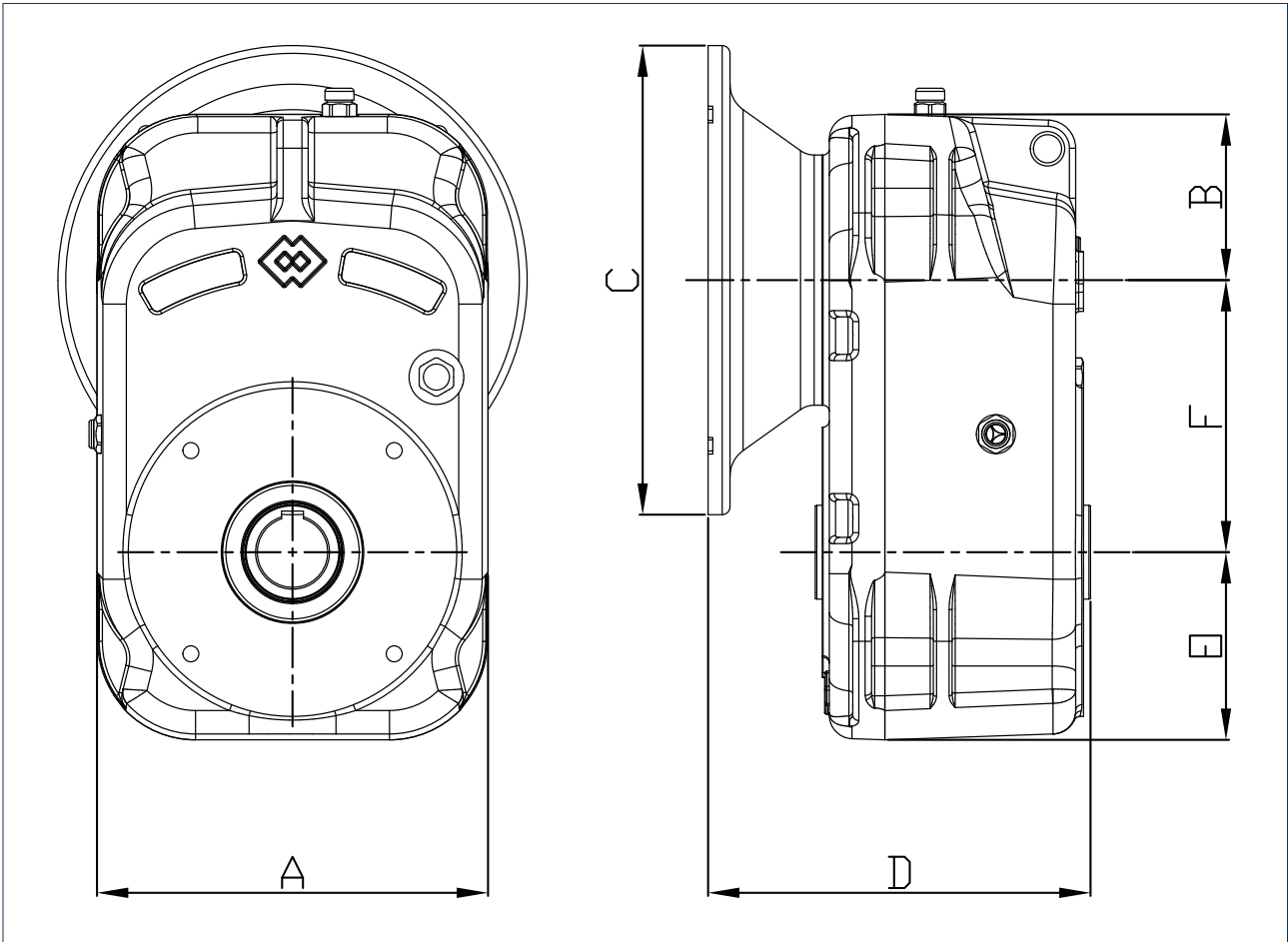
Gear reducer	Φ Screw	A	B	E	F
S41	/	170	68	85	127
S43	/	200	83	99	138

Motor dimensions	C	D		Weight [kg]
71	160	152	S41	21
80	200	168		22
90	200	168		22
100-112	250	178		24
80	200	190	S43	32
90	200	190		32
100 ... 112	250	199		34
132	300	219		36

S45 - S47 GEAR REDUCER DIMENSIONS


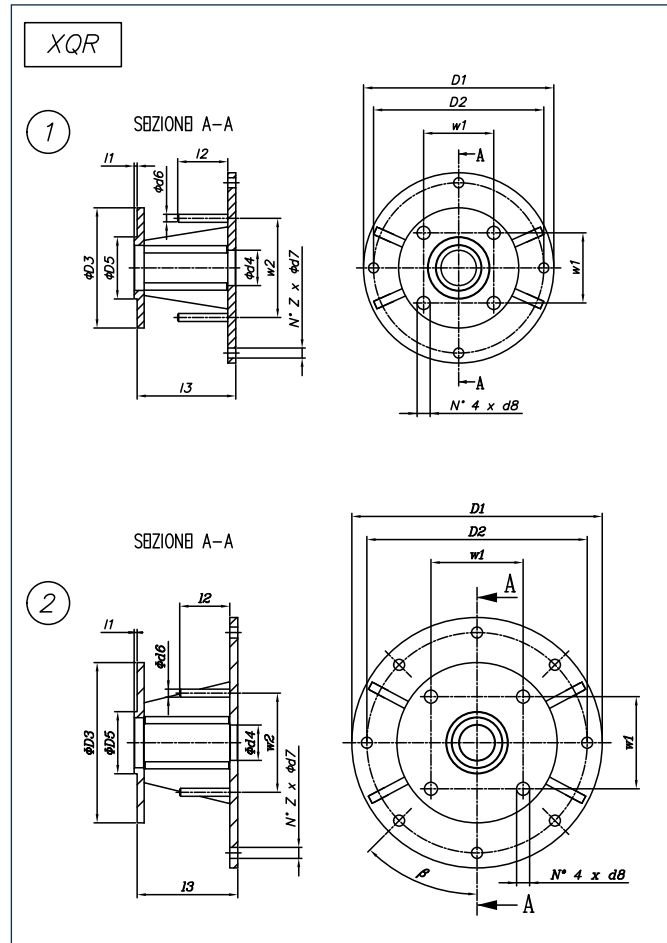
Gear reducer	Ø Screw	A	B	E	F
S45	/	250	106	120	174
S47	/	320	124	158	218

Motor dimensions	C	D		Weight [kg]
90	200	304	S45	71
100 – 112	250	314		72
132	300	334		75
160	350	364		79
180	350	364		79
100 – 112	250	351	S47	135
132	300	371		138
160	350	401		142
180	350	401		142
200	400	401		147

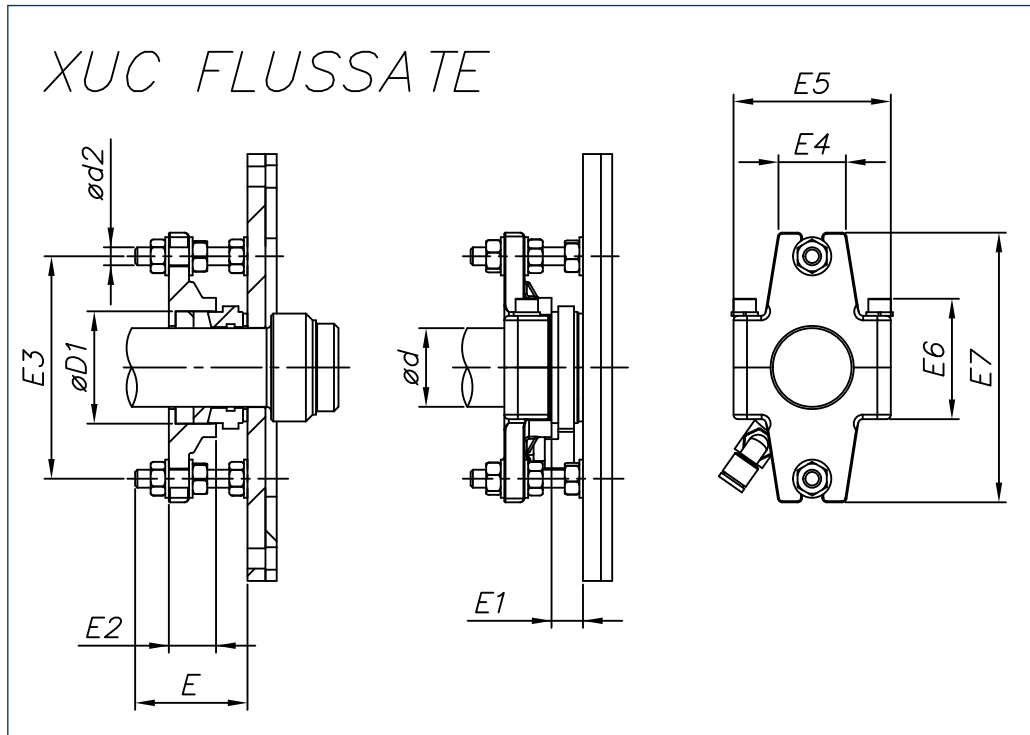
S45 AND S47 GEAR REDUCER DIMENSIONS WITH HOLLOW SHAFT (CV)


Gear reducer	Φ Screw		B	E	F
S45	/	250	106	120	174
S47	/	320	124	158	218

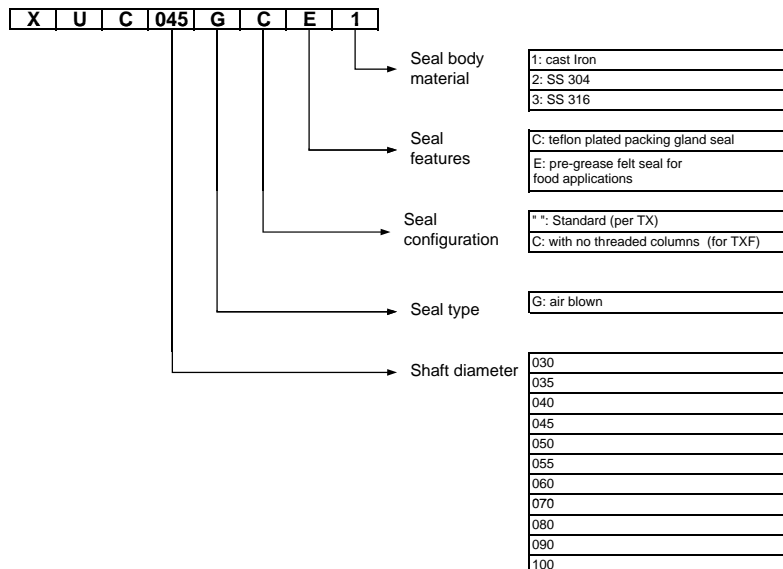
Motor dimensions	C	D		Weight [kg]
90	200	214.5	S45	54
100 – 112	250	224.5		55
132	300	244.5		58
160	350	274.5		63
180	350	274.5		63
100 – 112	250	261	S47	106
132	300	281		108
160	350	311		112
180	350	311		112
200	400	311		117

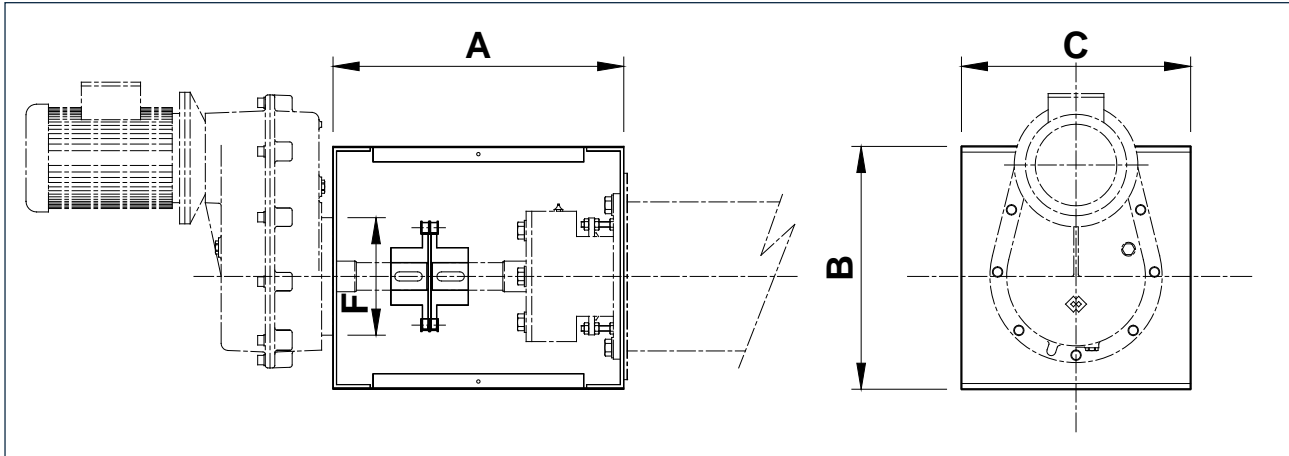
GEAR REDUCER END BELL FOR DIRECT TRANSMISSION ON TROUGH (TXF ONLY)


XQR																
Code	ØD1	ØD2	ØD3	Ød4	ØD5	Ød6	Ød7	Ød8	l1	l2	l3	w1	w2	β	Z	fig.
XQR070T080...	190	170	120	35.3	62	M8	9	13	3	50	98.5	70	99	/	4	1
XQR070T100...	190	170	120	35.3	62	M8	9	13	3	50	98.5	70	99	/	4	1
XQR070T120...	190	170	120	35.3	62	M8	9	13	3	50	98.5	70	99	/	4	1
XQR092T080...	190	170	160	35.3	62	M8	9	13	3	50	98.5	92	99	/	4	1
XQR092T100...	190	170	160	35.3	62	M8	9	13	3	50	98.5	92	99	/	4	1
XQR092T120...	190	170	160	35.3	62	M8	9	13	3	50	98.5	92	99	/	4	1
XQR092T150...	250	220	160	35.3	62	M8	11	13	3	50	100.5	92	99	45°	8	2
XQR092T200...	275	250	160	35.3	62	M8	11	13	3	50	100.5	92	99	45°	8	2
XQR105T150...	250	220	176	45.3	80	M8	11	15	3	50	100	105	121.6	45°	8	2
XQR105T200...	275	250	176	45.3	80	M8	11	15	3	50	100	105	121.6	45°	8	2
XQR105T250...	330	305	176	45.3	80	M8	11	15	3	50	100	105	121.6	45°	8	2
XQR105T300...	405	370	176	45.3	80	M8	11	15	3	50	100	105	121.6	45°	8	2
XQR130T200...	275	250	210	55.3	90	M10	11	15	3	60	120	130	141.4	45°	8	2
XQR130T250...	330	305	210	55.3	90	M10	11	15	3	60	120	130	141.4	45°	8	2
XQR130T300...	405	370	210	55.3	90	M10	11	15	3	60	120	130	141.4	45°	8	2
XQR171T250...	330	305	280	60.3	110	M10	11	19	3	60	120	171	183.8	45°	8	2
XQR171T300...	405	370	280	60.3	110	M10	11	19	3	60	120	171	183.8	45°	8	2

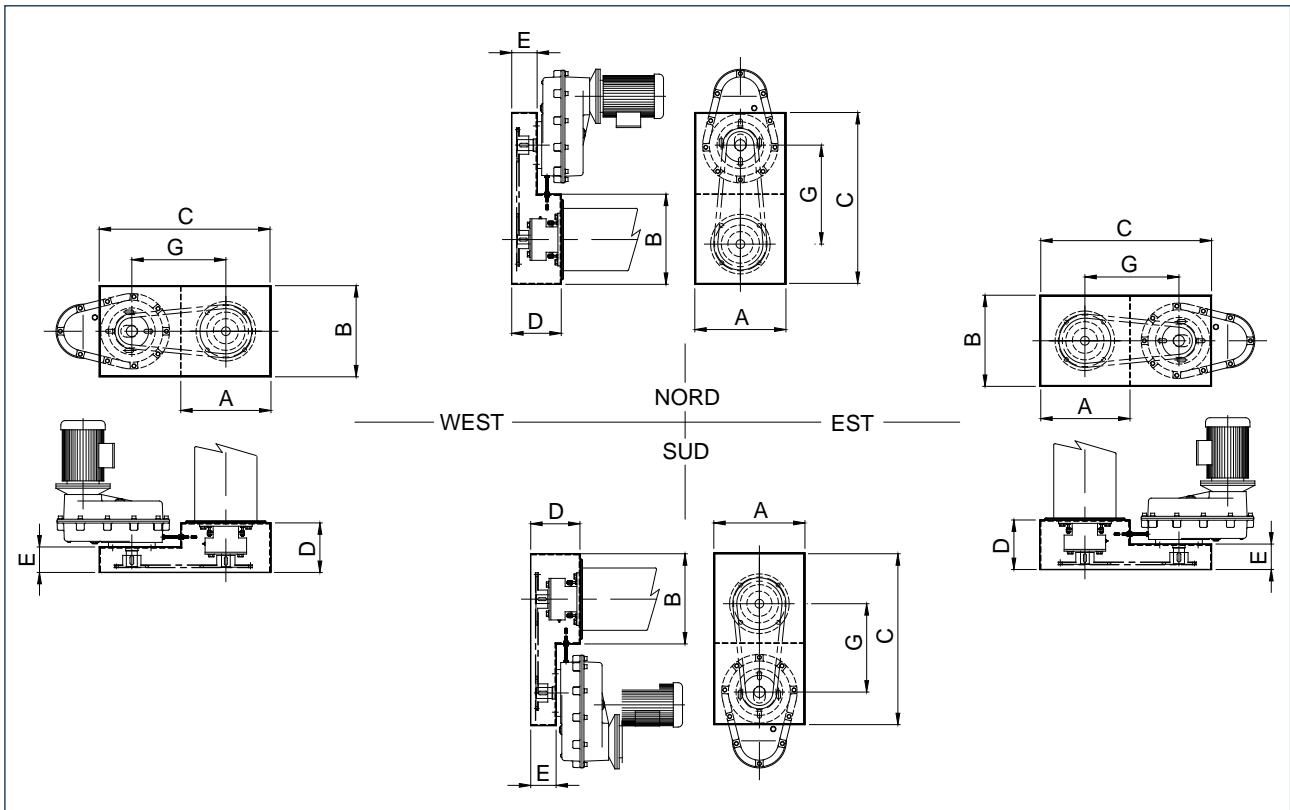
AIR-BLOWN SEALING UNIT XUC


Code	Ød	ØD1	Ød3	E	E2	E3	E4	E5	E6	E8	E9
XUC030	30	45	M8	50	20	21	30	70	50	99	120
XUC035	35	50	M8	50	20	21	30	70	50	99	120
XUC040	40	55	M8	50	20	21	30	80	60	121.6	140
XUC045	45	60	M8	50	20	21	30	80	60	121.6	140
XUC050	50	70	M10	60	24	27	45	100	70	141.4	164
XUC055	55	75	M10	60	24	27	45	100	70	141.4	164
XUC060	60	80	M10	60	24	27	45	105	70	183.8	210

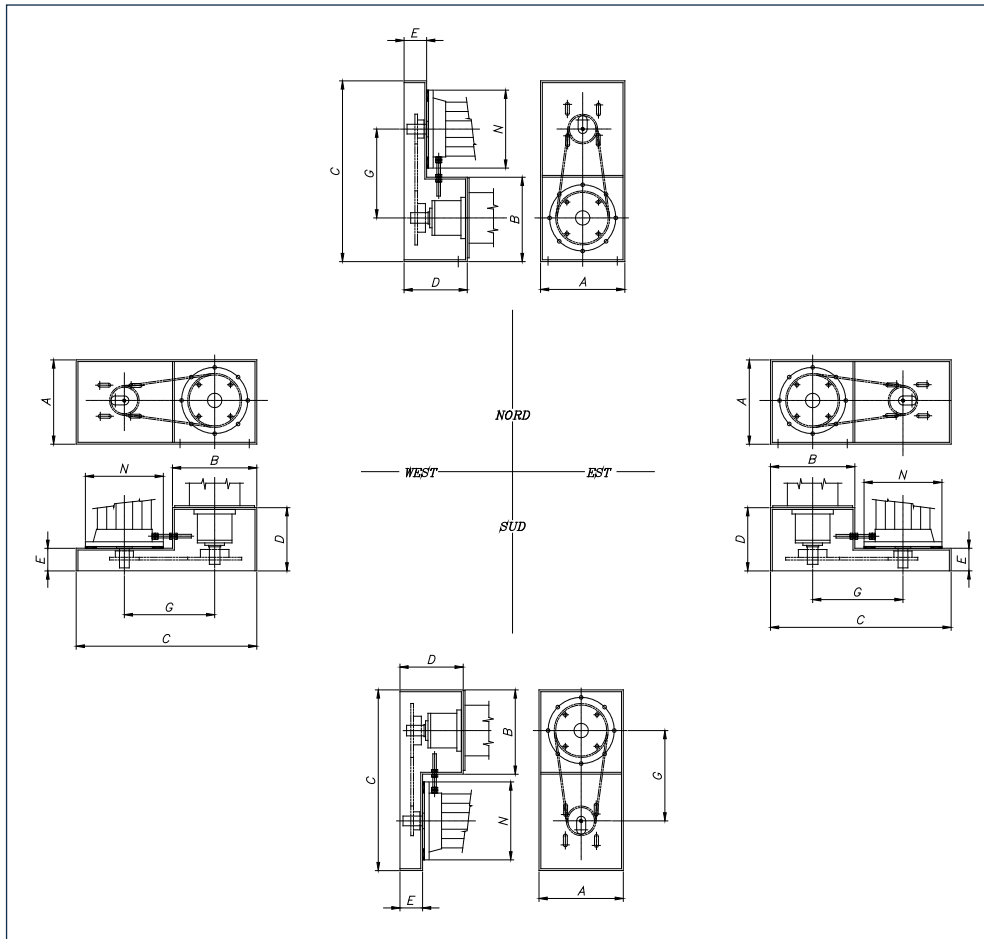


4.5 transmissions
COUPLING TRANSMISSION TX ONLY

Possible combinations

Ø	End bearing shaft	ø F Reducer flange	WAM "S"	SEW "RF"	A			B	C
					WAM	SEW	ROSSI		
100	025	200	41	67	231	231	251	280	280
120	025	200	41	67	231	231	251	280	280
150	035	200	41	67	259	259	271	280	280
	035	250	43	77	280	280	296	280	280
200	035	200	41	67	259	259	271	355	355
	035	250	43	77	280	280	296	355	355
	045	250	43	77	331	331	347	355	355
250	035	200	41	67	259	259	271	410	410
	035	250	43	77	280	280	296	410	410
	045	250	43	77	331	331	347	410	410
300	045	300	45	87	355	355	354	410	410
	035	250	43	77	280	280	296	465	465
	045	250	43	77	331	331	347	465	465
	045	300	45	87	355	355	354	465	465
	045	350	47	97	375	375	380	465	465
	055	250	43	77	339	339	355	465	465
350	055	300	45	87	363	363	362	465	465
	056	350	47	97	383	383	388	465	465
	045	250	43	77	333	333	349	535	535
	045	300	45	87	357	357	356	535	535
	045	350	47	97	377	377	382	535	535
	055	250	43	77	341	341	357	535	535
	055	300	45	87	365	365	364	535	535
400	055	350	47	97	385	385	390	535	535
	065	300	45	87	399	399	398	535	535
	065	350	47	97	419	419	424	535	535
	045	300	45	87	357	357	354	591	590
	045	350	47	97	377	377	382	591	590
	055	300	45	87	365	365	364	591	590
500	055	350	47	97	385	385	390	591	590
	065	300	45	87	399	399	398	591	590
	065	350	47	97	419	419	424	591	590
	055	300	45	87	367	367	364	740	740
	055	350	47	97	387	387	390	740	740
500	065	300	45	87	401	401	398	740	740
	065	350	47	97	421	421	424	740	740

CHAIN TRANSMISSION (WAM GEAR REDUCER FOR TX ONLY)

Possible combinations

Code	∅	END BEARING	WAM	A	B	C	D	E	G
XD_O10025RW25	100	025	S41	280	280	580	195	75	300
XD_O12025RW25	120	025	S41	280	280	580	195	75	300
XD_O15035RW25	150	035	S41	280	280	600	210	75	300
XD_O15035RW35	150	035	S43	280	280	600	230	95	300
XD_O20035RW25	200	035	S41	355	355	675	210	75	340
XD_O20035RW35	200	035	S43	355	355	675	230	95	340
XD_O25035RW25	250	035	S41	410	410	725	210	75	370
XD_O25035RW35	250	035	S43	410	410	725	230	95	370
XD_O25045RW35	250	045	S43	410	410	725	255	95	370
XD_O25045RW45	250	045	S45	410	410	810	280	120	405
XD_O30045RW35	300	045	S43	465	465	795	255	95	405
XD_O30055RW35	300	055	S43	465	465	795	265	95	405
XD_O30045RW45	300	045	S45	465	465	865	280	120	435
XD_O30055RW45	300	055	S45	465	465	865	290	120	435
XD_O30055RW55	300	055	S47	465	465	975	300	140	495
XD_O30065RW55	300	065	S47	465	465	975	320	140	495
XD_O35045RW35	350	045	S43	535	535	865	255	95	435
XD_O35055RW35	350	055	S43	535	535	865	265	95	435
XD_O35045RW45	350	045	S45	535	535	940	280	120	470
XD_O35055RW45	350	055	S45	535	535	940	290	120	470
XD_O35055RW55	350	055	S47	535	535	1045	300	140	525
XD_O35065RW55	350	065	S47	535	535	1045	320	140	525
XD_O40045RW35	400	045	S43	590	590	935	255	95	470
XD_O40055RW35	400	055	S43	590	590	935	265	95	470
XD_O40045RW45	400	045	S45	590	590	1010	280	120	515
XD_O40055RW45	400	055	S45	590	590	1010	290	120	515
XD_O40055RW55	400	055	S47	590	590	1110	300	140	565
XD_O40065RW55	400	065	S47	590	590	1110	320	140	565
XD_O40080RW55	400	080	S47	590	590	1110	340	140	565
XD_O50055RW45	500	055	S45	740	740	1170	290	120	590
XD_O50065RW45	500	065	S45	740	740	1170	310	120	590
XD_O50065RW55	500	065	S47	740	740	1270	330	140	640
XD_O50080RW55	500	080	S47	740	740	1270	340	140	640
XD_O50100RW55	500	100	S47	740	740	1270	4420	150	640

CHAIN TRANSMISSION (COMMERCIAL GEAR REDUCER FOR TX ONLY)

Possible combinations

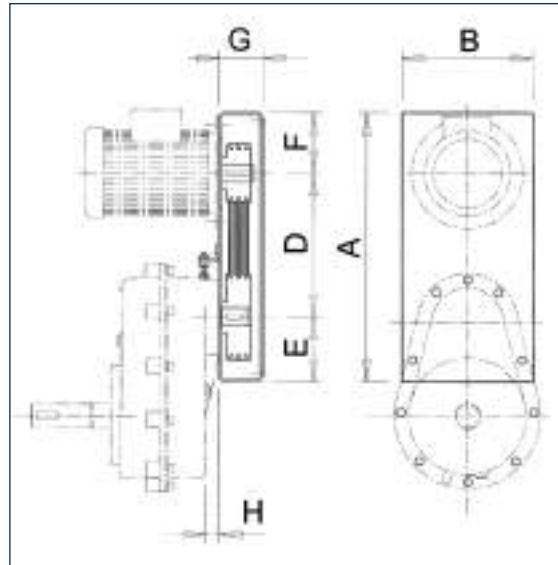
Section O	A	B	C	D	E	G
100	280	280	580	195	75	300
120	280	280	580	195	75	300
150	280	280	600	210	75	300
	280	280	600	230	95	295
	280	280	600	230	95	295
200	355	355	675	210	75	335
	355	355	675	230	95	335
	355	355	675	230	95	335
250	410	410	725	210	75	360
	410	410	725	230	95	360
	410	410	725	230	95	360
	410	410	725	255	95	360
	410	410	810	280	120	395
300	465	465	795	255	95	390
	465	465	795	265	95	390
	465	465	865	280	120	420
	465	465	865	290	120	420
	465	465	975	300	140	480
	465	465	975	320	140	480

Section O	A	B	C	D	E	G
350	535	535	865	255	95	425
	535	535	865	265	95	425
	535	535	940	280	120	460
	535	535	940	290	120	460
	535	535	1045	300	140	515
400	590	590	935	255	95	470
	590	590	935	265	95	470
	590	590	1010	280	120	505
	590	590	1010	290	120	505
	590	590	1110	300	140	555
	590	590	1110	320	140	555
500	740	740	1170	290	120	580
	740	740	1170	310	120	580
	740	740	1270	330	140	630
	740	740	1270	340	140	630
	740	740	1270	420	150	630

Check the next page for the gear reducer code

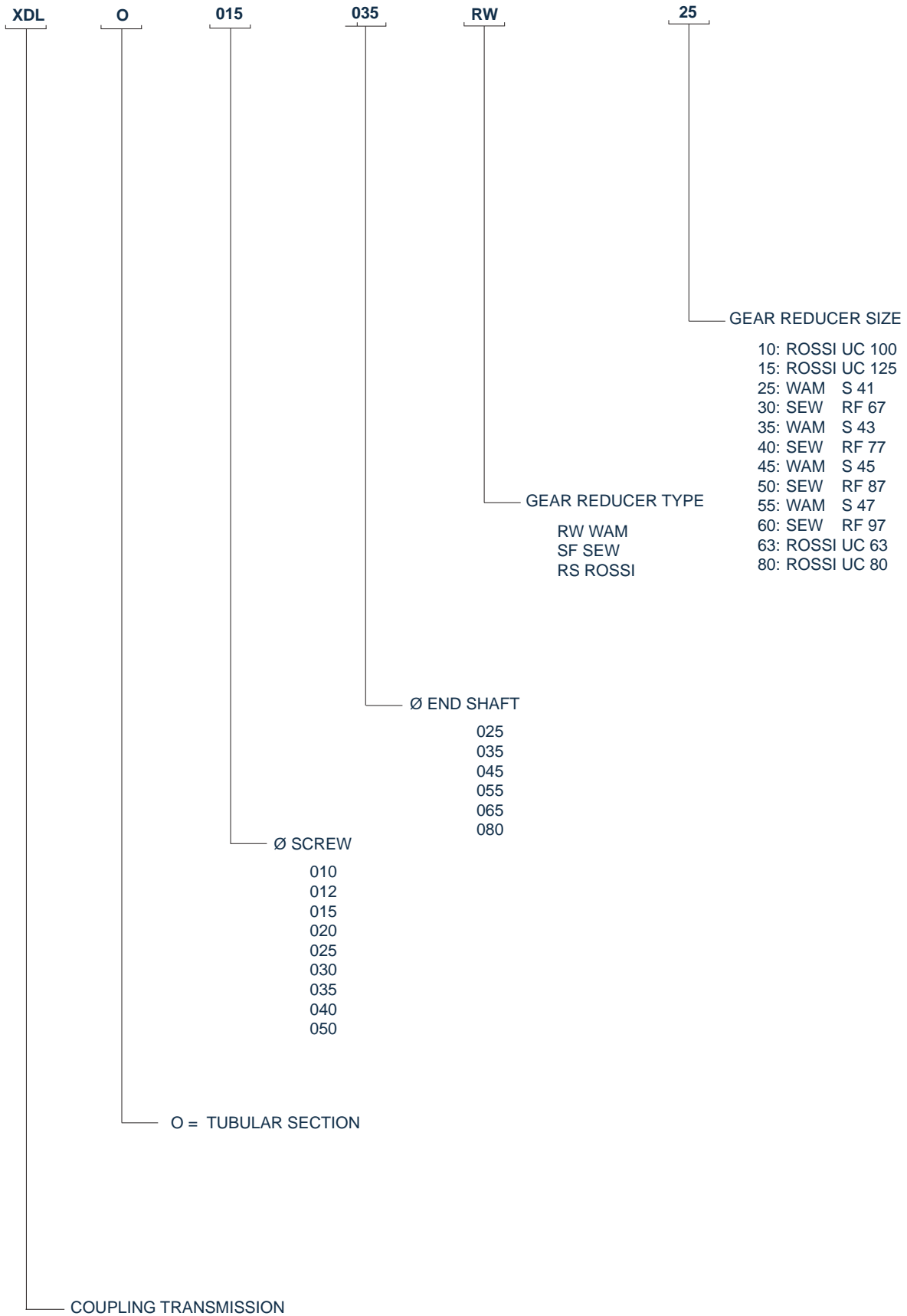
4.0 OPTIONS AND ACCESSORIES
CHAIN TRANSMISSION (COMMERCIAL GEAR REDUCER FOR TX ONLY)
Possible combinations

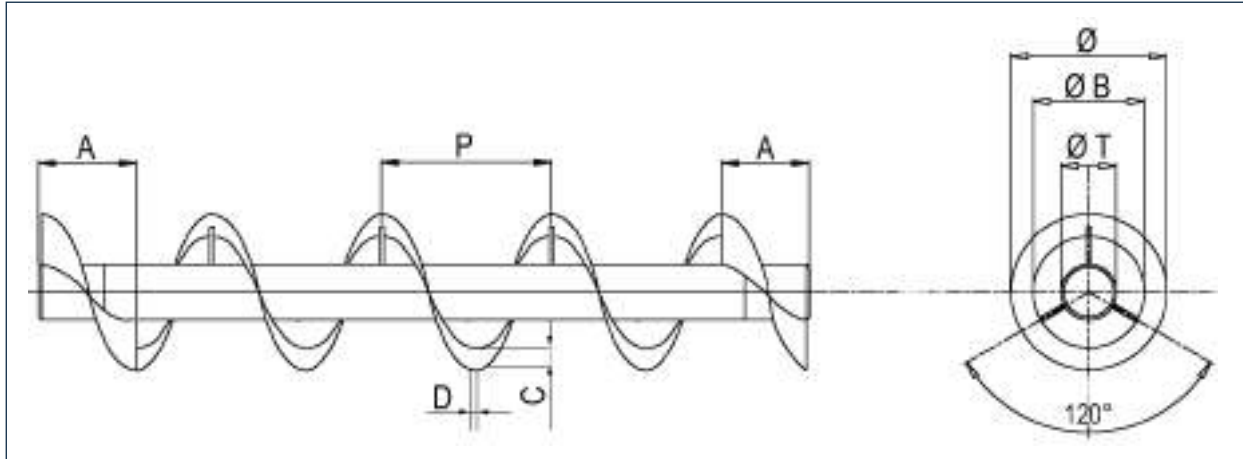
Section O	End bearing ø	Reducer WAM	Reducer			SEW	FLENDER	BONFIGLIOLI	LEROY-SOMER	Code Mount	ROSSI	Code Mount
			N	Ø	L							
100	25	S41	200	30	60	RF47	DF/ZF38/48	C312F	CB2202BD1	XD_O010025SF30	2I63UC2A	XD_O010025RS63
120	25	S41	200	30	60	RF47	DF/ZF38/48	C312F	CB2202BD1	XD_O012025SF30	2I63UC2A	XD_O012025RS63
150	35	S41	200	30	60	RF47	DF/ZF38/48	C312F	CB2202BD1	XD_O015035SF30	2I63UC2A	XD_O015035RS63
	35	S43	250	35	70	RF57/67		C412F		XD_O015035SF35	2I64UC2A	XD_O015035RS63
	35	S43	250	40	80	RF77	DF/ZF48/68	C512F	CB2302BD1	XD_O015035SF40	2I64UC2A	XD_O015035RS63
200	35	S41	200	30	60	RF47	DF/ZF38/48	C312F	CB2202BD1	XD_O020035SF30	2I63UC2A	XD_O020035RS63
	35	S43	250	35	70	RF57/67		C412F		XD_O020035SF35	2I64UC2A	XD_O020035RS63
	35	S43	250	40	80	RF77	DF/ZF48/68	C512F	CB2302BD1	XD_O020035SF40	2I64UC2A	XD_O020035RS63
250	35	S41	200	30	60	RF47	DF/ZF38/48	C312F	CB2202BD1	XD_O025035SF30	2I63UC2A	XD_O025035RS63
	35	S43	250	35	70	RF57/67		C412F		XD_O025035SF35	2I64UC2A	XD_O025035RS63
	35	S43	250	40	80	RF77	DF/ZF48/68	C512F	CB2302BD1	XD_O025035SF40	2I64UC2A	XD_O025035RS63
	45	S43	250	40	80	RF77	DF/ZF48/68	C512F	CB2302BD1	XD_O025045SF40	2I80UC2A	XD_O025045RS80
	45	S45	300	50	100	RF87	DF/ZF68/88	C612F	CB2402BD1	XD_O025045SF50	2I100UC2A	XD_O025045RS10
300	45	S43	250	40	80	RF77	DF/ZF48/68	C512F	CB2302BD1	XD_O030045SF40	2I80UC2A	XD_O030045RS80
	55	S43	250	40	80	RF77	DF/ZF48/68	C512F	CB2302BD1	XD_O030055SF40	2I81UC2A	XD_O030055RS80
	45	S45	300	50	100	RF87	DF/ZF68/88	C612F	CB2402BD1	XD_O030045SF50	2I100UC2A	XD_O030045RS10
	55	S45	300	50	100	RF87	DF/ZF68/88	C612F	CB2402BD1	XD_O030055SF50	2I100UC2A	XD_O030055RS10
	55	S47	350	60	120	RF97	DF/ZF88/108	C702F	CB2502BD1	XD_O030055SF60	2I125UC2A	XD_O030055RS15
	65	S47	350	60	120	RF97	DF/ZF88/108	C702F	CB2502BD1	XD_O030065SF60	2I125UC2A	XD_O030065RS15
350	45	S43	250	40	80	RF77	DF/ZF48/68	C512F	CB2302BD1	XD_O035045SF40	2I80UC2A	XD_O035045RS80
	55	S43	250	40	80	RF77	DF/ZF48/68	C512F	CB2302BD1	XD_O035055SF40	2I81UC2A	XD_O035055RS80
	45	S45	300	50	100	RF87	DF/ZF68/88	C612F	CB2402BD1	XD_O035045SF50	2I100UC2A	XD_O035045RS10
	55	S45	300	50	100	RF87	DF/ZF68/88	C612F	CB2402BD1	XD_O035055SF50	2I100UC2A	XD_O035055RS10
	55	S47	350	60	120	RF97	DF/ZF88/108	C702F	CB2502BD1	XD_O035055SF60	2I125UC2A	XD_O035055RS15
	65	S47	350	60	120	RF97	DF/ZF88/108	C702F	CB2502BD1	XD_O030065SF60	2I125UC2A	XD_O030065RS15
400	45	S43	250	40	80	RF77	DF/ZF48/68	C512F	CB2302BD1	XD_O040045SF40	2I80UC2A	XD_O040045RS80
	55	S43	250	40	80	RF77	DF/ZF48/68	C512F	CB2302BD1	XD_O040055SF40	2I81UC2A	XD_O040055RS80
	45	S45	300	50	100	RF87	DF/ZF68/88	C612F	CB2402BD1	XD_O040045SF50	2I100UC2A	XD_O040045RS10
	55	S45	300	50	100	RF87	DF/ZF68/88	C612F	CB2402BD1	XD_O040055SF50	2I100UC2A	XD_O040055RS10
	55	S47	350	60	120	RF97	DF/ZF88/108	C702F	CB2502BD1	XD_O040055SF60	2I125UC2A	XD_O040055RS15
	65	S47	350	60	120	RF97	DF/ZF88/108	C702F	CB2502BD1	XD_O040065SF60	2I125UC2A	XD_O040065RS15
	80	S47	350	60	120	RF97	DF/ZF88/108	C702F	CB2502BD1	XD_O040080SF60	2I126UC2A	XD_O040080RS15
500	55	S45	300	50	100	RF87	DF/ZF68/88	C612F	CB2402BD1	XD_O050055SF50	2I100UC2A	XD_O050055RS10
	65	S45	300	50	100	RF87	DF/ZF68/88	C612F	CB2402BD1	XD_O050065SF50	2I100UC2A	XD_O050065RS10
	65	S47	350	60	120	RF97	DF/ZF88/108	C702F	CB2502BD1	XD_O050065SF60	2I125UC2A	XD_O050065RS15
	80	S47	350	60	120	RF97	DF/ZF88/108	C702F	CB2502BD1	XD_O050080SF60	2I125UC2A	XD_O050080RS15
	100	S47	350	60	120	RF97	DF/ZF88/108	C702F	CB2502BD1	XD_O050100SF60	2I140UC2A	XD_O050100RS14

BELT TRANSMISSION ("S" - TYPE GEAR REDUCER FOR TX ONLY)


t ipo	Motor size	A	B	D	E	F	G	h
S 41	071 080 090	530	240	260	155	115	70	22
	100 112	585	280	290	155	140	80	22
	132	670	330	315	190	165	100	22
t ipo	Motor size	A	B	D	E	F	G	h
S 43	080 090	565	240	290	160	115	80	22
	100 112	615	280	315	160	140	80	22
	132	700	330	345	190	165	100	22
	160	860	400	425	235	200	130	22
t ipo	Motor size	A	B	D	E	F	G	h
S 45	080 090	590	240	315	160	115	100	32
	100 112	645	280	335	170	140	100	32
	132	725	330	370	190	165	100	32
	160	860	400	425	235	200	130	32
	180	960	400	525	235	200	130	32
t ipo	Motor size	A	B	D	E	F	G	h
S 47	100 112	670	280	360	170	140	130	32
	132	750	330	395	190	165	130	32
	160 180	925	400	475	250	200	130	32
	200	1070	470	555	290	225	145	32
	225	1125	520	585	290	250	155	32

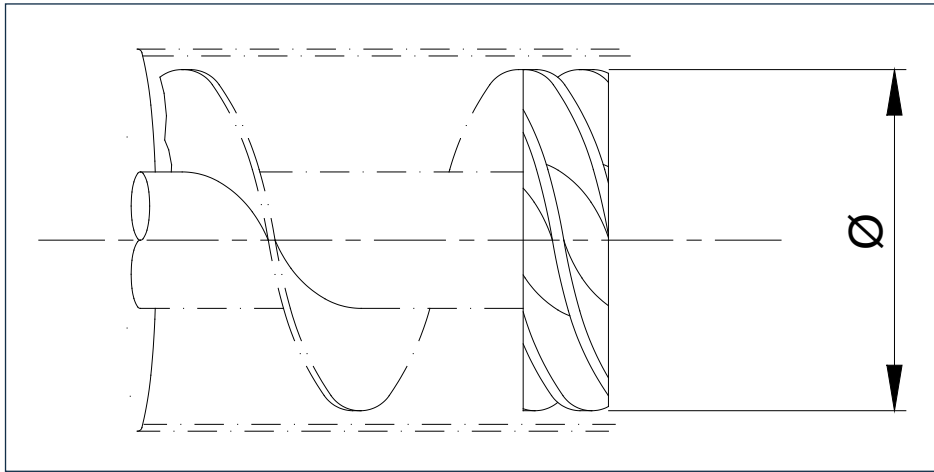
MODULAR KEY CODE COUPLING TRANSMISSION TX ONLY



4.6 Other
RIBBON SCREW E - PR FOR TX ONLY


Ø	A	B	C x D	P	Ø t
100	50	70	15 x 4	100	48
120	60	80	20 x 4	120	48
150	75	100	25 x 5	150	60
200	100	130	35 x 6	200	60
250	125	160	45 x 8	250	60
300	150	180	60 x 10	300	114
350	175	230	60 x 10	350	114
400	200	280	60 x 10	400	114
500	250	340	80 x 10	500	114

FEEDER STAR XJH FOR TX ONLY

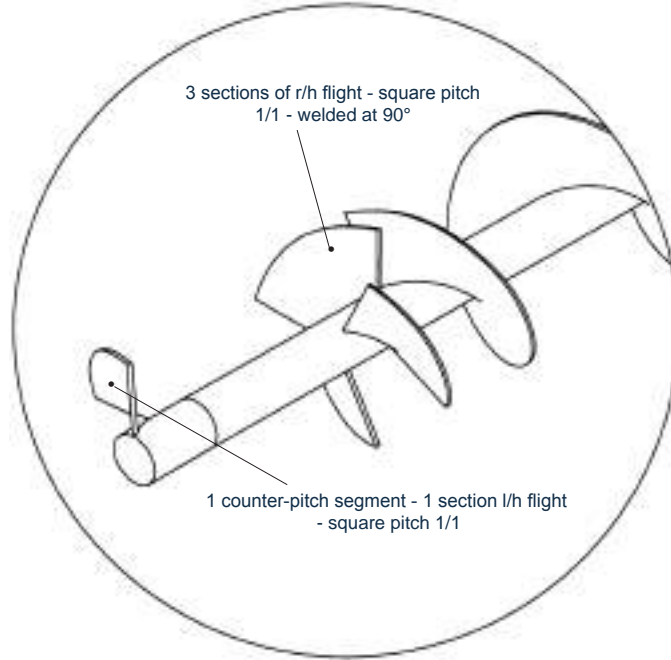


Code	Ø
XJh.009C.	100
XJh.012C.	120
XJh.015C.	150
XJh.020C.	200
XJh.025C.	250

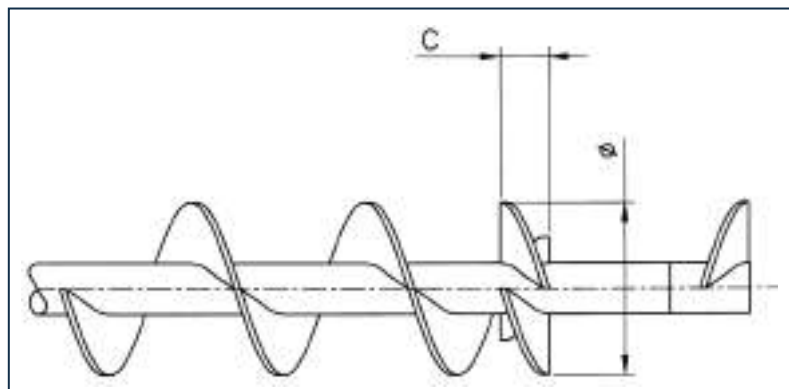
Material: Food engineering polymer

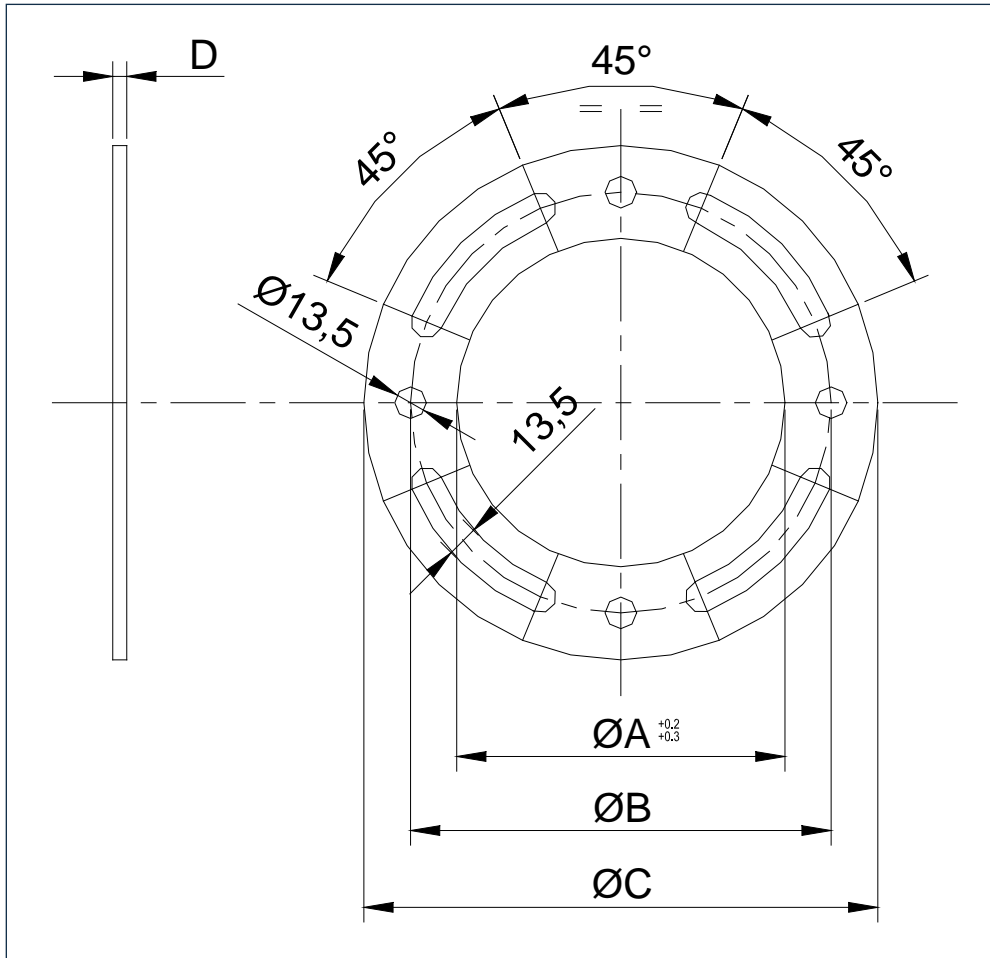
FLOW REGULATOR XJ FOR TX ONLY

Special accessory type, please contact WAM.



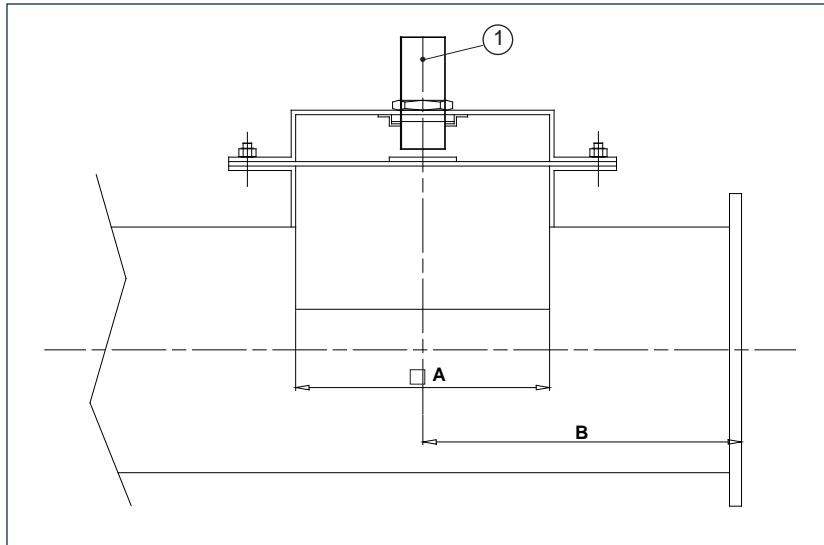
Code	Ø	C
XJ_009C.	100	25
XJ_012C.	120	30
XJ_015C.	150	35
XJ_020C.	200	50
XJ_025C.	250	60
XJ_030C.	300	75
XJ_035C.	350	85
XJ_040C.	400	100
XJ_050C.	500	125



TURN FLANGE XJW


Code	Ø	Ø A	Ø B	Ø C	D	kg
XJW1142	114	116	180	210	5	0.9
XJW1392	139	141	180	210	5	0.65
XJW1682	168	170	230	265	5	1.5
XJW2192	219	222	280	315	5	1.8
XJW2732	273	275	330	365	5	1.8
XJW3232	323	326	385	435	5	2
	406	408	445	485	5	2.2
	457	459	500	540	8	4
	558	560	600	655	8	5.7
	660	662	700	755	10	8

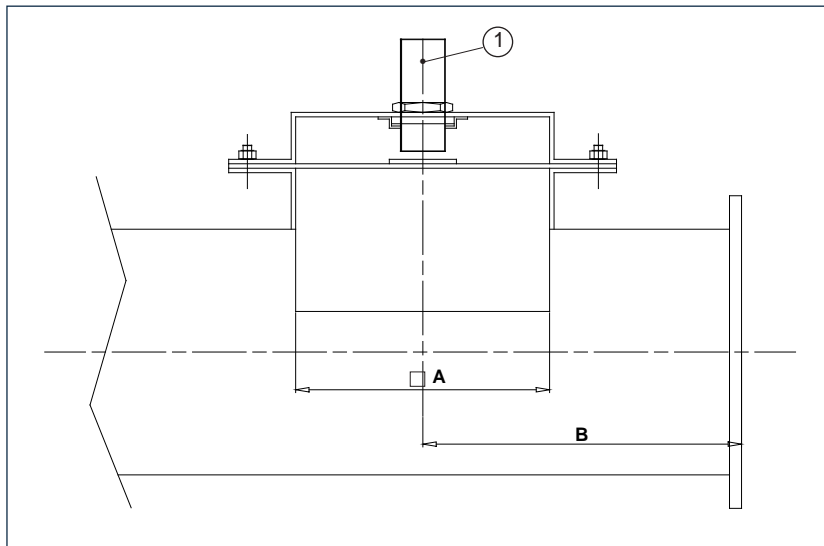
not in production

MEMBRANE HATCH XKYO FOR TX ONLY


① Inductive sensor not included in the supply

Ø	Code	□ A	B
100-120-150	XKYO151	175	230
200	XKYO201	225	260
250	XKYO251	275	280
300	XKYO301	325	320
350	XKYO351	375	340
400	XKYO401	425	370
500	XKYO501	525	430

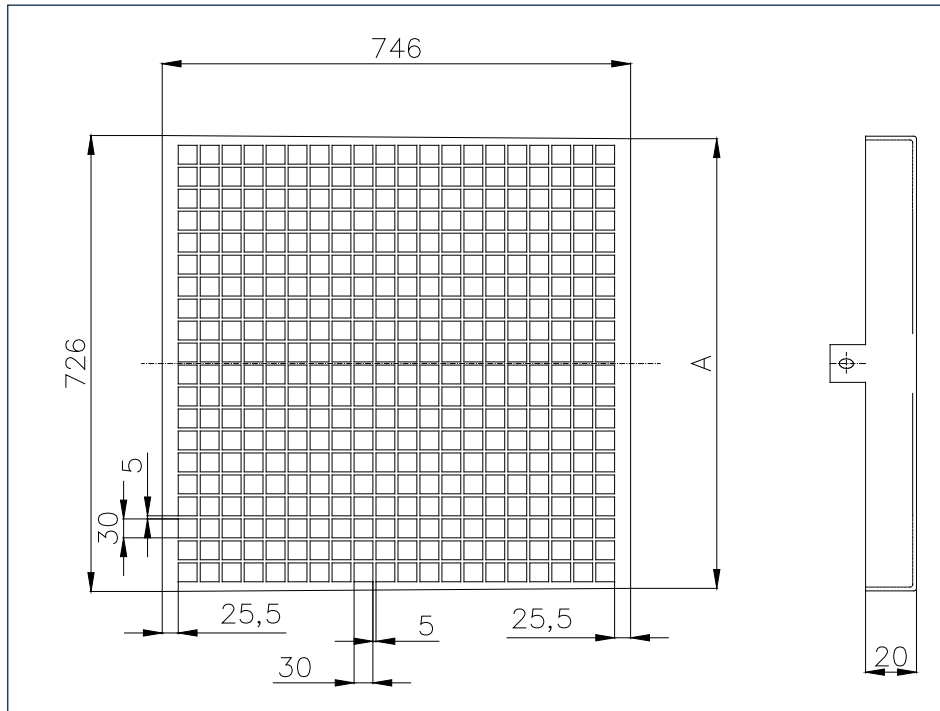
N.B.: The hatch is designed for installation of an inductive sensor M18 fine pitch.

MEMBRANE HATCH XKYF FOR TXF ONLY


① Inductive sensor not included in the supply

∅	Code	□A	B
080	XKYF080....	175	230
100	XKYF100....	175	230
120	XKYF120....	175	230
150	XKYF150....	175	230
200	XKYF200....	225	260
250	XKYF250....	275	280
300	XKYF300....	325	320

N.B.: The hatch is designed for installation of an inductive sensor M18 fine pitch.

THE BAG-SPLITTING GRILLE FOR PER XBTA_B XBTX3_ _


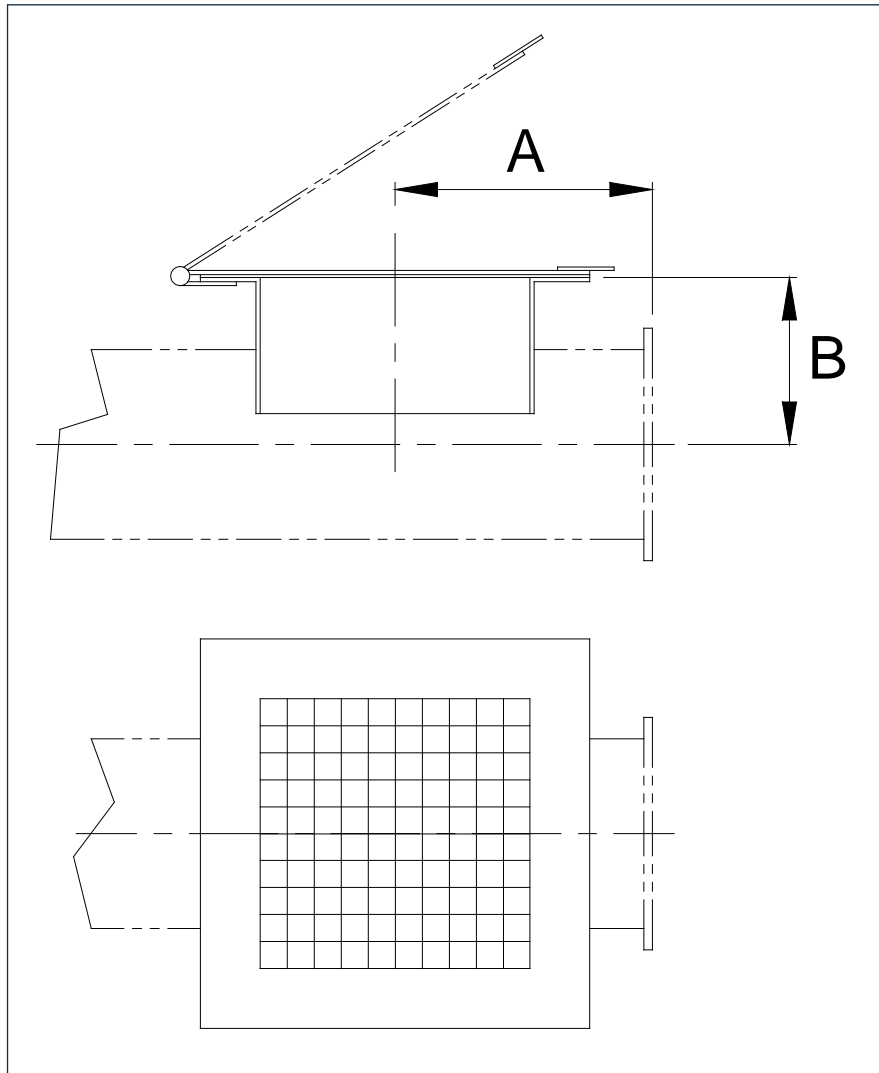
X	B	t	X	1	1	2
---	---	---	---	---	---	---

— Hopper accessory
 — Accessory type
 — Accessory size
 — Materials

type	A
XBtX 34	691
XBtX 35	716

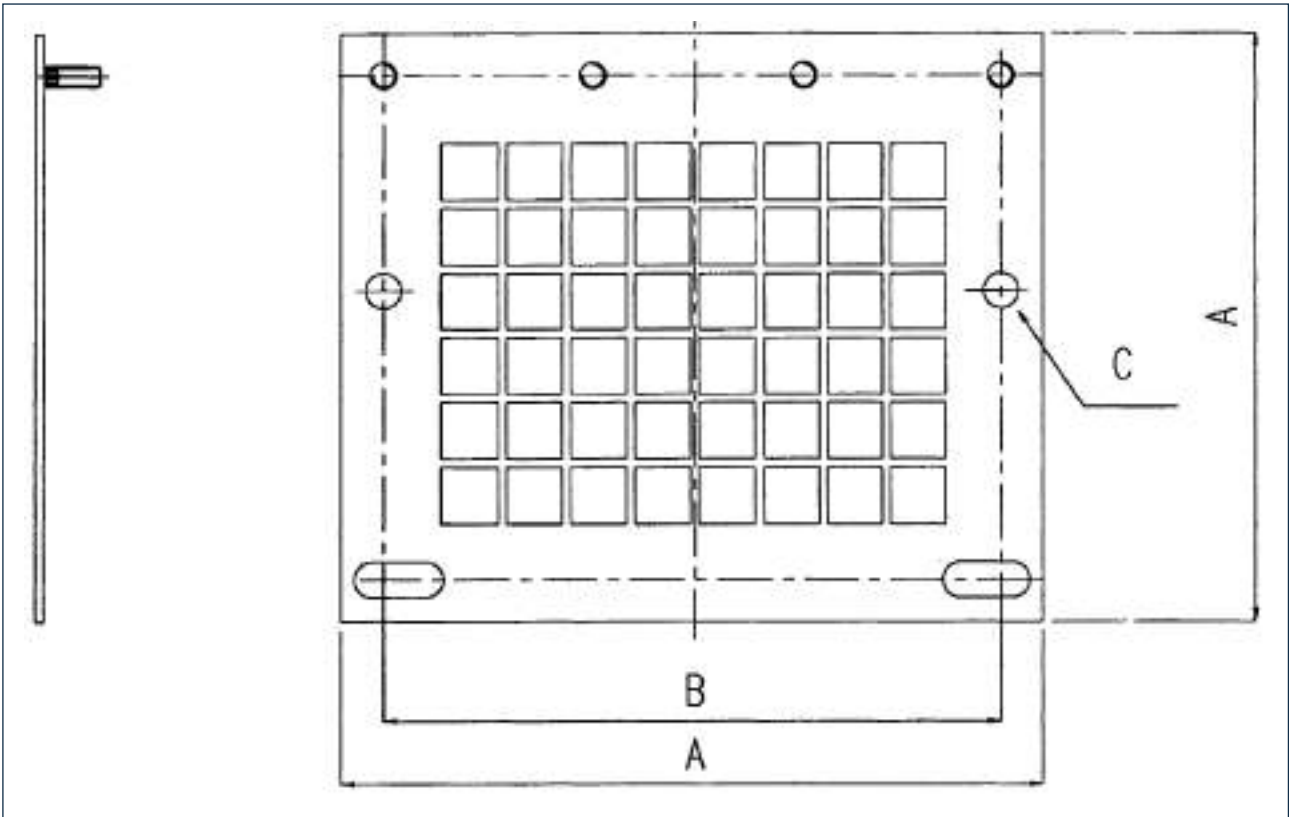
In combination with XBTA / XBTB hoppers and their accessories

hopper	handle	Cover	Grille
XBTA1906_	XBTX11_	XBTX21_	XBTX35_
XBTA1917_	XBTX11_	XBTX21_	XBTX35_
XBTA1828_	XBTX11_	XBTX21_	XBTX35_
XBTA1839_	XBTX11_	XBTX21_	XBTX34_
XBTB1906_	XBTX11_	XBTX21_	XBTX35_
XBTB1917_	XBTX11_	XBTX21_	XBTX35_
XBTB1828_	XBTX11_	XBTX21_	XBTX35_
XBTB1839_	XBTX11_	XBTX21_	XBTX34_

OVERFLOW HATCH FLAP XKD FOR TX ONLY


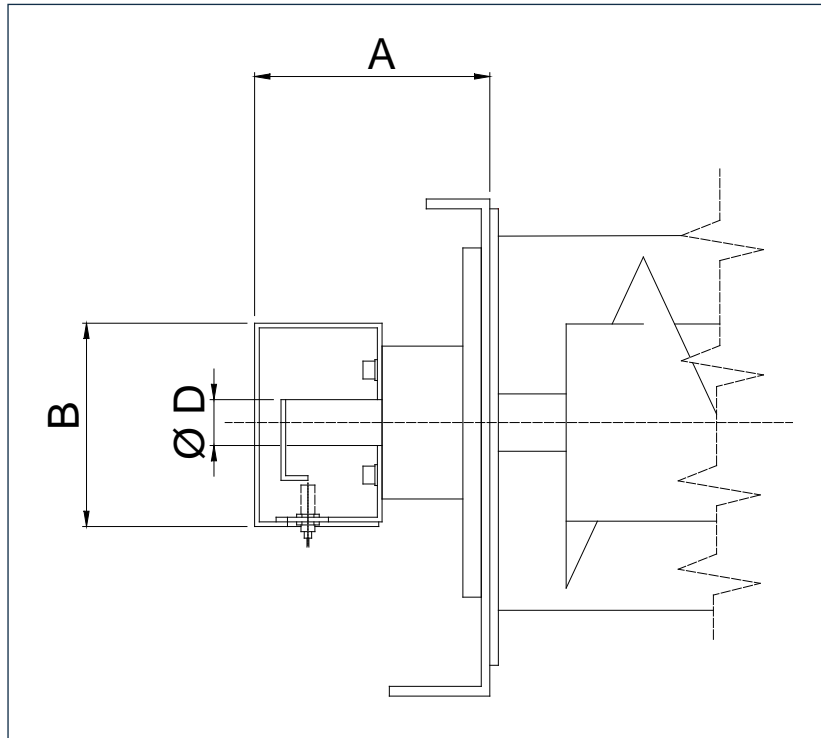
Code	Ø	A	B
XKD.50_	100	230	130
XKD.55_	120	230	130
XKD.60_	150	230	130
XKD.65_	200	260	165
XKD.70_	250	280	195
XKD.75_	300	320	225
XKD.80_	350	340	265
XKD.85_	400	370	295
XKD.90_	500	430	350

2 = SS 304
 3 = SS 316

GRILLE BENEATH FLAP XKX


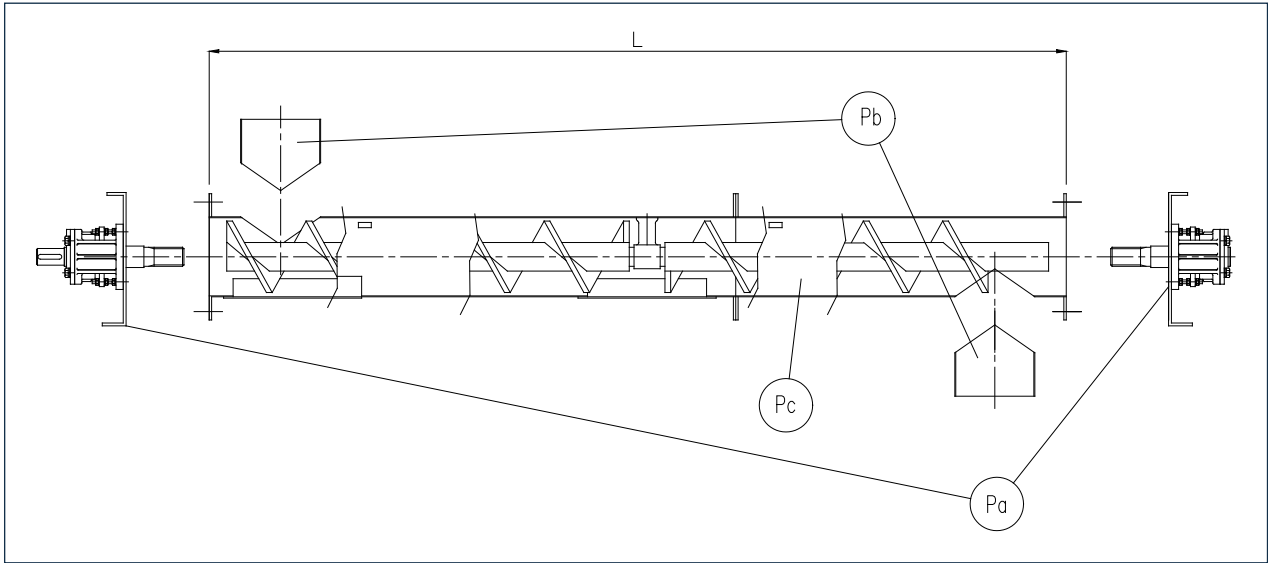
Ø	Code	A	B	Ø C
100 120 150	XKX13_	261	230	12,5
200	XKX14_	311	280	12,5
250	XKX15_	361	330	12,5
300	XKX16_	433	385	12,5
350	XKX17_	483	445	12,5
400	XKX18_	535	500	12,5
500	XKX19_	655	600	15

2 = SS 304
 3 = SS 316

ROTATION INDICATOR BRACKET XVA


Code	Ø D	A	B
XVAPV0251	25	170	140
XVAPV0351	35	210	170
XVAPV0451	45	240	200
XVAPV0551	55	240	230
XVAPV0651	65	300	290
XVAPV0801	80	340	320

The indicator bracket is sized for a fine pitch normally closed M 30 inductive sensor.

Weight of the bare shaft version screw conveyor


$$P_t = P_a + P_b + (P_c \cdot L)$$

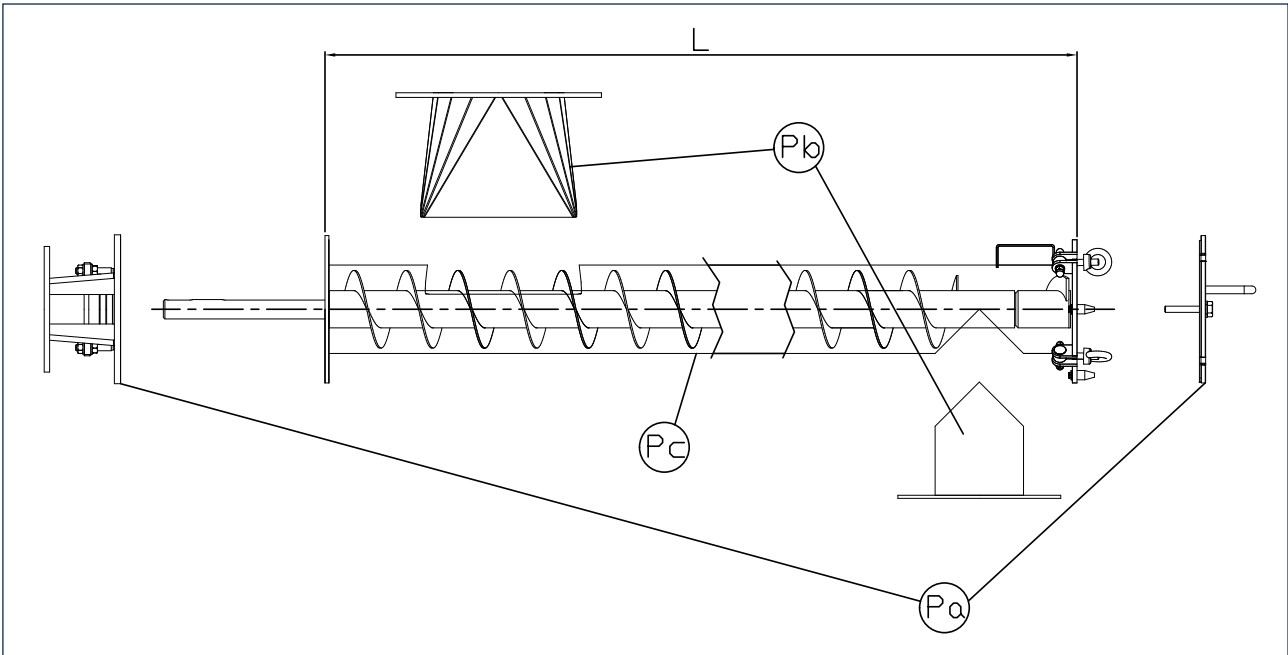
P_t = Overall weight (kg)

L = Length (m)

∅	100	120	150	200	250	300	350	400	500	600
Pa	16	16	23	26	38	51	81	96	148	180
Pb	4	5	8	16	20	26	50	56	84	90
Pc	22	28	33	40	46	55	77	86	110	130

Direct drive weight

kW	Gear reducer			
	S 41	S 43	S 45	S 47
0.75	47			
1.1	55			
1.5	56			
2.2	64			
3	65	80		
4		89	140	189
5.5			154	210
7.5				224
9.2				232
11				260
15				284

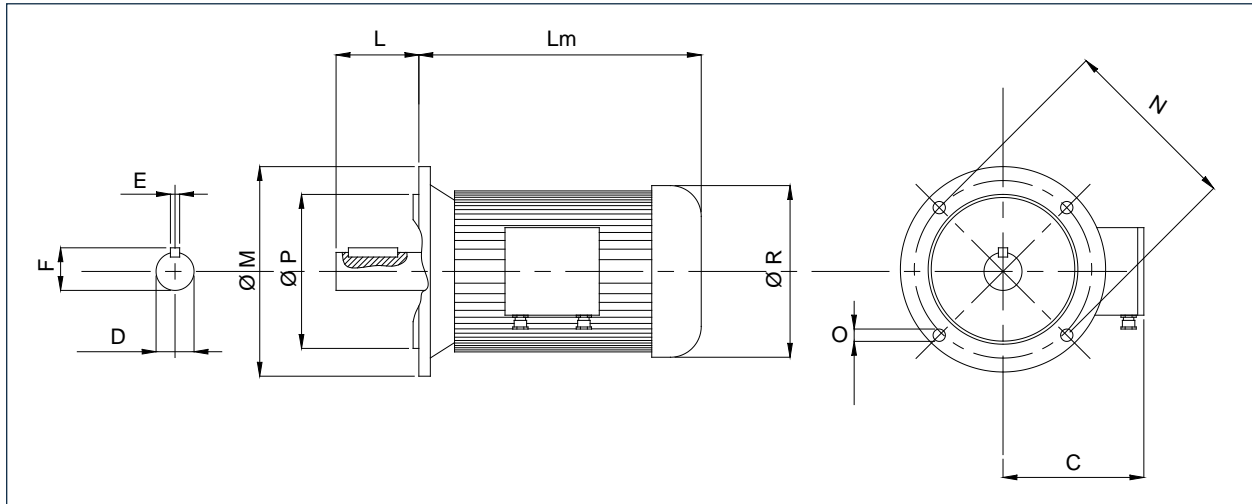
tXF


$$P t = P a + P b + (P c \cdot L)$$

P t = Overall weight (kg)
L = Length (m)

type	80	100	120	150	200	250	300	350	400	500	600
Pa	6	6.5	6.5	8.5	10	16.5	21.5	-	-	-	-
PB	4.5	6.3	7.5	9.7	14.4	17.6	22.4	-	-	-	-
PC	9	11.5	13.4	16.6	26.1	32.3	41.4	-	-	-	-

kW	S39	S41	S43	S45	S47
0.55	29	45.5	58		
0.75	30	45.5	58		
1.1	35	54.5	67	96	
1.5	35	55.5	68	97	
2.2			77.5	106	169
3.0			78.5	107	170
4.0			87.5	116	179
5.5			111	140	203
7.5			125	154	217
9.2			133	162	225
11				197	260
15				226	289
18.5					315
22.0					362

6.0 ELECTRICAL REQUIREMENTS


kW	Size	Code	C	D	E	F	L	Lm*	M	N	O	Bores n°	P	Q	R	kg	KK
													mm				
1.1	90 S	Mt0900S04145	155	24	8	27	50	248	200	165	12.5	4	130	3.5	180	25	M25x1.5
1.5	90 L	Mt0900L04145	155	24	8	27	50	273	200	165	12.5	4	130	3.5	180	26	M25x1.5
2.2	100 LR	Mt100LR04145	180	28	8	31	60	306	250	215	15	4	180	4	218	34	M25x1.5
3	100 LH	Mt100Lh04145	180	28	8	31	60	306	250	215	15	4	180	4	218	35	M25x1.5
4	112 M	Mt1120M04145	190	28	8	31	60	334	250	215	15	4	180	4	218	44	M25x1.5
3 - 1.5	112 M	MT1120M48A45	190	28	8	31	60	334	250	215	15	4	180	4	218	47	M25x1.5
5.5	132 S	Mt1320S04145	210	38	10	41	80	371	300	265	15	4	230	4	258	65	M25x1.5
3.3 - 2.2	132S	MT1320S48A45	210	38	10	41	80	371	300	265	15	4	230	4	258	65	M25x1.5
7.5	132 M	Mt1320M04145	210	38	10	41	80	409	300	265	15	4	230	4	258	79	M25x1.5
4.4 - 3	132 M	MT1320M48A45	210	38	10	41	80	409	300	265	15	4	230	4	258	79	M25x1.5
9.2	132 ML	Mt1320L04145	210	38	10	41	80	409	300	265	15	4	230	4	258	87	M25x1.5
11	160 M	Mt1600M04245	255	42	12	45	110	485	350	300	19	4	250	5	300	118	M32x1.5
6 - 4.5	160 MA	MT160MA48A45	255	42	12	45	110	485	350	300	19	4	250	5	300	118	M32x1.5
8.5 - 6	160 MB	MT160MB48A45	255	42	12	45	110	485	350	300	19	4	250	5	300	118	M32x1.5
15	160 L	Mt1600L04245	255	42	12	45	110	529	350	300	19	4	250	5	300	147	M32x1.5
10 - 7.5	160 L	MT1600L48A45	255	42	12	45	110	529	350	300	19	4	250	5	300	147	M32x1.5
18.5	180 M	MT1800M04245	285	48	14	51.5	110	543	350	300	19	4	250	5	340	173	M32x1.5
22.0	180 L	MT1800L04245	285	48	14	51.5	110	585	350	300	19	4	250	5	340	220	M32x1.5
15 - 10	180 L	MT1800L48A45	285	48	14	51.5	110	585	350	300	19	4	250	5	340	220	M32x1.5

The cable glands are made of plastic.

The junction box is on the LH side of the motor (seen from the guard).

* With different brands ± 50 mm tolerances are possible.

N.B.: Double speed motors (4-8 poles) must be started at low speed and subsequently automatically switched to high speed.

N.B.: Assembled on the screw it is painted in gentian blue RAL 5010; as a spare part it is rust-proof coated.

The motors in the table are manufactured by WAM® and comply with the European standards IEC as well as with EN 50262 regulations with regard to the joints (glands) in the terminal block. This means that the user can employ any motor brand as long as they follow the same standards, without having to change drive unit completely.

CONFORMITy

WAM® motors are constructed in accordance with:

- The standards 89/336/EC (EMC Directives);
- Low Voltage Directive 73/23/EEC.

technical features

For all motors:

- Flanged version B5;
- Insulation class F;
- Motor protection IP 55
- Junction box protection IP 55;
- Thermistors PTC.

4 poles motors

- Rotation speed ~ 1450 rpm;
- Voltage
220/240V-380/420V 50Hz
440/480V 60Hz for Sizes ≤ 132.
- Voltage
380/420V-660/690V 50Hz
440/480V 60Hz for Sizes ≥ 160.

4/8 poles motors

- Dahlander single winding;
- Rotation speed ~ 1450/730 rpm;
- Single Voltage
380-420V 50Hz;
440-480V 60Hz

Operating conditions

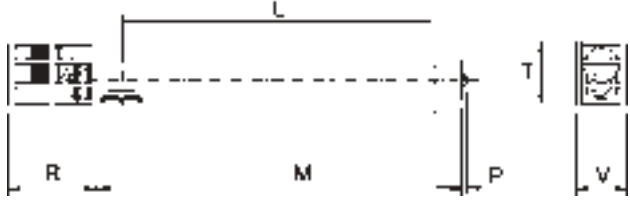

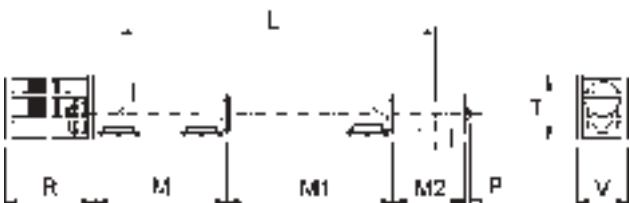
The motor manufactured by WAM® withstand 90% moisture content and can operate at a room temperature that ranges from -10° to +40 °C.

Normal use under 1000m a.s.l.

Should it be necessary a motor with different characteristics (voltage, frequency, polarity, etc.) please contact our Technical Assistance.

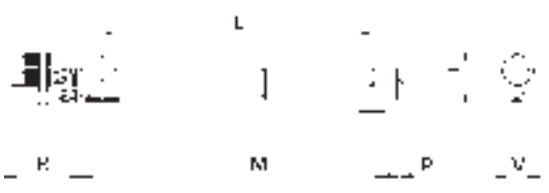
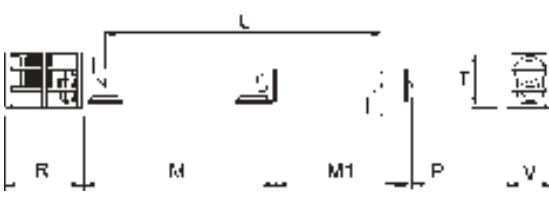
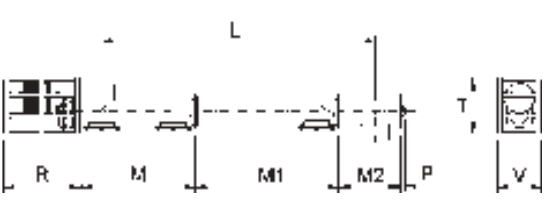
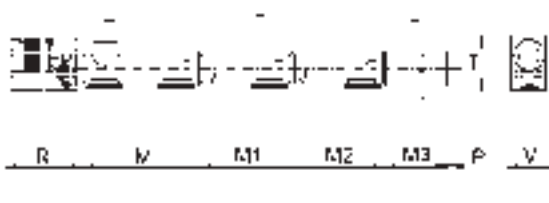
For further details see motors technical manual code WA.052MT.

tX
Ø 100 - 120

Ø 100 - 120	L	P	M	M ₁	M ₂	R _{max}	V _{max}	t _{max}
	500 - 2740	160	760 - 3000	-	-	700	500	600
	2840 - 3640	160	2200	900 - 1700	-	700	500	600
	3740 - 5740		3200	800 - 2800	-	700	500	600
	5840 - 6640	160	3200	1600 - 2400	1300	700	500	600
	6740 - 8740		3200	1000 - 3000	2800	700	500	600

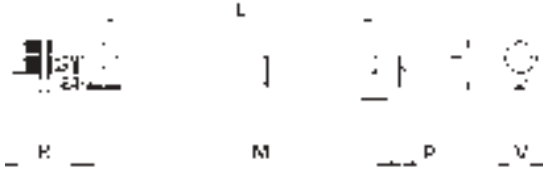

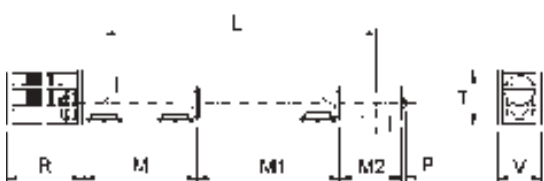
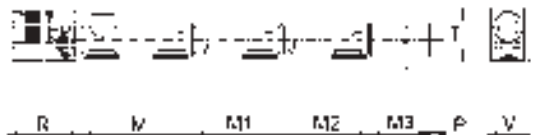
S = Intermediate supports position

Ø 150

Ø 150	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	500 - 2700	182	800 - 3000	-	-	-	950	500	700
	2800 - 3600	182	2200	900 - 1700	-	-	950	500	700
	3700 - 5700		3200	800 - 2800	-	-			
	5800 - 6600	182	3200	1600 - 2400	1300	-	950	500	700
	6700 - 8700			1000 - 3000	2800	-			
	8800 - 9600	182	3200	1500	1600 - 2400	2800	950	500	700
	9700 - 11700			3000	1000 - 3000				

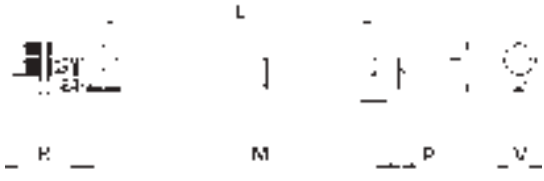
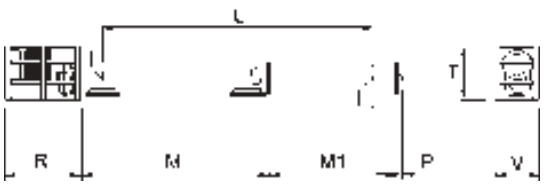
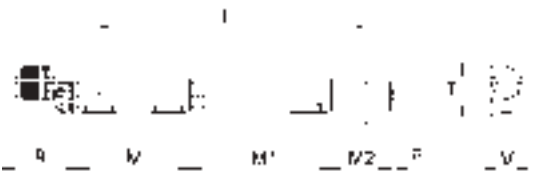
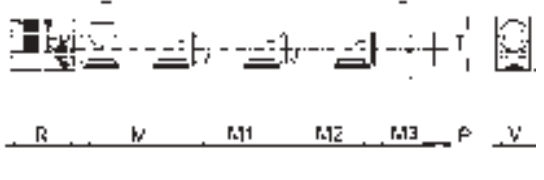
S = Intermediate supports position

Ø 200

Ø 200	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	500 - 2660	182	840 - 3000	-	-	-	950	500	700
	2760 - 3560	182	2200	900 - 1700	-	-	950	500	700
	3660 - 5660		3200	800 - 2800	-	-			
	5760 - 6560	182	3200	1600 - 2400	1300	-	950	500	700
	6660 - 8660			1000 - 3000	2800	-			
	8760 - 9560	182	3200	1500	1600 - 2400	2800	950	500	700
	9660 - 11660			3000	1000 - 3000				

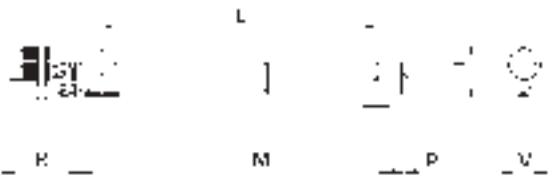


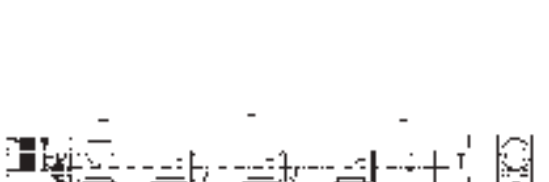
S = Intermediate supports position

Ø 250

Ø 250	L	P max	M	M ₁	M ₂	M ₃	R max	V max	t max
	500 - 2600	225	900 - 3000	-	-	-	950	500	700
	2700 - 3500	225	2200	900 - 1700	-	-	950	500	700
	3600 - 5600		3200	800 - 2800	-	-			
	5700 - 6500	225	3200	1600 - 2400	1300	-	950	500	700
	6600 - 8600			1000 - 3000	2800	-			
	8700 - 9500	225	3200	1500	1600 - 2400	2800	950	500	700
	9600 - 11600			3000	1000 - 3000				

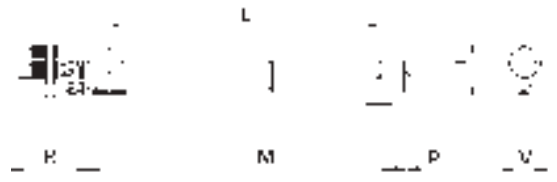
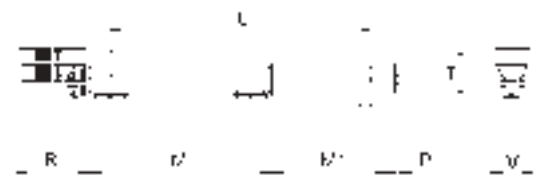
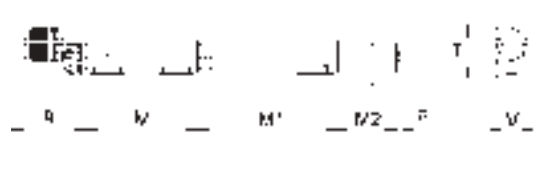
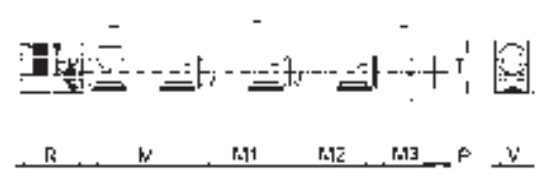
S = Intermediate supports position

Ø 300

Ø 300	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	560 - 3060	235	1000 - 3500	-	-	-	950	600	800
	3160 - 3960	235	2300	1300 - 2100	-	-	950	600	800
	4060 - 6560		3800	700 - 3200	-	-			
	6660 - 7460	235	3800	1600 - 2400	1700	-	950	600	800
	7560 - 10060			1000 - 3500	3200	-			
	/	/	/	/	/	/	950	600	800
	/			/	/				

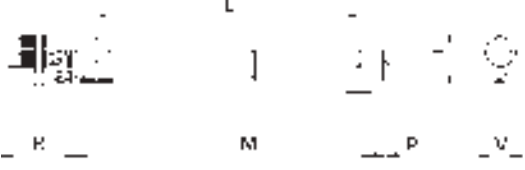
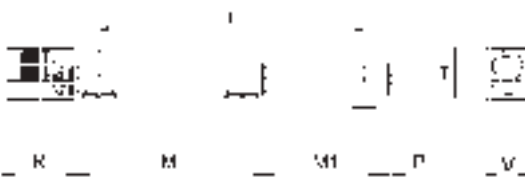
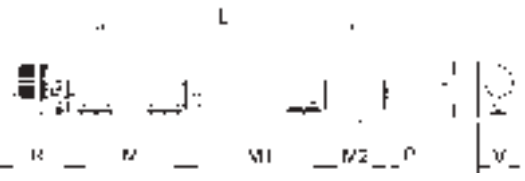
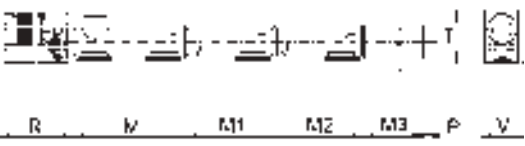
S = Intermediate supports position

Ø 350

Ø 350	L	P _{max}	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	450 - 2950	235	1000 - 3500	-	-	-	950	600	800
	3050 - 3850	235	2300	1300 - 2100	-	-	950	600	800
	3950 - 6450		3800	700 - 3200	-	-			
	6550 - 7350	235	3800	1600 - 2400	1700	-	950	600	800
	7450 - 9950			1000 - 3500	3200	-			
	/	/	/	/	/	/	950	600	800
	/			/	/	/			

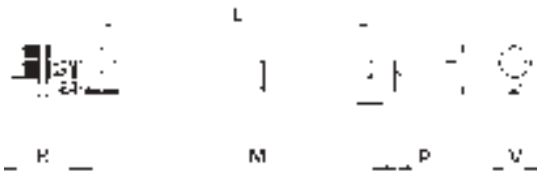


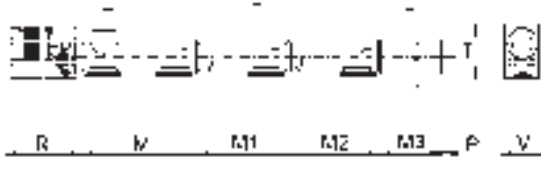
S = Intermediate supports position

7.0 CONFIGURATIONS
Ø 400

Ø 400	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	400 - 2900	270	1000 - 3500	-	-	-	950	600	800
	3000 - 3800	270	2300	1300 - 2100	-	-	950	600	800
	3900 - 6400		3800	700 - 3200	-	-			
	6500 - 7300	270	3800	1600 - 2400	1700	-	950	600	800
	7400 - 9900			1000 - 3500	3200	-			
	/	/	/	/	/	/	950	600	800
	/			/	/				

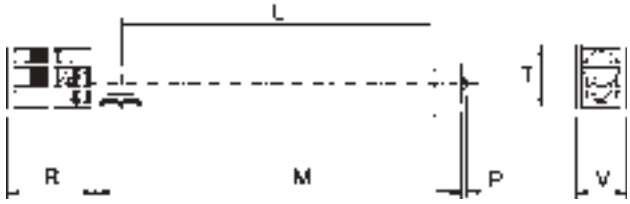
S = Intermediate supports position

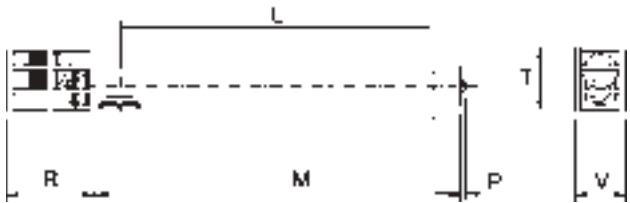
Ø 500

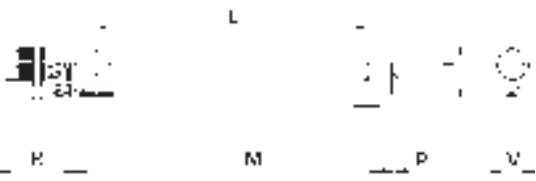
Ø 500	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	300 - 2800	310	1000 - 3500	-	-	-	950	600	800
	2900 - 3700	310	2300	1300 - 2100	-	-	950	600	800
	3800 - 6300		3800	700 - 3200	-	-			
	6400 - 7200	310	3800	1600 - 2400	1700	-	950	600	800
	7300 - 9800			1000 - 3500	3200	-			
	/	/	/	/	/	/	950	600	800
	/			/	/				

S = Intermediate supports position

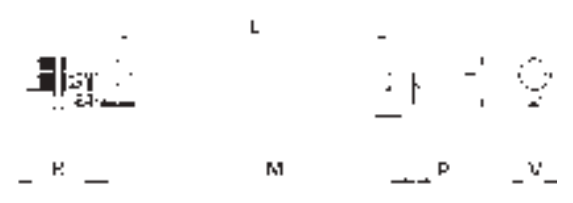
tXF

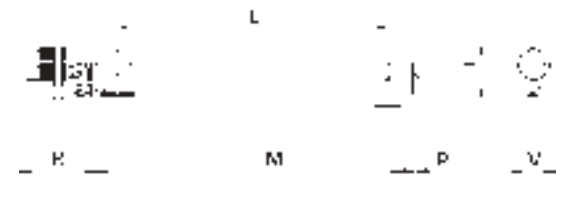
Ø 80	L	P	M	M ₁	M ₂	R _{max}	V _{max}	t _{max}
	500 - 2040	160	760 - 2340	-	-	700	500	600

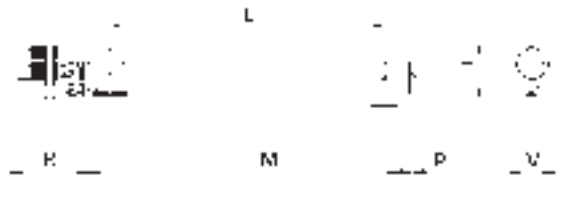
Ø 100 - 120	L	P	M	M ₁	M ₂	R _{max}	V _{max}	t _{max}
	500 - 3040	160	760 - 3340	-	-	700	500	600

Ø 150	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	500 - 3500	182	800 - 3800	-	-	-	950	500	700

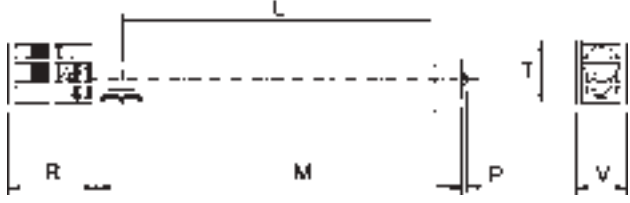

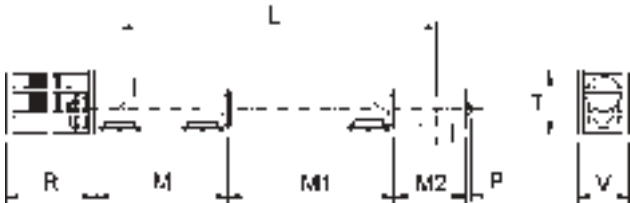
7.0 CONFIGURATIONS

Ø 200	L	P	M	M₁	M₂	M₃	R_{max}	V_{max}	t_{max}
	500 - 3160	182	840 - 3500	-	-	-	950	500	700

Ø 250	L	P_{max}	M	M₁	M₂	M₃	R_{max}	V_{max}	t_{max}
	500 - 3100	225	900 - 3500	-	-	-	950	500	700

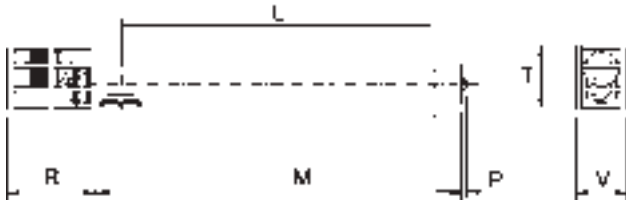

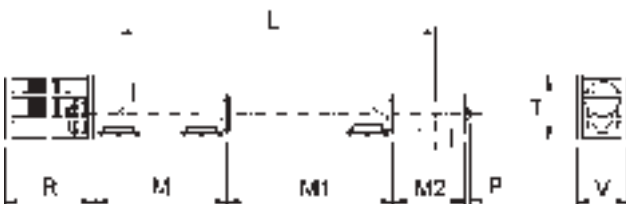
Ø 300	L	P	M	M₁	M₂	M₃	R_{max}	V_{max}	t_{max}
	560 - 4860	235	1000 - 5300	-	-	-	950	600	800

7.0 CONFIGURATIONS
tX AtEX

Ø 100	L	P	M	M ₁	M ₂	R _{max}	V _{max}	t _{max}
	500 - 2140	160	760 - 2400	-	-	700	500	600
	2150 - 3120	160	1700	710 - 1630	-	700	500	600
	3130 - 4530		2600	800 - 2200	-	700	500	600
	4540 - 6040	160	2600	300 - 2400	1300	700	500	600
	6050 - 6340		2600	1510 - 2400	2200	700	500	600

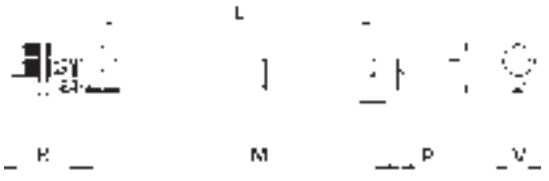

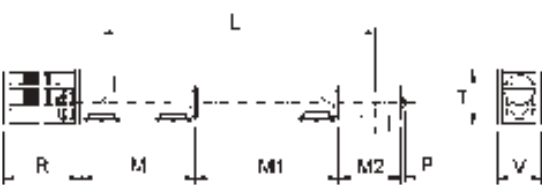
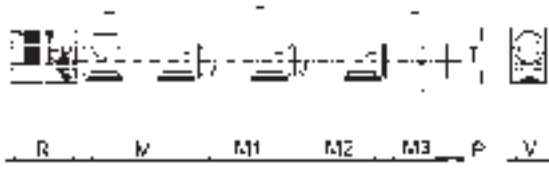
S = Intermediate supports position

7.0 CONFIGURATIONS

$\varnothing 120$	L	P	M	M ₁	M ₂	R _{max}	V _{max}	t _{max}
	500 - 2140	160	760 - 3000	-	-	700	500	600
	2840 - 3640	160	2200	900 - 1700	-	700	500	600
	3740 - 5740			3200	800 - 2800			
	5840 - 6640	160	3200	1600 - 2400	1300	700	500	600
	6740 - 8740			3200	1000 - 3000			

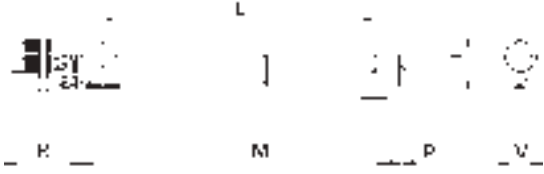

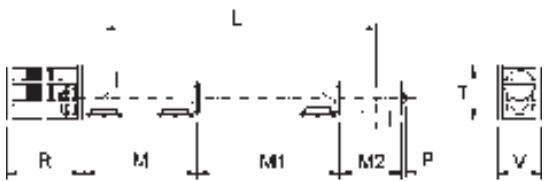
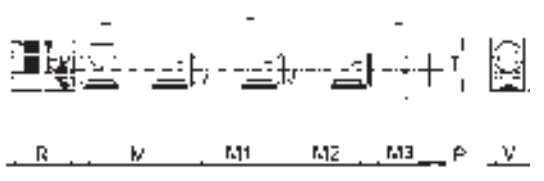
S = Intermediate supports position

7.0 CONFIGURATIONS

Ø 150	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	500 - 2700	182	800 - 3000	-	-	-	950	500	700
	2800 - 3600	182	2200	900 - 1700	-	-	950	500	700
	3700 - 5700			3200	800 - 2800	-			
	5800 - 6600	182	3200	1600 - 2400	1300	-	950	500	700
	6700 - 8700			1000 - 3000	2800	-			
	8800 - 9600	182	3200	1500	1600 - 2400	2800	950	500	700
	9700 - 11700			3000	1000 - 3000				

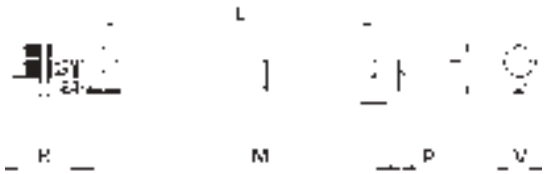

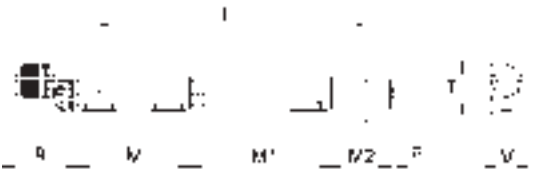
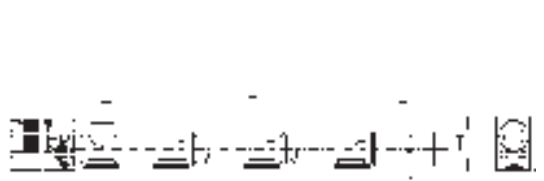
S = Intermediate supports position

7.0 CONFIGURATIONS

Ø 200	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	500 - 2660	182	840 - 3000	-	-	-	950	500	700
	2760 - 3560	182	2200	900 - 1700	-	-	950	500	700
	3660 - 5660		3200	800 - 2800	-	-			
	5760 - 6560	182	3200	1600 - 2400	1300	-	950	500	700
	6660 - 8660			1000 - 3000	2800	-			
	8760 - 9560	182	3200	1500	1600 - 2400	2800	950	500	700
	9660 - 11660			3000	1000 - 3000				

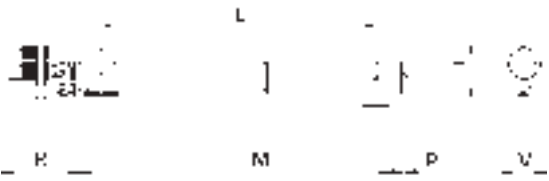

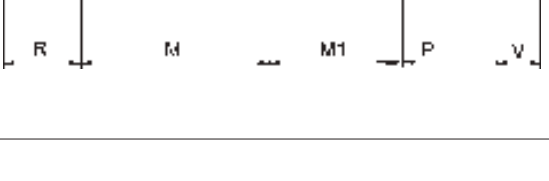
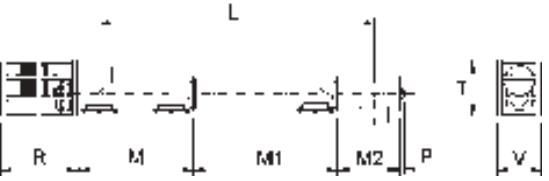
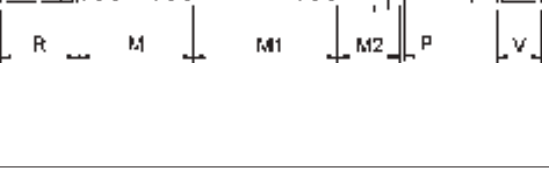
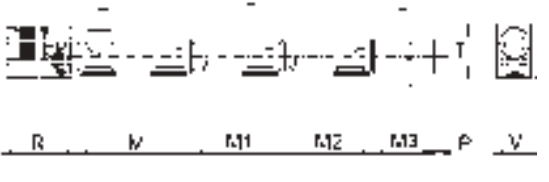
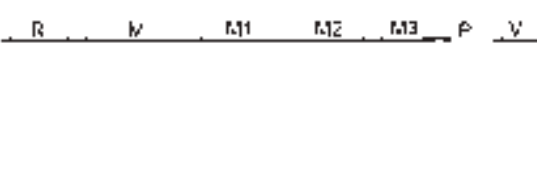
S = Intermediate supports position

7.0 CONFIGURATIONS

Ø 250	L	P max	M	M ₁	M ₂	M ₃	R max	V max	t max
	500 - 2600	225	900 - 3000	-	-	-	950	500	700
	2700 - 3500	225	2200	900 - 1700	-	-	950	500	700
	3600 - 5600		3200	800 - 2800	-	-			
	5700 - 6500	225	3200	1600 - 2400	1300	-	950	500	700
	6600 - 8600			1000 - 3000	2800	-			
	8700 - 9500	225	3200	1500	1600 - 2400	2800	950	500	700
	9600 - 11600			3000	1000 - 3000				

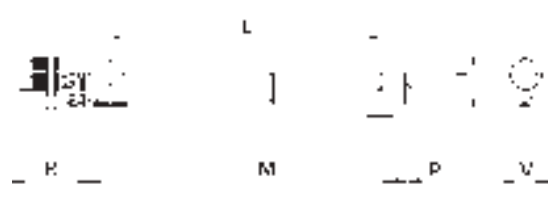
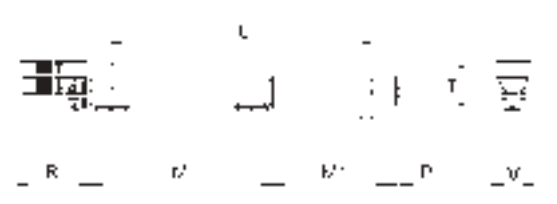
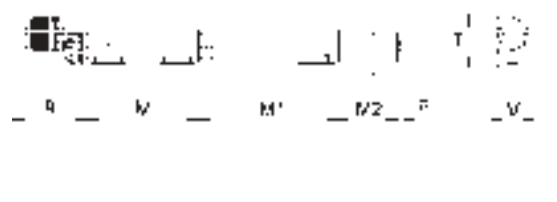
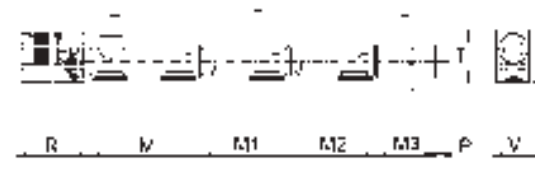
S = Intermediate supports position

7.0 CONFIGURATIONS

Ø 300	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	560 - 3060	235	1000 - 3500	-	-	-	950	600	800
	3160 - 3960	235	2300	1300 - 2100	-	-	950	600	800
	4060 - 6560	235	3800	700 - 3200	-	-	950	600	800
	6660 - 7460	235	3800	1600 - 2400	1700	-	950	600	800
	7560 - 10060	235	3800	1000 - 3500	3200	-	950	600	800
	/	/	/	/	/	/	950	600	800
	/	/	/	/	/	/	950	600	800

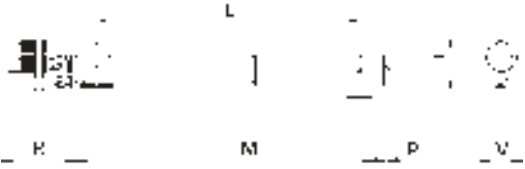

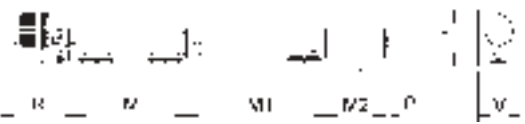
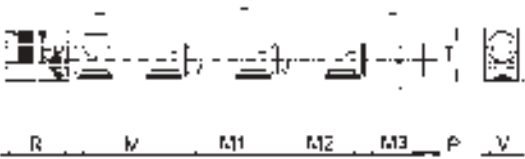
S = Intermediate supports position

7.0 CONFIGURATIONS

Ø 350	L	P max	M	M ₁	M ₂	M ₃	R max	V max	t max
	450 - 2950	235	1000 - 3500	-	-	-	950	600	800
	3050 - 3850	235	2300	1300 - 2100	-	-	950	600	800
	3950 - 6450		3800	700 - 3200	-	-			
	6550 - 7350	235	3800	1600 - 2400	1700	-	950	600	800
	7450 - 9950			1000 - 3500	3200	-			
	/	/	/	/	/	/	950	600	800
	/			/	/				

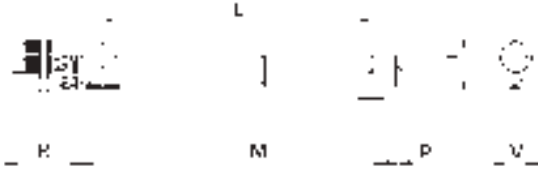

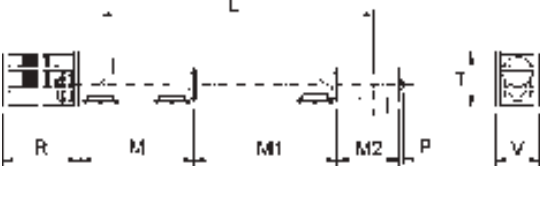
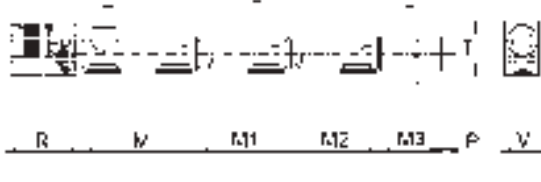
S = Intermediate supports position

7.0 CONFIGURATIONS

Ø 400	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	400 - 2900	270	1000 - 3500	-	-	-	950	600	800
	3000 - 3800	270	2300	1300 - 2100	-	-	950	600	800
	3900 - 6400		3800	700 - 3200	-	-			
	6500 - 7300	270	3800	1600 - 2400	1700	-	950	600	800
	7400 - 9900			1000 - 3500	3200	-			
	/	/	/	/	/	/	950	600	800
	/	/	/	/	/	/			

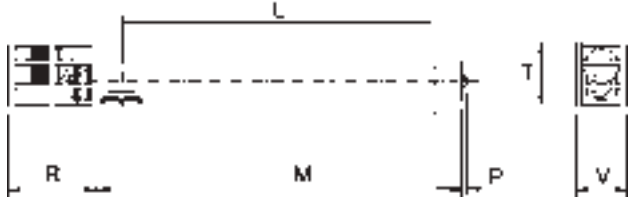
S = Intermediate supports position

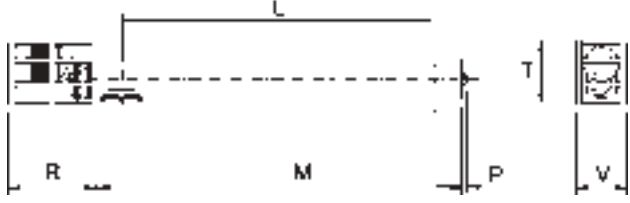
7.0 CONFIGURATIONS

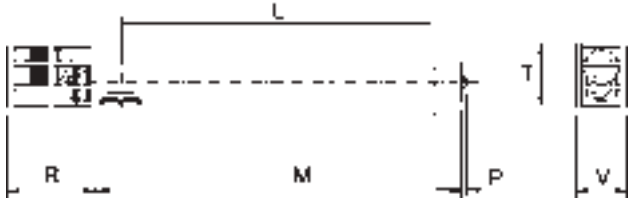
Ø 500	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	300 - 2800	310	1000 - 3500	-	-	-	950	600	800
	2900 - 3700	310	2300	1300 - 2100	-	-	950	600	800
	3800 - 6300			3800	700 - 3200	-			
	6400 - 7200	310	3800	1600 - 2400	1700	-	950	600	800
	7300 - 9800			1000 - 3500	3200	-			
	/	/	/	/	/	/	950	600	800
	/			/	/				

S = Intermediate supports position

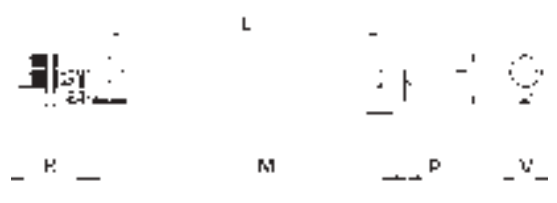
tXF AtEX


$\varnothing 80$	L	P	M	M ₁	M ₂	R _{max}	V _{max}	t _{max}
	500 - 2040	160	760 - 2340	-	-	700	500	600

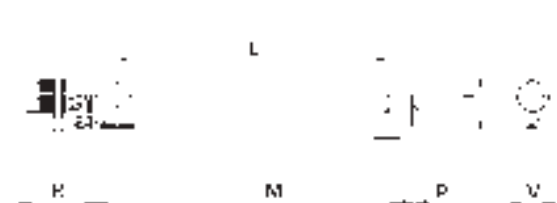
$\varnothing 100$	L	P	M	M ₁	M ₂	R _{max}	V _{max}	t _{max}
	500 - 2140	160	760 - 2400	-	-	700	500	600

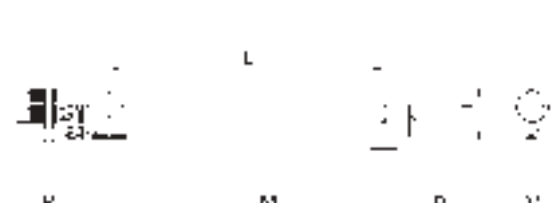
$\varnothing 120$	L	P	M	M ₁	M ₂	R _{max}	V _{max}	t _{max}
	500 - 2740	160	760 - 3000	-	-	700	500	600

7.0 CONFIGURATIONS

\varnothing 150	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	500 - 2700	182	800 - 3000	-	-	-	950	500	700

\varnothing 200	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	500 - 2660	182	840 - 3000	-	-	-	950	500	700

\varnothing 250	L	P _{max}	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	500 - 2600	225	900 - 3000	-	-	-	950	500	700

\varnothing 300	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	560 - 3060	235	1000 - 3500	-	-	-	950	600	800

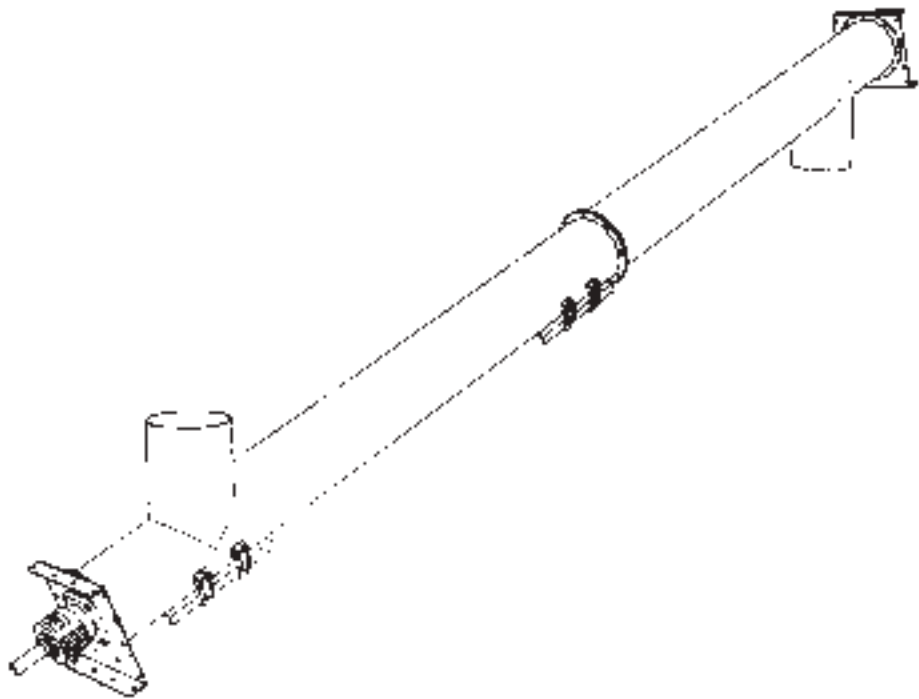


TX-TXF (TX-AN, TO)

*STAINLESS STEEL TUBULAR
SCREW CONVEYORS*

ASSEMBLY AND MAIN INSTRUCTIONS FOR USE AND MAINTENANCE

2



Manual No. CON.116.--.M.EN Issue: A1
Latest Update: September 2016

ORIGINAL INSTRUCTIONS IN ENGLISH

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All the products described in this catalogue are manufactured according to **WAMGROUP S.p.A. Quality System procedures**. The Company's Quality System, certified in July 1994 according to International Standards **UNI EN ISO 9002** and extended to the latest release of **UNI EN ISO 9001**, ensures that the entire production process, starting from the processing of the order to the technical service after delivery, is carried out in a controlled manner that guarantees the quality standard of the product.

**this publication cancels and replaces any previous edition and revision.
We reserve the right to implement modifications without notice.
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SUMMARY

1.0	GENERAL INFORMATION	1
1.1	Scope of the Manual	1
1.2	Symbols	2
1.3	Glossary and terminology	4
1.4	Manufacturer's data and identification of equipment.....	5
1.5	Request for assistance.....	6
1.6	Warranty.....	6
1.7	Exclusion of responsibility	6
2.0	INFORMATION REGARDING SAFETY.....	7
2.1	General safety prescriptions	7
2.2	Safety prescriptions for transport and handling.....	7
2.3	Safety prescriptions for installation	8
2.4	Safety prescriptions for use and operation.....	8
2.5	Safety prescriptions for maintenance and replacement of components	8
3.0	TECHNICAL INFORMATION	10
3.1	General description of the equipment	10
3.2	Main components TX, TX-AN, TO.....	11
3.3	Main components TXF	12
3.4	Operating principle	12
3.5	Permitted use	13
3.6	Improper use not permitted	13
3.7	Noise level.....	14
3.8	Environmental operating limits	14
3.9	Overall dimensions and technical features	14
3.10	Safety and information signs.....	15
3.11	Safety devices	16
4.0	INFORMATION REGARDING HANDLING AND TRANSPORT.....	17
4.1	Type of packaging	17
4.2	Reception of goods	19
4.3	Lifting and unloading methods	19
5.0	INSTALLATION AND FIXING.....	21
5.1	Recommendations for installation	21
5.2	Preassembling the electric motor.....	22
5.3	Preassembling the gear reducer on TX, TX-AN, TO screw conveyors	23
5.4	Preassembling of the gear reducer on TXF conveyors.....	24
5.5	Packing Gland.....	26
5.6	Complete assembly of screw feeder/conveyor TX, TX-AN, TO	26
5.7	Installation and fixing of the equipment.....	29
5.8	Electrical connection	32
5.9	Inspection.....	33

6.0	INFORMATION REGARDING USE	34
6.1	Production Start-up	34
6.2	Machine shutdown at the end of the work cycle	34
6.3	Long shutdowns of the equipment	35
6.4	Reuse after long shut-downs	35
7.0	INFORMATION REGARDING MAINTENANCE	36
7.1	Cleaning the equipment (the machine)	37
7.2	Disassembling and cleaning the TXF screw conveyor.....	37
7.3	Gear reducer lubrication.....	39
7.4	Changing the oil	39
7.5	Lubrication of the chain transmission.....	40
7.6	Transmission tensioning.....	41
7.7	XSV - XSW - XSP - XSR - XST - XUC _ _ _ N - XUJ lubrication.....	43
8.0	REPLACEMENT OF PARTS	45
8.1	Safety recommendations for replacement	45
8.2	Replacing the electric motor.....	45
8.3	Replacing the gear reducer.....	47
8.4	Replacing the gear reducer seal	48
8.5	Replacement of intermediate hanger bearing xlh	49
8.6	Replacing the screw.....	50
8.7	Replacing the tubular trough	52
8.8	Returning the equipment (the machine).....	54
8.9	Dismantling and disposal	54
9.0	INFORMATION REGARDING FAULTS	55
9.1	Trouble-shooting	55
9.2	Check-list in case of fault	56
10.0	TECHNICAL DATA	58
10.1	Composition	58
10.2	Dimensions	68
10.3	Weights	70
10.4	Gear reducer dimensions S39 with hollow shaft (CV).....	72
10.5	S41 - S43 Gear reducer dimensions.....	73
10.6	Gear reducer dimensions S41 and S43 with hollow shaft (CV)	74
10.7	S45 - S47 Gear reducer dimensions.....	75
10.8	Gear reducer dimensions S45 and S47 with hollow shaft (CV)	76
10.9	Dimensions of the belt transmission ("S" - Type gear reducer).....	77
10.10	Dimensions of the chain transmission ("S" - Type gear reducer)	78
10.11	Dimensions of the coupling transmission ("S" - Type gear reducer)	79
10.12	Electric motors	80
10.13	Electric motors IE2 IEC 60034 - 30.....	81
A	ATTACHMENTS	82
A1	Nuts and bolts tightening torque Table	82
A2	Lubricants and sealants Table	83
A3	Drive unit lubricants Table.....	84
A4	Repainting	86

1.1 Scope of the Manual

This Manual has been prepared by the Manufacturer to provide the operating technical information for installation, operation and maintenance of the equipment concerned.

The Manual, which is an integral part of the equipment concerned, must be preserved throughout the life of the equipment in a known easily accessible place, available for consultation whenever required.

If the Manual is lost, damaged or becomes illegible, contact the Manufacturer for a copy specifying the serial number of the equipment.

If the equipment concerned changes ownership, the Manual has to be handed over to the new owner as part of the equipment supply.

The Manual is meant for specialist technical personnel appointed and authorized by the Manufacturer, owner and installer to act on the equipment concerned for which specific technical skills in the sector concerned are necessary (electrical, mechanical, etc.).

The illustrations may differ from the actual structure of the equipment concerned but do not interfere with the explanation of the operations.

In case of doubt, contact the Manufacturer for explanations.

The Manufacturer reserves the right to make changes to the Manual without the obligation to provide prior notification, except in case of modifications concerning the safety level.

The technical information included in this Instruction Manual is the property of the Manufacturer and therefore has to be considered as confidential.

It is forbidden to use the Manual for purposes other than those strictly linked to the operation and maintenance of the equipment concerned.

This information is provided by the Manufacturer in the original language (English) and can be translated into other languages to satisfy legislative and/or commercial requirements.

1.2 Symbols

To highlight certain parts of the text, for purposes of safety, or to indicate important information, certain symbols are used, the meaning of which is described below.

It is important to comply with and scrupulously follow the information highlighted by the symbols.



Danger - Warning

Indicates situations of serious danger which, if ignored, can be risky for the health and safety of persons.



Caution








Indicates that appropriate behaviour must be adopted to avoid posing risk for the health and safety of persons and avoid causing economic damage.



Important

Indicates particularly important technical information which must not be ignored.

List of safety and information symbols

Symbol representation	Symbol description
	<p>Danger sign: indicates danger of electric shock caused by the presence of powered components inside the junction box or control panel.</p>
	<p>Obligation: read this Manual before carrying out any action on the equipment concerned.</p>
	<p>Forbidden: indicates that it is forbidden to lubricate or adjust moving parts.</p>
	<p>Danger: indicates danger of serious injury to limbs if the internal moving parts of the equipment are exposed. Before opening inspection or maintenance hatches or doors isolate the equipment concerned from the electrical energy sources.</p>
	<p>Information: indicates the direction of rotation of the electric motor.</p>
	<p>Obligation: indicates the hooking points for lifting each section of the equipment concerned.</p>
	<p>Forbidden: indicates it is forbidden to introduce hands into the equipment.</p>

1.3 Glossary and terminology

Operator: person appropriately trained and authorized by the Production Manager for setting up the equipment concerned and carrying out routine maintenance.

Installer: organization with specialized technicians and appropriate equipment for carrying out risk-free installation and extraordinary maintenance.

Specialist technician: person responsible for and authorized by the Manufacturer, owner or installer to act on the equipment; must have specific technical skills depending on the sector concerned (electrical, mechanical etc.). The specialist technician, in addition to being familiar with the working of the equipment concerned, must be familiar with the working of the plant or equipment on which the equipment concerned is installed.

Routine maintenance: includes all the actions necessary to keep the equipment in good working conditions, to ensure greater operating durability and to keep the safety requisites constant.

Extraordinary maintenance: all the actions meant to keep the equipment in perfect working order.

Setting in safety conditions: all the precautions the authorized personnel must adopt before acting on the equipment concerned.

The precautions are listed below.

- Ensure that the equipment concerned is disconnected from all the mains and appropriate devices are used to prevent these from being reconnected accidentally.
- Ensure that all the moving parts of the equipment have come to a complete stop.
- Ensure the temperature of the equipment concerned is such that it does not burn.
- Provide appropriate lighting in the area around the operations.
- Wait for the material to be handled inside the equipment or machine concerned to settle down completely.

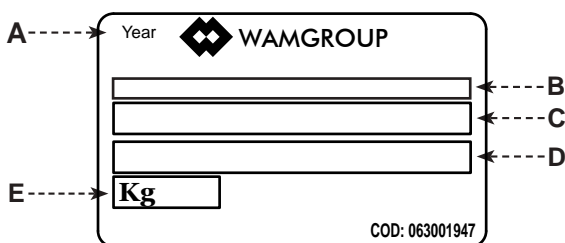
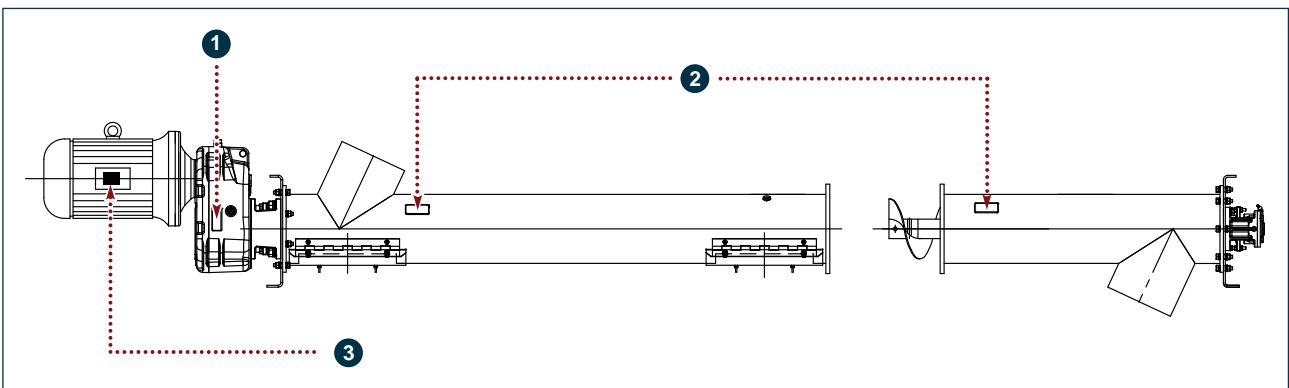
1.4 Manufacturer's data and identification of equipment



Important

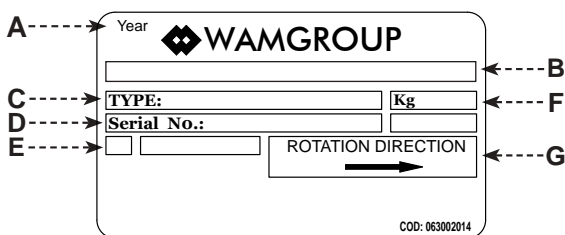
**Do not change the data on the identification plate.
Keep the ID plates clean, intact and legible as regards the data they contain.
If the ID plate is damaged or is no longer legible (even just one informative element on it) contact the Manufacturer for a new ID plate and replace it.**

The ID plates shown identify the equipment concerned and its main components.
The plates show the reference necessary for operating safety.



1 - Gear reducer identification plate

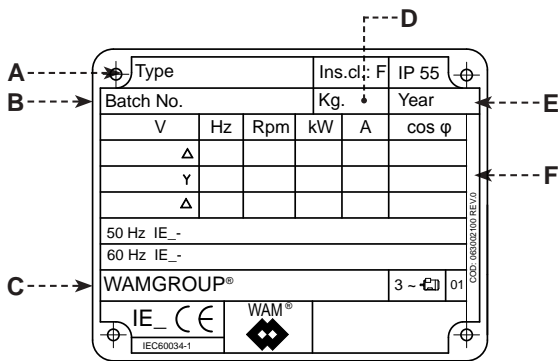
- A) Year of manufacture
- B) Manufacturer's name and address
- C) Identification of gear reducer
- D) Production batch
- E) Weight of gear reducer



2 - Identification plate of screw conveyor

The plate is affixed on the screw conveyor or on each one of its sections if there are a number of sections.

- A) Year of manufacture
- B) Manufacturer's name and address
- C) Type of screw conveyor
- D) Serial No.
- E) Progressive number of the section (if the screw consists of a number of sections)
- F) Weight of the screw conveyor
- G) Direction of conveyor rotation


3 - Motor identification tag

- A) Electric motor identification
- B) Production batch
- C) Manufacturer's name and address
- D) Weight of the electric motor
- E) Year of manufacture
- F) Technical data

1.5 Request for assistance

For all technical assistance, contact the Manufacturer's service network.

For all requests, provide the equipment identification data, the type of problem encountered and all other information which could be useful for identifying the problem.

1.6 Warranty

The conditions for validity and applicability of the warranty are specified in the sales contract.

1.7 Exclusion of responsibility

The equipment is delivered according to the specifications indicated by the Buyer in the order and the conditions valid at the time of purchase.

The Manufacturer shall not accept responsibility for safety of persons or objects and operation failure of the equipment if the loading/unloading operations from trucks, transport, positioning at the site, use, repairs, maintenance etc. have not been carried out in compliance with the warnings described in this Manual, and in accordance with the national legislation in force.

Likewise, the Manufacturer shall not accept any responsibility if the equipment concerned is used:

- improperly;
- by unauthorized persons and/or persons not sufficiently trained for installation, operation and maintenance;
- with modifications made to the original configuration without the Manufacturer's permission;
- with spare parts that are not original or are not specific for the model;
- without maintenance;
- non-pursuant to the regulatory standards and national or local legislation on the matter of occupational safety;
- non-pursuant to the recommendations in this Manual or on the warning and danger plates applied on the equipment.

2.1 General safety prescriptions

Read the Instruction Manual carefully and strictly follow the instructions it includes, especially those regarding safety.

Most accidents at the workplace are caused by negligence, failure to follow the most elementary safety regulations and incorrect or improper use of tools and equipment.

Accidents can be prevented and avoided by taking due care, using suitable equipment and adopting adequate preventive measures.

Apply and comply with the standards in force regarding workplace hygiene and safety.

the personnel trained for and authorized for the operations has to have the psychological/physical requisites, experience in the sector concerned and the necessary technical skills for carrying out the operations assigned to them.

All workers involved in any kind of operation must be prepared, trained and informed as regards the risks and the behaviour to be adopted.

Pay attention to the meaning of the notices applied on the equipment, keep these legible and respect the information indicated.

Use instruments, equipment and tools that have been approved and are intrinsically safe, and cannot alter the safety level of the operations or damage the equipment during installation, use and maintenance.

Modifications to the equipment components should not be made for any reason whatsoever, without the Manufacturer's permission.

2.2 Safety prescriptions for transport and handling

Carry out all the handling and transport operations in accordance with the procedures and instructions shown on the packaging and in the Manual supplied.

All the operations must be performed by qualified authorized personnel.

those authorized to carry out the handling operations must have the capabilities and experience required to adopt all the necessary measures to guarantee one's safety and the safety of persons directly involved in the operations.

The chosen features of the lifting and handling means (crane, bridge crane, forklift truck etc.) must take into account the weight to be handled, the dimensions and the gripping points.

During lifting use only accessories such as eyebolts, hooks, shackles, spring hooks, belts, slings, chains, ropes etc., that have been certified and are suitable for the weight to be lifted.

During handling respect the prescriptions applicable for handling loads.

Keep the position of the equipment concerned or the sections and the loose components horizontal, keep the load low and make all the necessary movements gently.

Avoid sudden manoeuvres, dangerous oscillations and rotations, accompanying the movements manually and place the load gently on the ground.

2.3 Safety prescriptions for installation

Before starting with installation, a “Safety Plan” must be implemented to safeguard the personnel directly involved and those who carry out operations in the surrounding area.

All the laws must be strictly applied, especially those concerning workplace safety.

Before proceeding with installation operations, mark off the work area to prevent access by unauthorized persons.

The electrical connections must be made in compliance with the standards and laws in force.

The person in charge of making the electrical connections has to ensure that the required standards and laws are respected before testing.

2.4 Safety prescriptions for use and operation

Do not tamper with the equipment concerned by using any kind of device to obtain performances different from those designed.

All unauthorized changes can affect the health of people and the integrity of the equipment.

The operators have to exclusively wear protective clothing and have to be equipped with appropriate individual protection devices for carrying out the operations and as required by the safety and work accident prevention standards.

Before use, ensure that all the safety devices are installed and that they are working properly.

During operations, prevent access to the work area by unauthorized persons.

Remove all obstacles or sources of danger from the work area.

It is strictly forbidden to walk or placing any improper load on the equipment.

2.5 Safety prescriptions for maintenance and replacement of components



Danger - Warning

Before carrying out any operation on the equipment concerned, ensure it is switched off and disconnected from all mains and use suitable devices to prevent the possibility of the power sources being activated accidentally.

Maintain the equipment concerned in the conditions of utmost efficiency compliant with the maintenance plan provided by the Manufacturer.

Good maintenance apart from preserving the functional features and essential safety features over time, will also allow extending the working life of the equipment concerned and achieving the best possible performance.

Strictly follow the procedures indicated in the Manual, especially those concerning safety.

Ensure that all the safety devices are active and working properly.

Mark off the work area in such a manner as to prevent the access of unauthorized persons.

Replace the worn and damaged components exclusively with original spare parts, whose safety, reliability and interchangeability have been undoubtedly established.

Apart from invalidation of the warranty, the Manufacturer declines all responsibility for damage to objects and harm to persons deriving from the use of non-original spare parts or due to modifications made during repairs without express written authorization.

Use the oil and lubricants recommended by the Manufacturer.

Do not dump polluting material (oil, grease, paint, plastic etc.) in the environment, but carry out waste separation disposal depending on the chemical composition of the various products in compliance with the legislation in force.

On completion of maintenance or replacement operations, before resuming production, check that no foreign bodies (rags, tools etc.) have been left inside the equipment concerned.

3.1 General description of the equipment

The TX - TXF tubular screw conveyors constitute a modular system which offers numerous solutions for the transport of bulk materials. They are made of stainless steel with a suitable surface treatment and finishes depending on the application. The manufacturing process of metal components occurs on equipment that allows perfectly smooth surfaces so as to minimize product residues. The TX - TXF screw conveyors are composed of a tubular casing equipped with at least one inlet, one outlet, a plate at each end of the tube, a coil complete with coupling sleeves or shaft end, 2 end supports complete with sealing unit, and a number of intermediate supports depending on the length of the machine. Based on the characteristics of the materials to be treated, the tubular TX screw conveyors are available in light or heavy version (only light for the TXF).

The screw conveyor can be supplied bare shafted or with drive unit.

The declaration of conformity is valid for the bare shafted version as well as for the complete machine version that includes the drive unit.

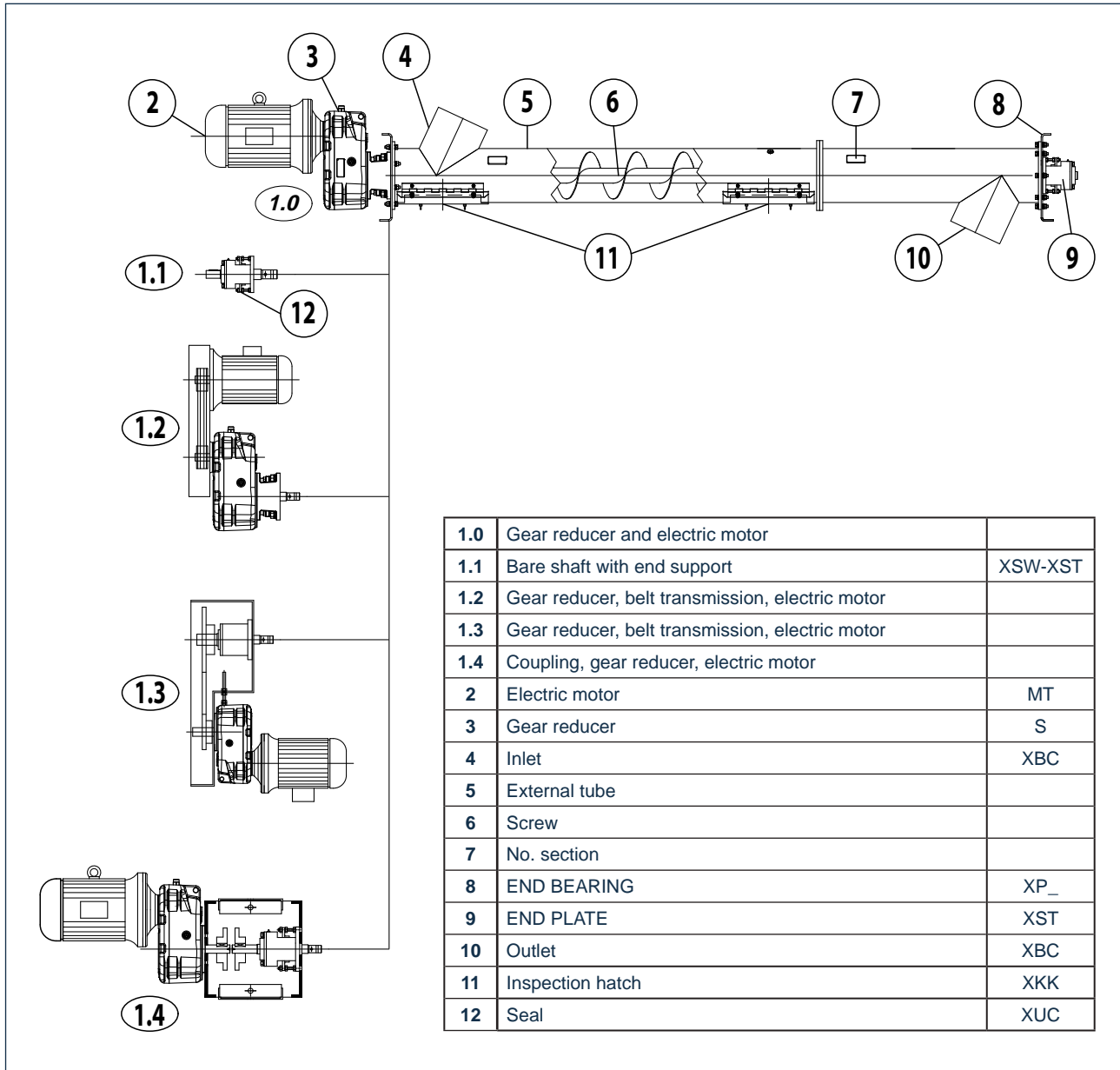


Important

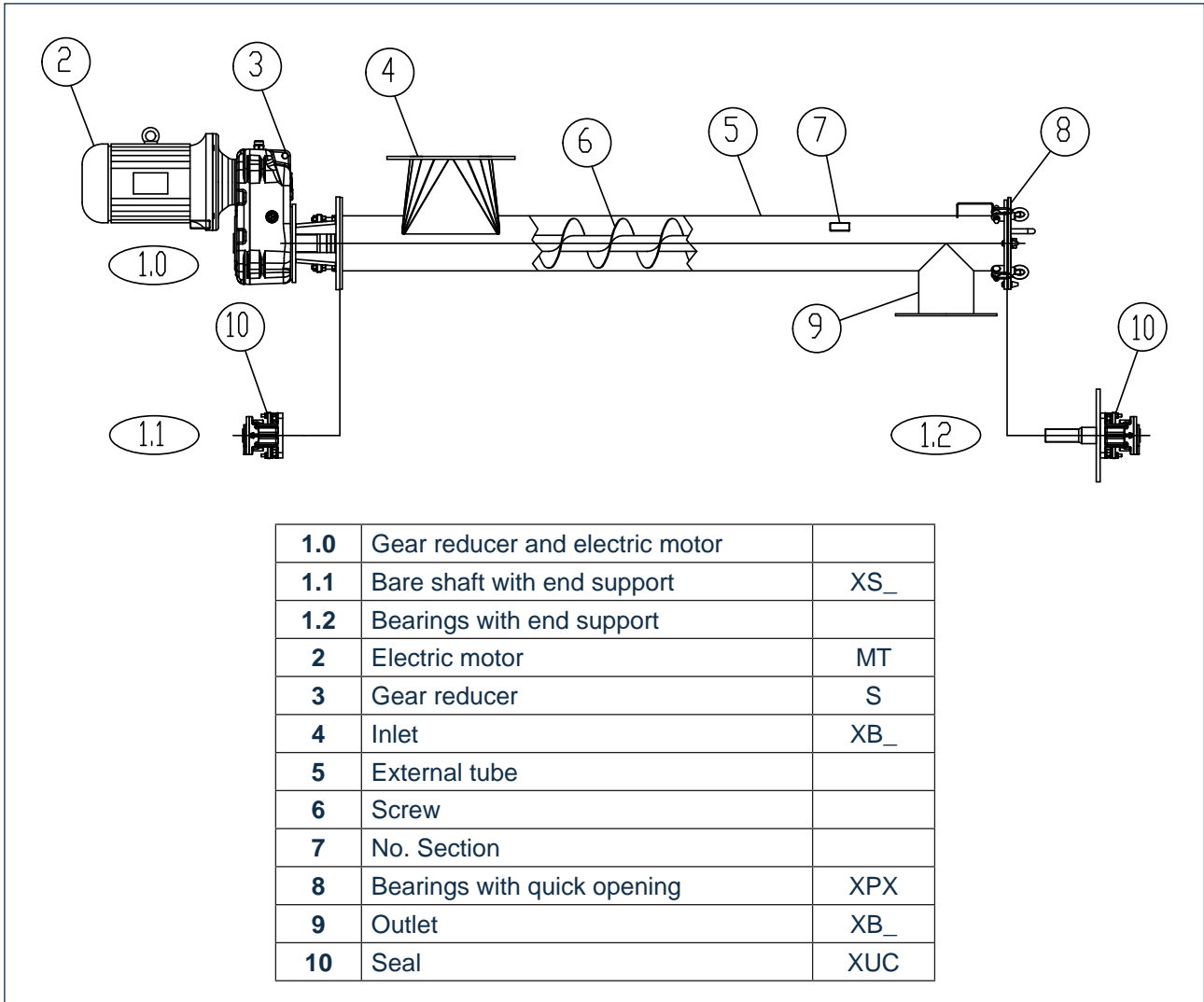
The terms “equipment”, “tubular screw conveyor TX - TXF” used in this manual refer to the same machine.

As components meant for installation in a plant, the tubular screw conveyor TX - TXF - not fully provided with safety means - have to be considered “partly completed machinery”. Therefore, they do not bear an EC marking.

It is forbidden to start the equipment unless the machine/plant in which it is to be installed has been declared compliant with the Directive 2006/42/EC and further modifications.

3.2 Main components TX, TX-AN, TO


3.3 Main components TXF



3.4 Operating principle

The drive unit transmits the rotary movement to the screw which conveys the material fed through the inlet spout towards the outlet spout.

3.5 Permitted use

The TX - TXF Tubular Screw Conveyor system offers a variety of solutions for conveying or feeding powdery or granular materials. TX - TXF Tubular Screw Conveyors are suitable for applications in which any contamination of the material handled has to be strictly avoided and in which absolute cleanliness and perfect resistance to corrosion is required.

In particular are used in environmental technology, in flour and animal feed milling, in food processing and packaging, in plastics and chemicals, as well as in the pharmaceutical industry.

Cleaning: periodically wash the machine with water. The frequency depends on the type of material and the nature of the plant. Certain parts such as the body, flighting, vertical discharge and protections must be cleaned with particular care. Before using other cleaning products contact our Sales department.

Every other use must be considered as improper and therefore not permitted.

3.6 Improper use not permitted

Do not start operating the screw feeder/conveyor until the plant or equipment in which it is incorporated was declared compliant to the relevant national and local legislative provisions in force.

It is forbidden to use the screw feeder/conveyor in potentially inflammable or explosive atmospheres (ATEX).

It is forbidden to install and use the screw feeder/conveyor in a vertical position, and, however, with an installation angle exceeding 60°.

It is forbidden to use the screw feeder/conveyor for granular products (rubble, sand, gravel, etc.).

It is forbidden to use the screw feeder/conveyor for inflammable (magnesium powder, etc.) or explosive products.

It is forbidden to use the screw feeder/conveyor for materials which can cause bacteriological contamination.

It is forbidden to use the screw feeder/conveyor for hot materials with temperatures exceeding + 40 °C and cold products with temperatures below - 20 °C.

If the customer follows normal precautions for this type of equipment together with the instructions given in this manual, operation is safe.

3.7 Noise level

The operating noise level of the equipment depends on a number of factors. Essentially these are: dimensions, type of material and loading coefficient. The noise levels given in the table are therefore only indicative, though sufficiently precise in most cases.

NOTE: With particular types of material, for example, with large sized particles, it is advisable to contact a WAM[®] Sales Office.

Screw conveyors with direct drive	80 dB(A)*
Screw conveyors with chain transmission	90 dB(A)*
Screw conveyors with belt transmission or coupling	85 dB(A)*

* Values measured at 1metre distance in the most unfavourable position.



Danger - Warning

Depending on the installation site, the installer must adopt suitable systems (barriers, etc.), if necessary, to maintain the noise levels within the limits permitted by law.

3.8 Environmental operating limits

Unless otherwise specified, the equipment concerned can be used only within the limits indicated.

- Altitude: less than 1,000 m at sea level
- Environmental temperature: between - 20 °C and + 40 °C
- Cold climates: with temperature less than 5 °C use oil and lubricants suitable to the operating temperature.

3.9 Overall dimensions and technical features

For an exact identification of the equipment concerned, see the identification plate.

The shipping documents show the diameter and length of the screw feeder/conveyor in addition to the Serial number and identification codes.

The information regarding the technical features of the TX - TXF Tubular Screw Conveyors, depending on their diameter and length, is given in Chapter 10.

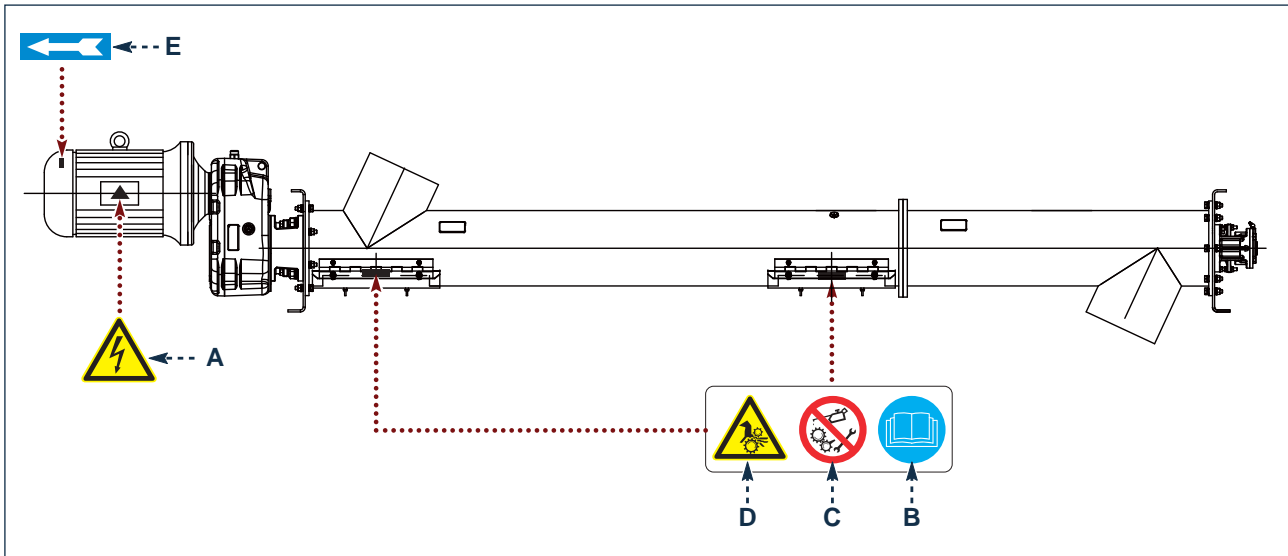
3.10 Safety and information signs



Danger - Warning

Follow the signs on the plates.

Ensure that the plates are readable; otherwise clean them and replace the damaged ones, placing them in their original position.



- A) **Danger sign:** indicates danger of electric shock because of powered components presence inside the junction box.
- B) **Obligation:** read this Manual before carrying out any action on the equipment concerned.
- C) **Forbidden:** indicates that it is forbidden to lubricate or adjust moving parts.
- D) **Danger:** indicates danger of serious injury to limbs if the screw is exposed. Before opening the inspection hatch(es), isolate the equipment concerned from the mains supply.
- E) **Information:** indicates the direction of rotation of the electric motor.

3.11 Safety devices

Access to the inspection hatches is not necessary while using the equipment concerned. Their use represents extraordinary use as they were provided for removing foreign bodies and accumulated material from the screw feeder/conveyor or for extraordinary maintenance operations.

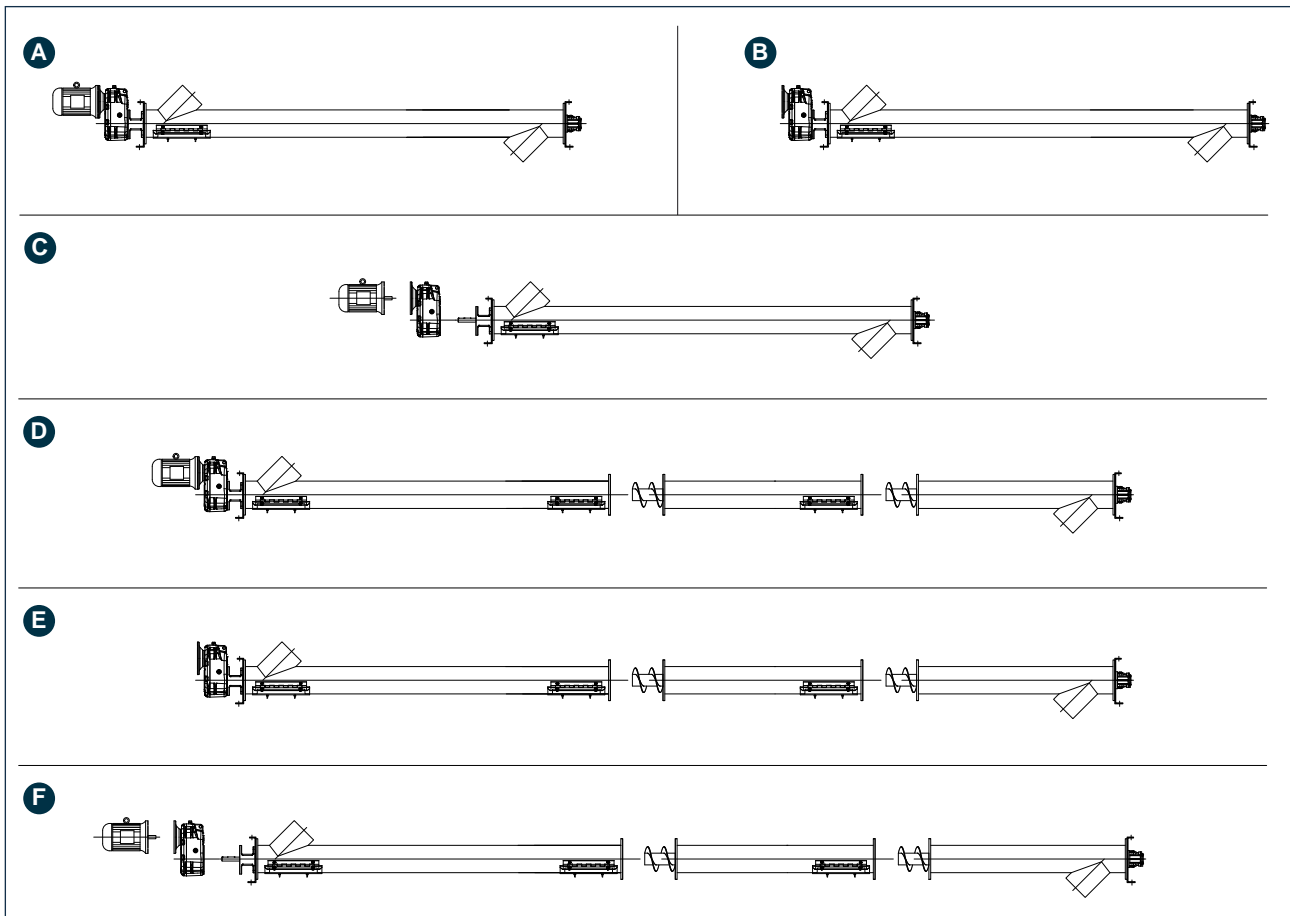
The screw feeder/conveyor is shipped with the inspection hatch(es) closed with a bolted device which needs to be unlocked by means of a spanner (wrench) as envisaged by the Standards concerning fixed protections.

4.1 Type of packaging

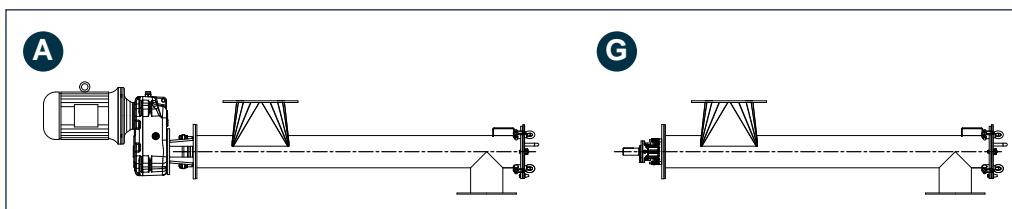
If the delivery consists of more than one equipment, make sure that the various sections of each conveyor have the same code number on the nameplate.

The screws may be constituted by one or more sections and can be provided with actuating device or with bare shaft.

TX, TX-AN, TO



TXF



- A) Complete conveyor:** the conveyor/extractor screw is in a single section with the motor and the gear reducer mounted.
- B) Incomplete screw conveyor:** the screw conveyor is in a single section with the gear reducer mounted without the electric motor (the customer will have to purchase and fit the electric motor).
- C) Screw conveyor disassembled:** the conveyor/ extractor screw is in a single section with the electric motor and the drive unit disassembled.

- D) Complete screw conveyor separated:** the conveyor/ feeder screw consists of a number of sections (loading, intermediate and unloading). The electric motor and gear reducer are mounted.
- E) Incomplete screw conveyor separated:** the screw conveyor consists of a number of sections (loading, intermediate and unloading). The gear reducer is mounted with no electric motor (the customer will have to purchase and fit the electric motor).
- F) Complete screw conveyor separated:** the conveyor/ feeder screw consists of a number of sections (loading, intermediate and unloading). The electric motor and gear reducer are disassembled.
- G) Incomplete bare shaft screw conveyor:** the conveyor consists of a single section without electric motor and without gear reducer. From the load side there is a solid shaft and a support flange to which the gear motor unit that must be supplied by the customer may be applied.

The type of packaging is selected according to the type of supply, the transport means used, the quantity of goods shipped and the destination.

To facilitate shipment, the screw conveyor can be divided into several packages that are suitably protected. An “assembly kit” containing the nuts and bolts and gaskets necessary for a correct assembly is supplied with the screw conveyor.

The mobile sections of the screw conveyor are secured by means of blockers which have to be removed during pre-assembly.

The packages can be loaded separately on the vehicle or fixed to a pallet, properly protected, or inside a container for shipment to a far destination or for sea or air transportation.

The signs for safe lifting and handling are shown on all the packages.

The list shows the description and symbols envisaged on the packing.

A) Fragile: indicates that the package has to be handled and lifted carefully to avoid damage



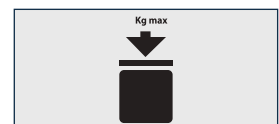
B) Centre of gravity: indicates the position of the gravity centre of the package.



C) harness: indicates the correct harness position for lifting the package.



D) Stacking limit: indicates the maximum stacking load of the packages.

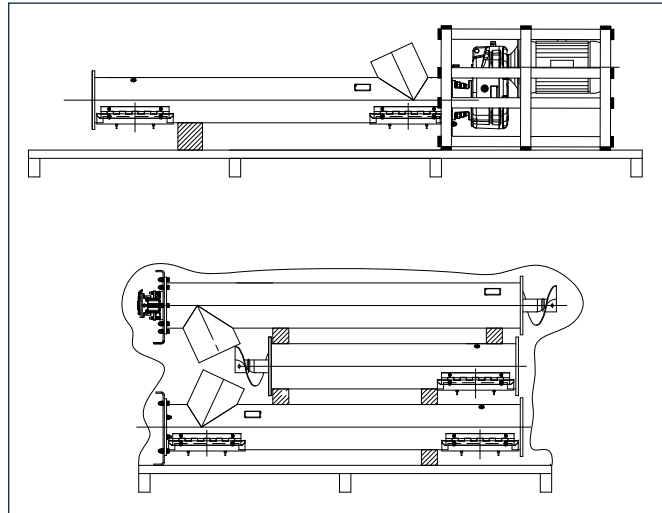


E) Weight: indicates the maximum weight of the package.



The packaging material has to be disposed off or recycled in compliance with the standards in force.

The illustration shows the type of packaging commonly used for shipping to a far destination or for sea or air transportation.



4.2 Reception of goods

On receiving the goods, ensure that the type and quantity correspond to the data present on the acknowledgement of order.

Possible damage has to be immediately communicated in writing in the space provided to this purpose in the waybill.

The carrier is obliged to accept the complaint and leave the Customer a copy of the waybill.

If the supply is “free destination” a copy of the waybill and of the complaint shall be sent to the Manufacturer or to the forwarder.

If the damages are not claimed immediately on receipt of the goods, your request for compensation may not be accepted.

4.3 Lifting and unloading methods



Danger - Warning

Carry out the lifting and handling operations according to the information indicated on the equipment and in the Manufacturer’s Operation Manual.

The person authorized for unloading operations has to make sure all the necessary measures are adopted to ensure his or her safety and the safety of other persons directly involved.

Use means and accessories (ropes, hooks, shackles etc.) suitable for the load to be lifted.

Pay attention in the lifting phase to balance the load to avoid uncontrolled movements which could cause work injuries to persons.

Do not stack the packages as they are not sized for that purpose.

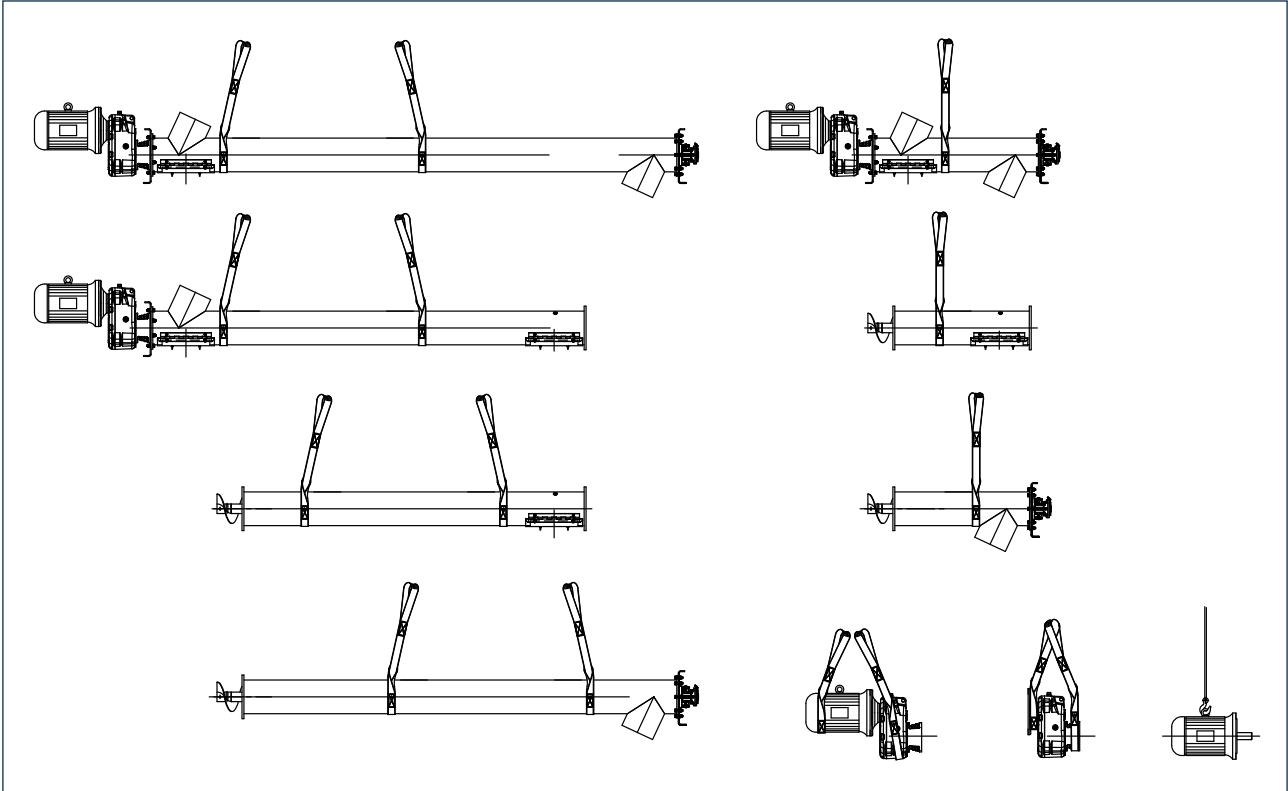
Do not drag or push the entire or sections of the equipment as it will damage them.

Before lifting and handling the load, read the relevant information indicated in the “Information regarding safety” Chapter.

4.0 INFORMATION REGARDING hANDLING
AND tRANSPORT

Harness the packages according to the indications and symbols applied on them or harness the sections of the equipment concerned on the basis of their structure.

The illustration shows the screw feeder's/conveyor's lifting points according to the configurations envisaged and the lifting points of the electric motor and the gear reducer if they are separately supplied.



Unload the packages from the means of transport and place them on a flat surface which can ensure the stability.

5.1 Recommendations for installation

If before assembly it is envisaged a long storing period, place the equipment on a pallet protected from inclement weather conditions. Avoid moist and salty environments.



Danger - Warning

the installation operations have to be carried out by a technician specialized in such activities. Provide appropriate safety measures and use suitable equipment to prevent risk of work accident to persons involved in the operations and to those nearby. Harness and handle the sections of the equipment concerned as described and shown in the “Unloading and lifting method” paragraph.

Before starting installation, define a safety plan which complies with the laws in force regarding workplace safety.

The specialist technician, authorized by the installer or owner, has to evaluate whether the area has been properly prepared and whether the necessary installation equipment is available (crane, etc.).

Define, on the basis of the configuration of the equipment concerned, the assembly method, if the gear reducer and electric motor require preassembly or the sections are to be preassembled (loading, intermediate, unloading).

Check, and if damaged, repair the coupling surfaces.

Clean the coupling surfaces thoroughly.

5.2 Preassembling the electric motor

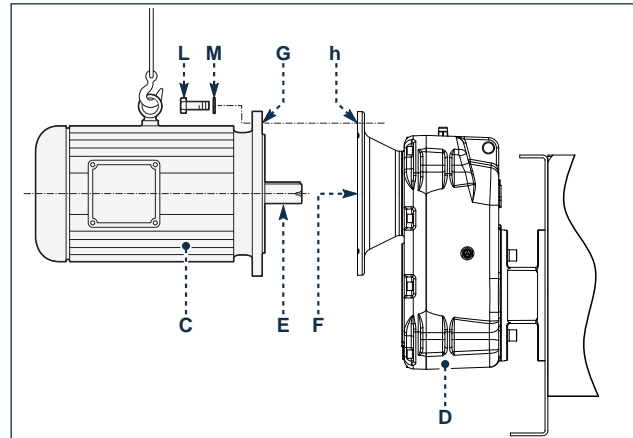


Danger - Warning

Before carrying out the operations, read the safety prescriptions and the safety recommendations for installation.

Proceed as described.

- 1) Place the one-piece screw feeder/conveyor or section with gear reducer assembled without electric motor in a horizontal position.
- 2) Place the motor (**C**) near the gear reducer coupling flange.
- 3) Lubricate the shaft (**E**) of the electric motor and the seat (**F**) of the gear reducer with the prescribed lubricant (see "Table of lubricants and sealants").
- 4) Apply the prescribed sealant (see "Table of lubricants and sealants") on the coupling surfaces (**G** and **h**).
- 5) Fit the motor on the gear reducer.



Important

Do not force the coupling and do not use improper means as this will damage the coupling and the contact surfaces.

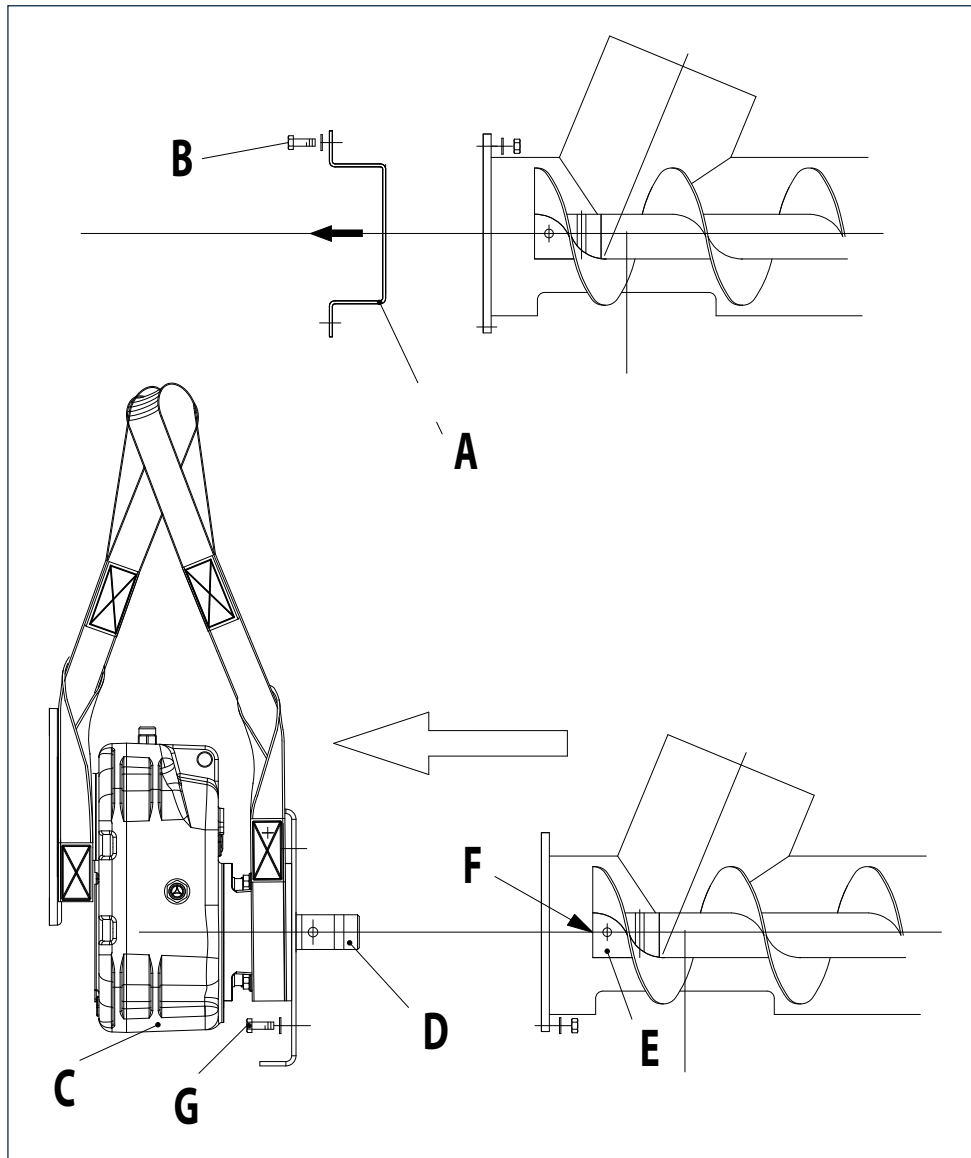
- 7) Insert screws (**L**) and washers (**M**) in all the bores provided in the coupling flange.
- 8) Tighten the screws (**L**) by applying the indicated tightening torque (see "Nuts and bolts tightening torques Table").

5.3 Preassembling the gear reducer on TX, TX-AN, TO screw conveyors



Danger - Warning

Before carrying out the operations, read the safety prescriptions and the safety recommendations for installation.



Proceed as described.

- 1) Place the one-piece screw feeder/conveyor or section prearranged for gear reducer assembly.
- 2) Remove the blocker (A) of the auger by unscrewing the fixing screws (B).

**Danger - Warning**

Removing the blockers will release the screw or helicoid flighting which might slip out of the external tube and cause serious injury to the operator concerned or to those directly involved in the operations.

- 3) Position the gear reducer (C) near the connecting flange of the section concerned of the screw feeder/conveyor.
- 4) Lubricate the shaft (D) of the gear reducer and the seat (F) of the screw with the prescribed lubricant (see "Table of lubricants and sealants").
- 5) Apply a layer of Silicone sealant between the drive unit and the end flange.
- 6) Fit the gear reducer (C) inserting the shaft (D) in the coupling (E) of the screw and bring the gear reducer near the end flange to align them.

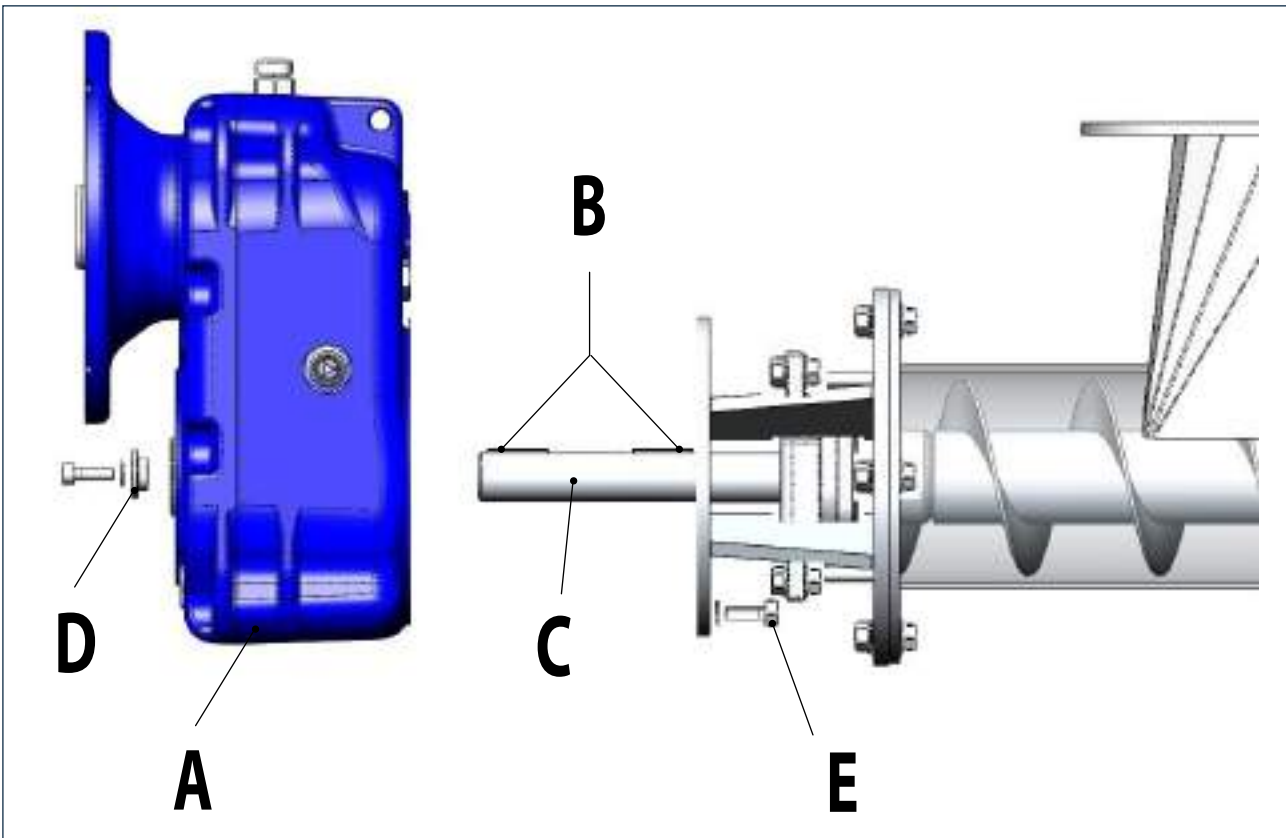
**Important**

Do not force the coupling and do not use improper means as this will damage the coupling and the contact surfaces.

- 7) Insert bolts (G) and washers in all the bores provided in the connecting flange.
- 8) Tighten the bolts by applying the indicated tightening torques (see "Nuts and bolts tightening torques Table").
- 9) Match the bores and fit the screws that fix the coupling to the flighting by applying the indicated tightening torque. (See "Nuts and bolts tightening torques Table"). Close the inspection hatch if it was opened earlier.
- 10) Fit the electric motor (see "Preassembling the electric motor").

5.4 Preassembling of the gear reducer on TXF conveyors**Danger - Warning**

Prior to performing the operations, read the safety requirements and the safety recommendations for installation.



Follow the indications bellow:

- 1) Place the screw conveyor or the section of the screw conveyor for the drive unit mounting.
- 2) Position the driving head (A) close to the coupling that corresponds to the screw section.
- 3) Insert tabs (B) in the shaft (C) and lubricate it with the prescribed lubricant (see "Table of lubricants and sealants").
- 4) Couple the drive unit (A) to the shaft (C) of the screw and bring it close to the flange of the conveyor.

i

Important

Do not force the coupling and do not use improper means as this will damage the contact surfaces.

- 5) Mount the check bushing (D) and secure it with the appropriate screw.
- 7) Insert the bolts (E) and washers in all the bores provided in the connecting flange.
- 8) Tighten the screws by applying the indicated tightening torque (see "Nuts and bolts tightening torques Table").

5.5 Packing Gland

In case of screw conveyor end bearing assemblies with manually adjustable packing glands (XUC-type) the latter have to be adjusted during commissioning before the introduction of material into the screw conveyor.

After the “running in” of the screw conveyor check the packing gland again and re-adjust if necessary.

5.6 Complete assembly of screw feeder/conveyor TX, TX-AN, TO



Danger - Warning

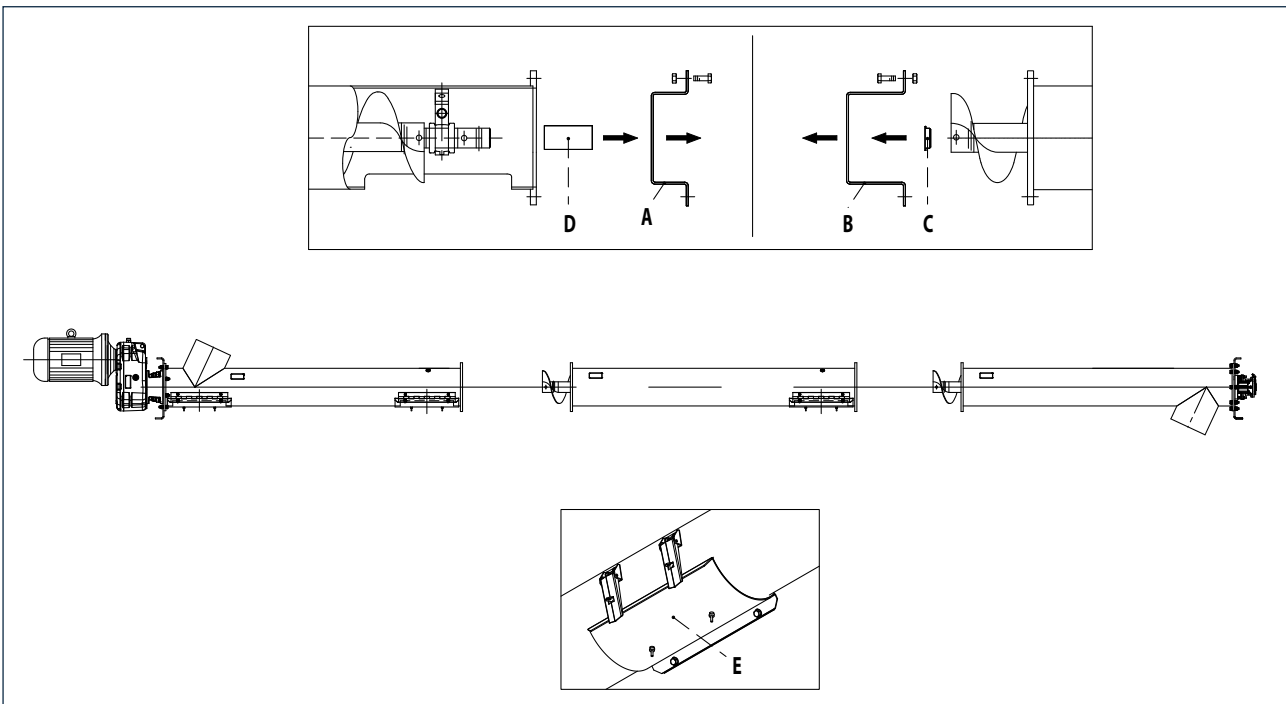
Before carrying out the operations, read the safety prescriptions and the safety recommendations for installation, handling and shipping.

Harness the components as described and shown in the “Lifting and unloading method” Chapter.

If the screw feeder/conveyor is supplied complete (in a one-piece section) it can be directly installed in the plant.

If the screw feeder/conveyor is supplied in a number of sections, these must be assembled to form the complete screw feeder/conveyor before installing it in the plant.

Check if the gear reducer and the electric motor need to be preassembled (see “Preassembling gear motor” and/or “Preassembling the electric motor”).



Proceed as described.

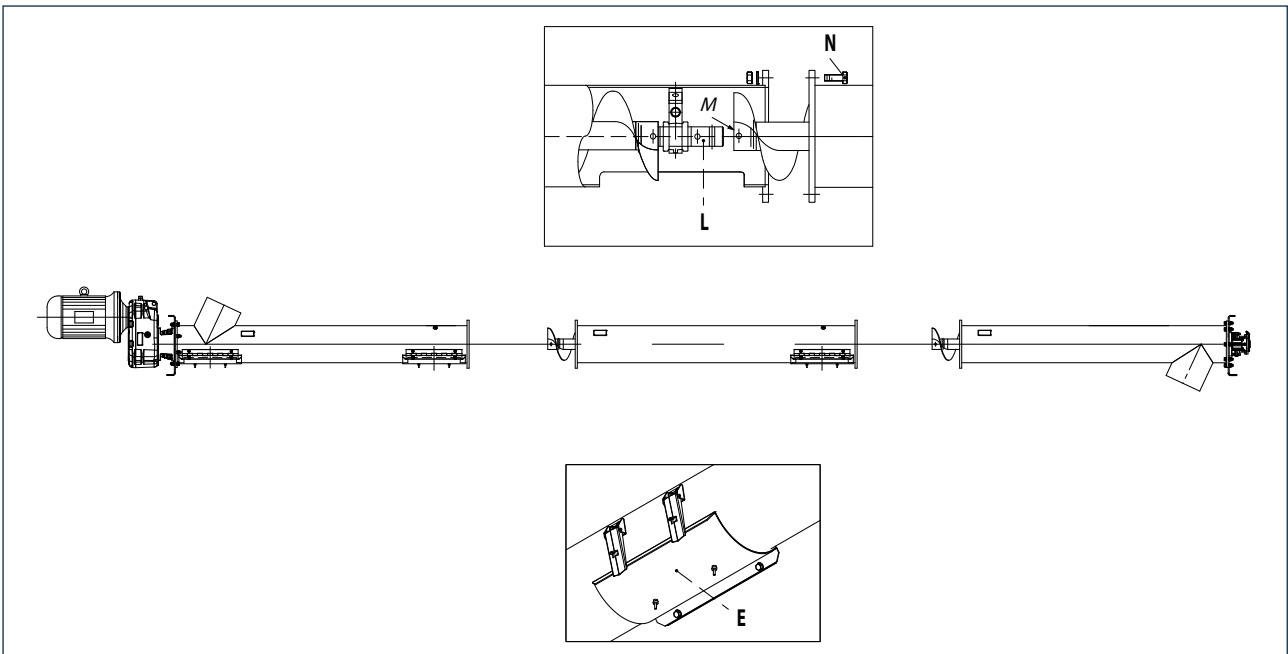
- 1) Position the inlet section, the intermediate section(s) and the outlet section in sequence and steady on a flat surface.
The position in the screw feeder/conveyor and the assembly sequence are shown on the identification tag applied on each section (see "identification tag")
- 2) Assemble in sequence, starting from the inlet section.
- 3) Remove the blockers (A and B), remove the caps (C) that protect the bushes and the protection (D) of the shafts.



Danger - Warning

Removing the blockers will release the screw which might slip out of the external tube and cause serious injury to the operator concerned or to those directly involved in the operations.

Remove the bolts of the bolted couplings.



- 4) Open the inspection hatch (E).

**Danger - Warning**

Provide the appropriate safety measures to avoid risk of shearing of the hands due to contact with the screw.

- 5) Ensure that the screw and the shaft are properly matched.
- 6) Lubricate the shaft (L) and the related seat (M) with the prescribed lubricant (see “Table of lubricants and sealants”).
- 7) Assemble screw sections so that flight ends face each other at 180° as shown in figure above.
- 8) Apply a layer of Silicone on one of the end flanges and join the two sections, inserting the bolted couplings of the screw gently on the intermediate bearing shaft until they match.
- 9) Insert the bolts (N), supplied in the “assembly kit”, in all bores provided in the connecting flanges.

**Important**

Do not force the coupling and do not use improper means as this will damage the coupling and the contact surfaces.

- 10) Tighten the nuts by using the tightening torques indicated (see “Nuts and bolts tightening torques Table”) ensuring that the two flanges are perfectly aligned.
- 11) Insert and block the bolts of the bolted coupling, use the indicated tightening torque (See “Nuts and bolts tightening torques Table”).
- 12) Ensure that the intermediate bearing is positioned approximately between the 2 screws.
- 13) Close the inspection hatch (E). Screw on the locking screw using the recommended tightening torque (see “Nuts and Bolts Tightening Torque Table”).
- 14) Assemble the other section(s) in the same manner to complete the screw feeder/conveyor.
- 15) When the operation described above is finished, ensure that all the bolts are tightened and all the inspection hatches are closed.

**Important**

If the screw feeder/conveyor is provided with surface treatment for repainting (as requested in the order) carry out the painting before the installation (see “Painting” Chapter).

5.7 Installation and fixing of the equipment

- Lifting the screw



Danger - Warning

Carry out the lifting and handling operations according to the information indicated on the equipment and in the Manufacturer's Operation Manual.

The specialist technician authorized for carrying out the installation has to make sure all the necessary measures are adopted to ensure his or her own safety and the safety of other persons directly involved.

The laws regarding workplace safety must be strictly followed.

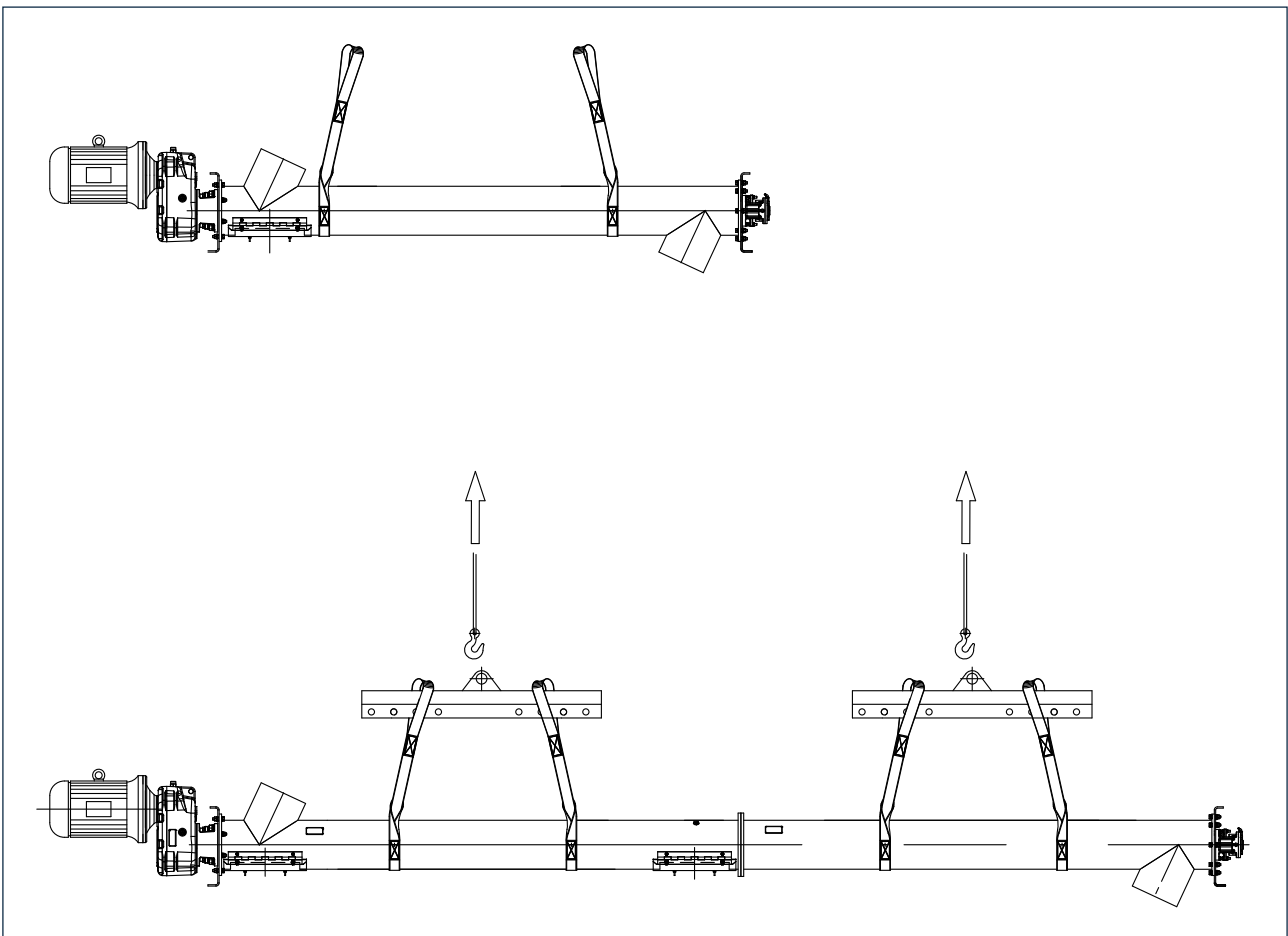
Use means and accessories (ropes, hooks, shackles, etc.) suitable for the load to be lifted.

Pay attention in the lifting phase to balance the load to avoid uncontrolled movements which could cause work injuries to persons.

For positioning the screw feeder/conveyor use at least two lifting means.

On the basis of the screw feeder/conveyor configuration, use suitable lifting eyes.

The illustration shows the types of harness depending on the configuration of the screw feeder/conveyor.



Assembly

The inlet and outlet spouts can be mounted in a number of ways. In every case the plant designer or fitter must use take care of every protection as to avoid that people get harmed (appropriate hoppers, safety grilles etc.)

Screw conveyors have to be securely and symmetrically supported at least two points per section. If the section is longer than 5 metres, then at least three supports are required. The supports can be either carrying or hanging supports.

It is important however to avoid vibrations. Conveyors with an inlet-outlet length greater than a certain distance (see technical catalogues) are normally divided into flanged sections to enable them to be transported on normal vehicles.

For screw conveyors with one or more inspection hatches it is necessary:

- 1) to equip those with locking bolts and nuts or
- 2) to provide for a EN1088-standard micro-switch that stops the screw conveyor in case of opening or removal of the inspection hatch.

NOTE: The optional grille beneath the standard inspection hatch cover cannot be considered as a “safety component”. It only prevents foreign bodies from falling through.

Before proceeding with the assembly, check that the code numbers on each section match. Put in the seals.

Disassembly

Before disassembling the drive unit or the end bearing assemblies of the conveyor, make sure that the screw cannot slide out and fall down. To do this, open the cover and/or any inspection hatch and insert a plank as shown in the figure ensuring the plank firmly locks in. The drive unit can now be disassembled.



Important

Before opening the cover and/or inspection hatches, make sure that the power supply has been disconnected.

**Important**

After carrying out the installation, check if there are misalignments and deviations to be corrected. A maximum deviation of the screw of 1.5 mm for every 3 metres length is allowed in respect of the longitudinal axis.

**Danger - Warning**

In case of installation of the electric motor (D) at a height, support the electric motor with a second fixing point (E) different from the motor flange. the installer must also:

- provide suitable access structures and adopt appropriate measures against falling from a height in compliance with the laws in force or;
- indicate in the Manual the usage of an appropriate mobile work platform.

5.8 Electrical connection



Danger - Warning

The equipment is not provided with an electrical system. Connection to the mains has to be carried out by an electrician.

Provide mains supply to the equipment concerned according to the compliant current legislation and take into consideration the safety measures required by the installation environment and the envisaged operating conditions.

Before carrying out the connection ensure that the mains voltage and frequency correspond to those indicated on the electric motor rating plate.

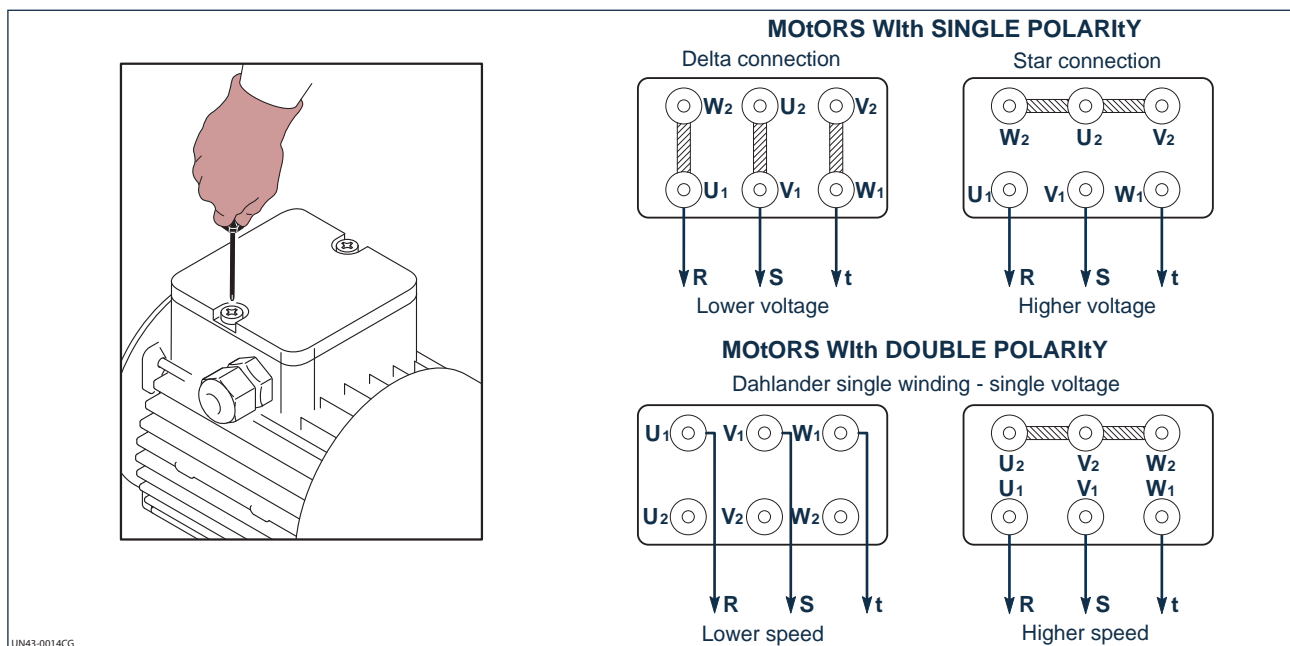
Disconnect from the mains before carrying out any work and use suitable devices so that there cannot be an accidental reconnection.

Always follow applicable safety regulations. Minimum protection of the junction box of the electric motor is IP55. Provide for an appropriate thermic cutout device.

Use electric cables having cross section appropriate to the power absorption of the motor of the equipment concerned.

The type of motor connection depends on the voltage value available to be applied; please, refer to the wiring diagram provided for each motor.

The illustration shows the wiring diagrams of the motors envisaged.



The installer will have to provide to interfacing the equipment with the necessary controls: start/stop, emergency stop, reset after an emergency stop, in compliance with the regulatory standards in force.



Important

The IE2 motors referred to within the EC640/2009 Directive if used within the European Economic Area have to be exclusively powered by means of an inverter under the sole responsibility of the purchaser.

In the testing phase, ensure that the motor rotation corresponds to the direction of rotation indicated by the arrow applied on the motor.

If the rotation is inverse, invert the cable connections in the junction box.

Disconnect the mains before each intervention and use suitable devices to prevent an accidental reconnection of the equipment.

Ensure that the protection devices are present and working each time the equipment is started up. During these checks make sure the rotation of the screw feeder/conveyor cannot damage the personnel or the equipment.

The installer must connect the equipment to the earthing system of the plant.

5.9 Inspection



Important

When installation is complete, authorized personnel must carry out a general test to ensure that the safety conditions have been completely satisfied.

The authorized personnel must also check:

- that the linearity error of the screw feeder/conveyor remains within the values indicated (see “Preassembling the screw feeder/conveyor” paragraph);
- that no tools or other material have been forgotten inside the screw feeder/conveyor;
- that the fixing screws have been tightened using the prescribed torque;
- the level of oil in the gear reducer is correct.

Before starting to operate the screw feeder/conveyor:

- Ensure that the plant in which the screw feeder/conveyor is installed is compliant to the Directive 2006/42/EC and to the relevant directives, the safety standards in force and those specifically applicable.
- Ensure that the inlet and outlet spouts of the screw feeder/conveyor are connected to the final equipment or plant in order to prevent access to hazardous areas.
- Ensure that the inspection hatches are locked with the bolts supplied inserted in their original position.
- Ensure that the operating conditions were met.

Run empty the screw feeder/conveyor to ensure that the direction of rotation of the screw or helicoid flighting is correct; if it is reversed comparing to what indicated on the motor plate, stop the screw feeder/conveyor and consult the “Electrical connection” paragraph.

Operate the screw feeder/conveyor for about 5/10 minutes to ensure it works properly.

In the presence of:

- unusual noise;
- excessive vibrations;
- overheating of bearings;
- overheating of the motor and/or gear reducer;
- friction of the screw against the inner walls of the tube, stop the screw feeder/conveyor and remove the cause of the malfunctioning.

6.1 Production Start-up

Before starting up the screw feeder/conveyor the operator in charge and authorized for the production must ensure that the safety devices installed are present, in working order and that the operating conditions are respected (doors closed, inlet and outlet spouts connected correctly or protected, etc.).



Important

Each WAMGROUP product must undergo decontamination and sanitation by the customer before entering into contact with food. By food we mean a substance that is intended directly or indirectly to human and/or animal consumption.



Important

In case of excessive noise, strong vibrations, etc. stop the screw feeder/conveyor and report the problem to the person in charge authorized to restore the correct working. Do not use the equipment if damaged.

Operation

Depending on the type of plant, the operation of the conveyor is controlled from a central control panel or by an on-site control panel. If the conveyor is connected to a number of infeed points, it must be sized for the sum of the single throughput rates.

The lifetime of a conveyor is significantly increased if it is cleaned out regularly. This is particularly important if the material tends to harden or compact if left to stand for some time.

6.2 Machine shutdown at the end of the work cycle

Empty the screw feeder/conveyor of the material contained to prevent it from hardening before stopping the screw feeder/conveyor.

Deactivate the mains from the screw feeder/conveyor from the control panel of the plant or equipment in which it is installed.

To restart the screw feeder/conveyor, consult the "Production Start-up" paragraph.

6.3 Long shutdowns of the equipment

When the equipment has to remain unused for long periods, proceed as described below.

- 1) Set the screw conveyor in safety condition (see “Glossary and Terminology”).
- 2) Empty the screw conveyor of the product contained to prevent it from hardening.
- 3) Clean the screw conveyor (see “Cleaning the equipment (the machine)”).
- 4) Grease the equipment.
- 5) Repair the damaged or worn mechanical elements.

Storage for longer periods

- Fill gear reducer up to the top with oil.
- Clean conveyor thoroughly especially inside.
- Provide the inlets and outlets with covers as to avoid penetration of water and/or foreign bodies.

6.4 Reuse after long shut-downs



Important

If the equipment is to be used in different conditions and with materials other than the previous application, ensure the “Permitted use” indications are complied with.

Before reusing the screw feeder/conveyor after a long shutdown, proceed as described below:

- 1) Check the main nuts and bolts to make sure they are tightened properly.
- 2) Check all oil levels.
- 3) Start up the equipment (see “Production Start-up”).


Danger - Warning

Before carrying out any maintenance activity, activate all the safety devices to ensure the safety of the persons involved in the operations and those near by.
Set the equipment concerned in safety condition.
Wear suitable personal protection equipment; in this regard, consult the person in charge of production activities safety.


Important

Failure to follow the maintenance instructions can cause problems and could invalidate the warranty.

Once a week, check to see if outlet and each intermediate bearing are free of material crusts. If they are not, carefully clean them to remove any obstacles to the free passage of the material.

Once every 2 years, replace the following parts: shaft seals of the end bearings and intermediate bearings (if worn).

The frequency of lubrication and replacement of parts depends on the application and on the materials conveyed. Indeed, conveyors can come with different bearings, seals and liners. The procedure of parts replacement, however, is always the same.

BEFORE CARRYING OUT ANY OPERATION, DISCONNECT THE POWER SUPPLY!
- Scheduled maintenance table

Component	Operation to be carried out	Daily	Weekly	Every month	Every six months	Every two years
Safety devices	Performance check	•				
Inspection hatches	Checking the condition	•				
Flanged end bearing assembly	Checking the seal	•				
Gear reducer	Checking the seal	•				
Gear reducer	Checking the temperature			•		
Gear reducer	Checking oil level			•		
Flanged end bearing assembly	Checking overheating			•		
Chain transmission	Transmission tensioning			•		
Greasing devices	Checking the condition				•	
Safety and information signs	Checking the condition and legibility				•	
Gear reducer	Changing oil	*				
XSV - XSR - XSP end bearing	Lubrication		•			
XUC ___ N - XUJ shaft sealing	Lubrication	•				
XUC ___ N - XUJ shaft sealing	Adjustment		•			
Chain transmission	Lubrication		•			
Flexible coupling	Lubrication				•	
Chain transmission and flexible coupling	Adjustment			•		

* Change the oil the first time after the first 500 hours of service.
 Subsequently change the oil after 2500 hours.

7.1 Cleaning the equipment (the machine)

Clean the outside part of the equipment (the machine) using a vacuum cleaner to prevent dispersal of dust in the environment and in the surrounding area; or use a moist cloth.

Do not use compressed air.

Wash the equipment (the machine), after vacuuming the dust, with a low-pressure water jet.

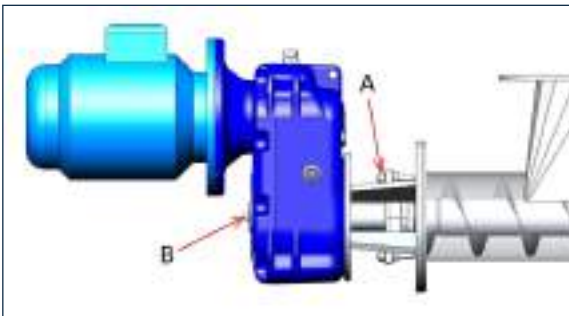
The user must ensure the choice of suitable products to the cleaning stages according to the plant type and the load safety data sheet.

For screws to be used with food products ensure a cleaning phase with a frequency that depends on the nature of the product and the plant.

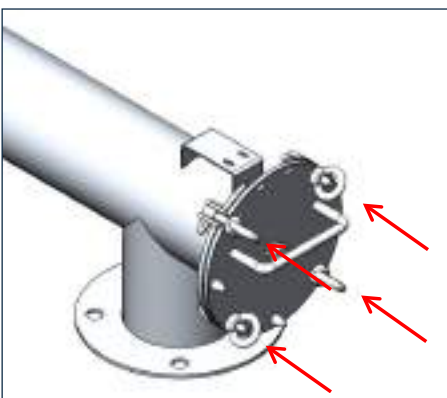
In case of toxic materials, the cleaning residues shall be conveyed in a suitably closed tank and disposed off according the safety chart of the product.

7.2 Disassembling and cleaning the TXF screw conveyor

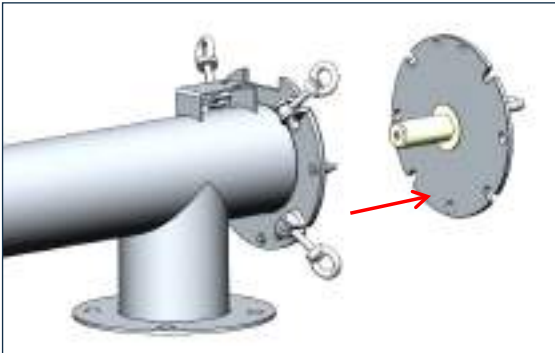
Before starting the disassembly, put the machine safely and ensure that the machine is completely empty.



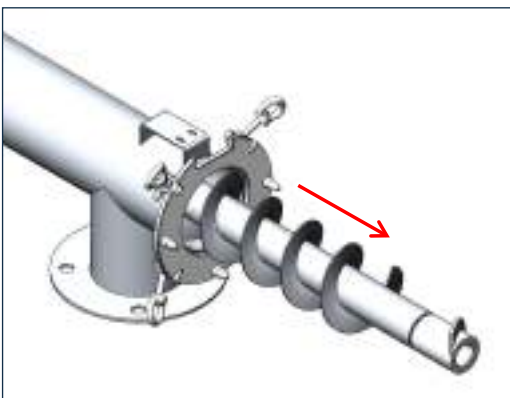
- 1) Loosen the nuts (A) that keep the XUC seal preloaded.
- 2) Unscrew the lock screws and remove the check bushing (B).



- 3) Loosen the eye-bolts shown in the figure and direct them on the side.



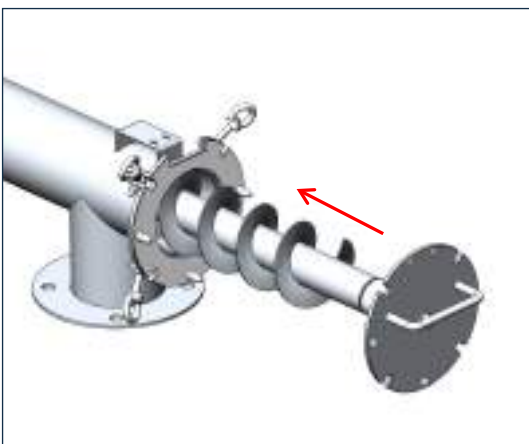
4) Remove the pivot head.



5) Extract the screw.



6) Remove the screw to the other end and do the cleaning.



7) To reassemble, proceed in reverse order.

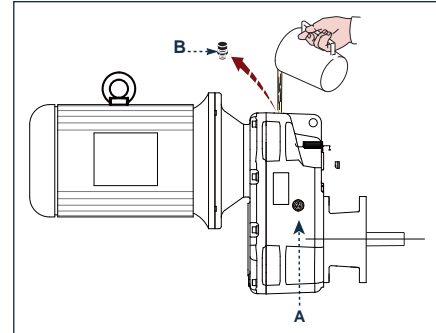
7.3 Gear reducer lubrication

The WAM _series gear reducers are filled with oil and are provided with level, drainage and venting plugs.

- Checking the oil level

Proceed as described.

- 1) Check the correct level of oil inside the gear reducer through the level indicator (A).
The oil must reach the line in the middle of the level indicator.
- 2) If necessary, add oil through the hole in the filler plug (B) until reaching the the correct level.



Important

Before adding the oil, wipe the filler plug and the mouth carefully to prevent contamination of the lubricant. Add the same kind of oil as that contained inside (see “Lubricants Table”).

After filling up, change the sealing washer and screw on the filler cap (B) with the prescribed torque, indicated in the “Tightening torques Table”.

7.4 Changing the oil

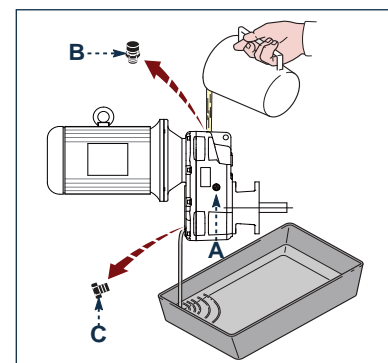


Important

Do not dump used oil in the environment but dispose it off in accordance with the laws in force regarding the matter.

Proceed as described.

- 1) Place a container of adequate capacity under the drainage plug (C).
- 2) First remove the filler plug (B) then the drainage plug (C).
- 3) Drain out the oil completely from the gear reducer.
- 4) Screw the drainage cap (C) with the prescribed torque, see “Tightening torques Table”, taking care to replace the sealing washer.



**Important**

Before adding the oil, wipe the filler plug and the mouth carefully to prevent contamination of the lubricant.

For the features of the oil, see the “Lubricants Table”.

- 5) Fill oil through the hole in the filler plug (B).
The oil must reach the line in the middle of the level indicator (A).
- 6) Replace the sealing washer and screw the filler cap (B) with the prescribed torque (see “Tightening torques Table”).

7.5 Lubrication of the chain transmission

An adequate and proper lubrications is essential in order to obtain the expected performance of the chain. To avoid a fast wear of the moving components, a layer of lubricant is required so that the attrition due to the iron/iron contact during the functioning of the system shall be reduced to minimum.

A good result can be reached by using good quality mineral oils, with no corrosive substances and the features adapted to operation conditions. Regarding particularly the viscosity level of the oil to be employed, please check the attached table. Optionally, grease with suitable characteristics can be employed. (See the lubrication chart)

**Danger - Warning**

Before any operation, the “safety implementation” plan of the conveyor shall be put into effects (check “Glossary and terminology”); operate according to the indication of the “Use and maintenance” Manual, in compliance with the applicable health and safety regulations and prevention of work injuries.

In case the system is provided with an engine block prearranged for drop lubrication, use the appropriate greaser. If the engine block weren't prearranged with the above-mentioned system (drop lubrication) the lubrication should be done manually using a brush.

In order to perform the manually lubrication, proceed as follows:

- take off the carter (fig.1);
- cover the internal part of the chain rings with lubricant oil or grease using a brush;
- put back the protective carter and fix it with all the fastening screws it has been provided with.

The frequency of the lubrication operations depends on the kind of application the conveyor is used for; it is extremely important that the chain should always stay lubricated. In case of manual lubrication, the operation shall be repeated twice or three times a week.

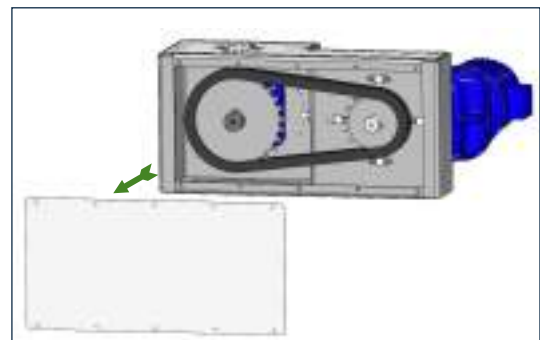


Fig. 1

7.6 transmission tensioning

After the first start, the chain is subjected to an initial lengthening which depends on the weight, the chains length and several other factors.

The duration of this stage cannot be estimated exactly.

It is possible that after a short running in period, the chain could be re-tensioned, which requires regular checks to be performed. Other adjustments will be done according to the necessities, based on the lengthening of the chain while functioning.

After the machine safety implementation, one side of the chain has to be tensioned, checking that the deflection angle of the unstressed side of the chain is equal to +/- 2% of the distance between centers length.



Danger - Warning

Before any operation, the “safety implementation” plan of the conveyor shall be put into effects (check “Glossary and terminology”); operate according to the indication of the “Use and maintenance” manual, in compliance with the applicable health and safety regulations and prevention of work injuries.

A correct tensioning consist in tensioning one side of the chain, checking that the deflection angle of the unstressed side of the chain it is equal to +/- 2% of the distance between centers length (to this purpose see the annexed fig. 2).

In order to perform the adjustment of the transmission chain, proceed as follows:

- take off the carter (fig.2)
- loosen the fixing bolts (1) of the structure reduction (Fig. 2)

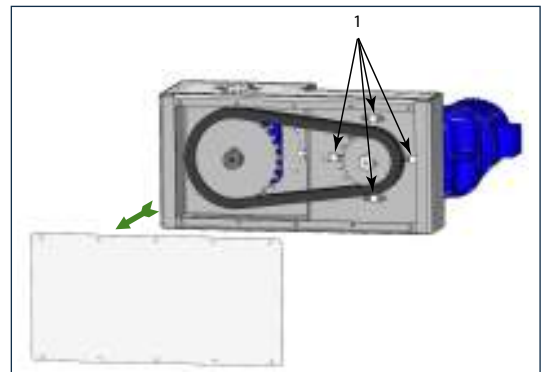


Fig. 2

- loosen the fixing bolt (2) of the axis adjustment brackets of the structure (Fig.3)

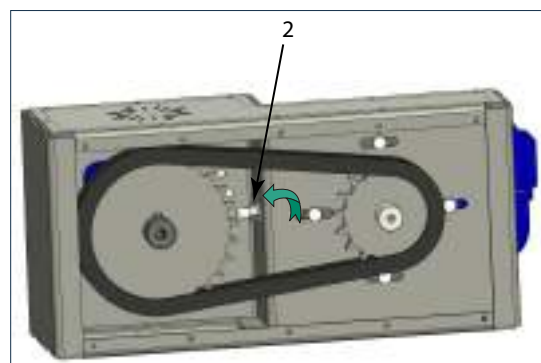


Fig. 3

- adjust the chain tension and tighten the bolts (fig.4) according to the provided tighten torque.

The tensioning necessary in order to reduce the clearance of the chain shall be considered correct if its free segment does not bend but it can be manually sagged for a value equal to $\pm 2\%$ of the distance between centers length (Deflection angle as indicated on fig.5).

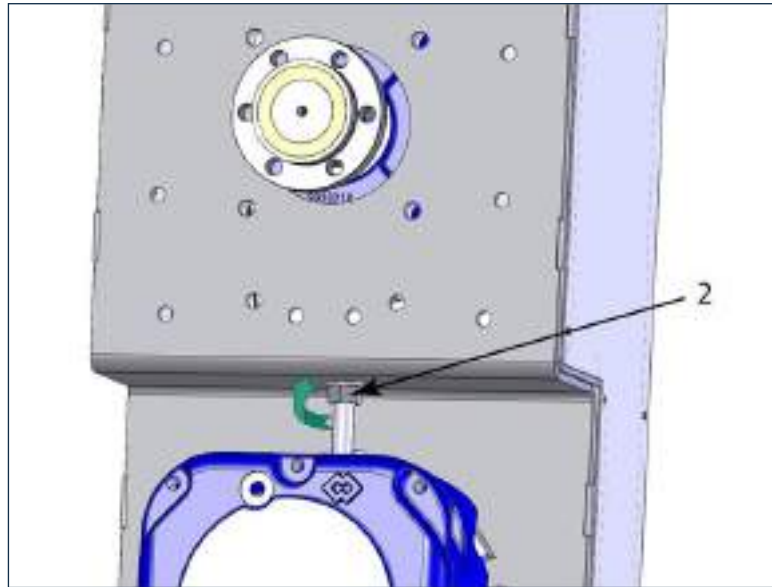


Fig. 4

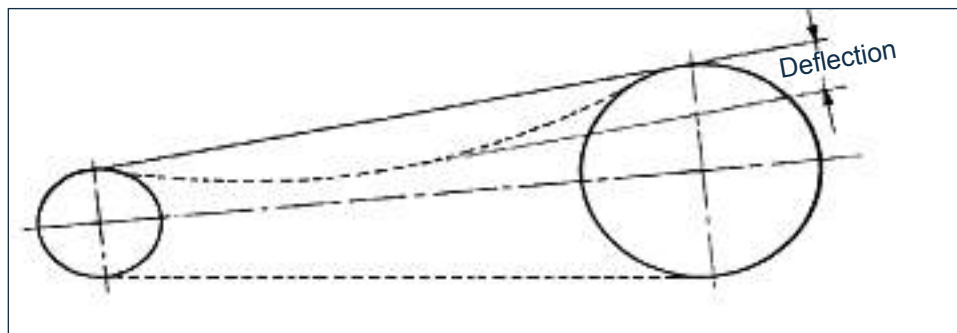


Fig. 5

Concluded the transmission tensioning operation, proceed to assemble again the structure, performing the operations described above in the reversed order.

7.7 XSV - XSW - XSP - XSR - XST - XUC ___ N - XUJ lubrication

It is possible to have one or more greasing nipples according to the type of end bearing, and according to the type of sealing.

XSV - XSW end bearing assembly n°2 bearing greasing nipples ref. A

XSP - XSR - XST end bearing assembly n°1 bearing greasing nipple ref. A

XUC___ N sealing n°1 flushed seal greasing nipple ref.B

XUJ sealing n°1 flushed seal greasing nipple ref. B

END BEARING ref.A

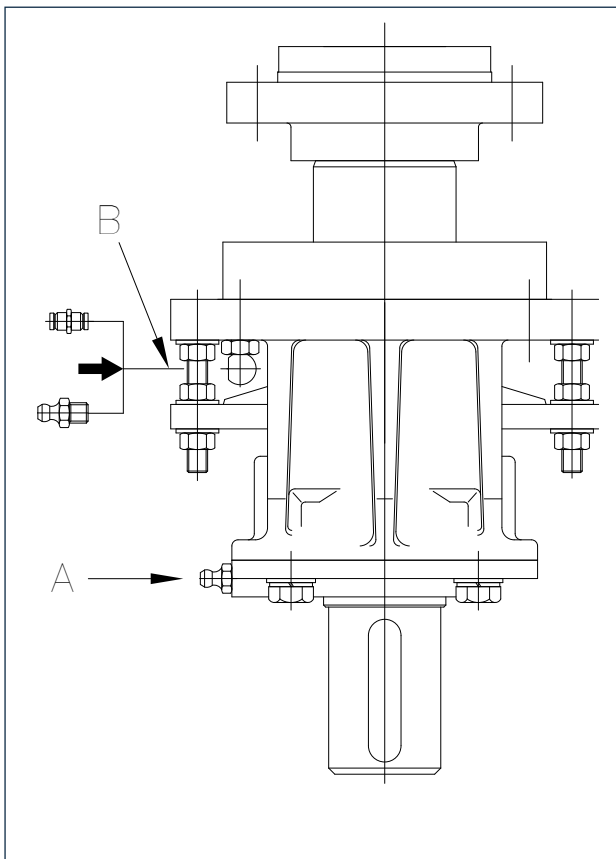
Lubricate approximately every 200 hours and replace the grease every 7500 hours approximately (see lubricants table).

FLUSHED SEAL ref.B

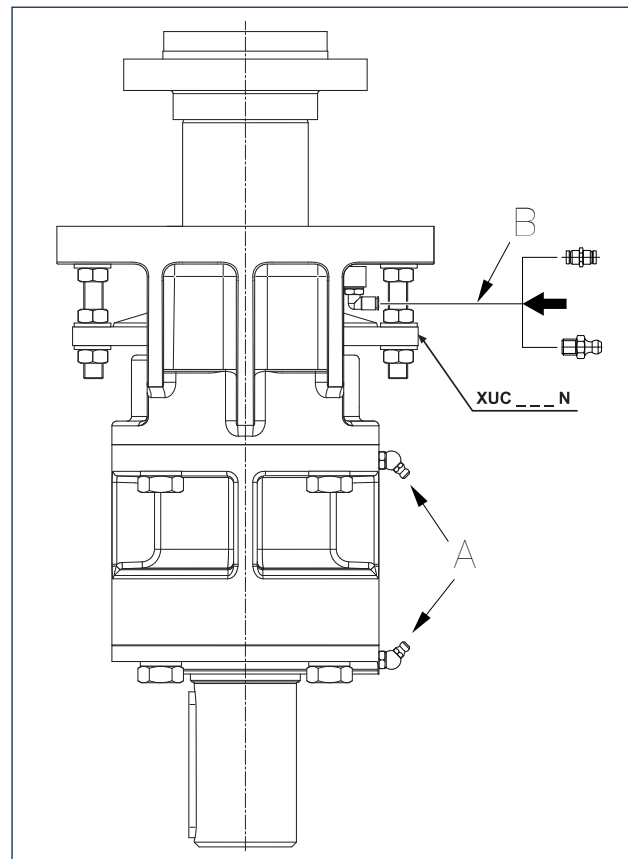
In case of end bearing assembly replacement, a complete flanged support is provided as spare piece.

The greasing shall be done each time the equipment is started or periodically, relatively every 8 hours (see lubricants table).

The nipples position placed outside of the transmission housing, depends on the housing orientation and also on the screw conveyor type.



END BEARING ASSEMBLY
EQUIPPED WITH XUJ SEALING



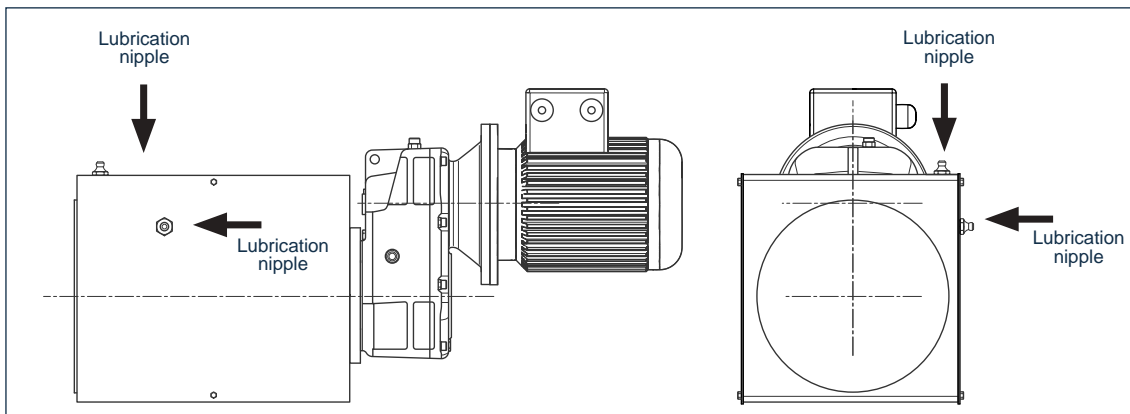
END BEARING ASSEMBLY
EQUIPPED WITH XUC ___ N SEALING

1) Chain transmission:

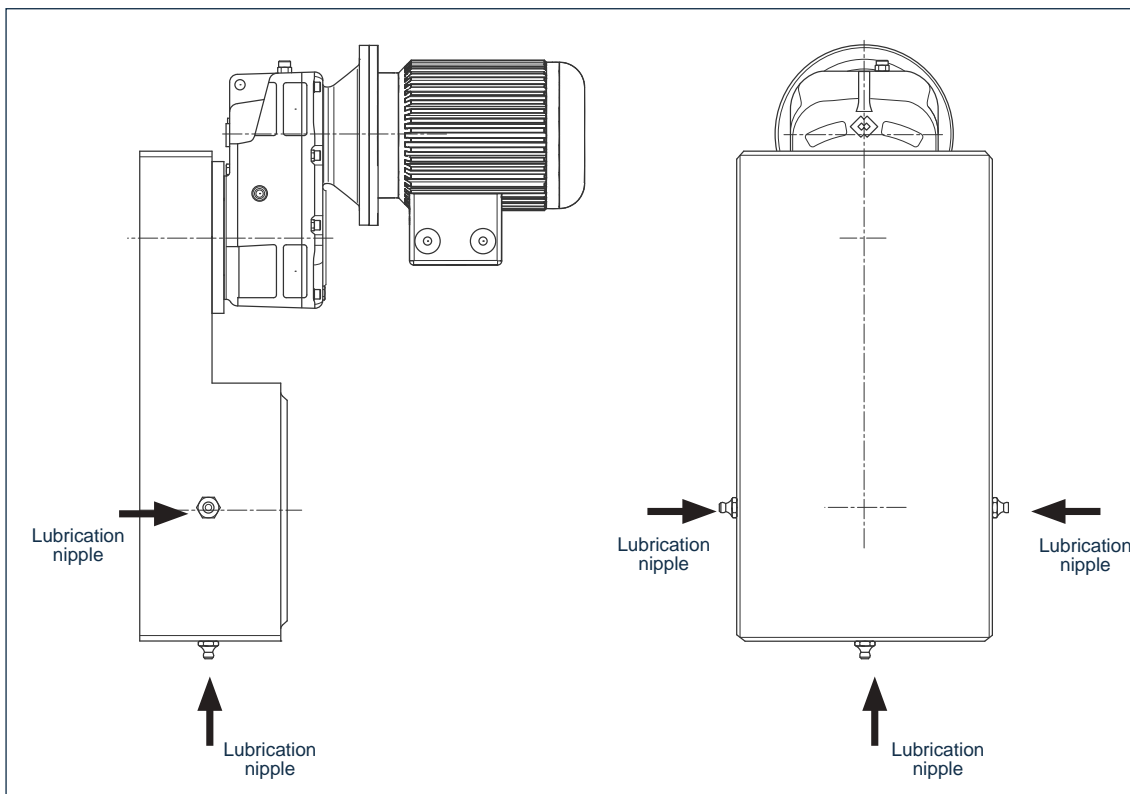
- 2 nipples outside in case of XSV - XSW
- 1 nipple outside in case of XSP - XSR - XST
- 1 nipple outside in case of XUC ___ N
- 1 nipple outside in case of XUJ
- to lubricate the chain is necessary to open the housing.

2) Coupling transmission:

- 1 nipple outside in case of XUC ___ N
- 1 nipple outside in case of XUJ
- to lubricate the flexible coupling is necessary to open the housing and remove the protection element of the coupling.
- to lubricate the XSV - XSW - XSP - XSR - XST bearings is necessary to open the transmission housing and make greasing through the nipples fitted on the respective housings.



COUPLING TRANSMISSION



CHAIN TRANSMISSION

8.1 Safety recommendations for replacement



Danger - Warning

The replacement operations must be carried out by a specialist authorized technician with specific skills in the sector concerned (mechanical, electrical etc).

Before carrying out any operation, provide suitable safety measures and use the appropriate equipment to prevent risk of work injuries to persons involved in the operations and those nearby.

Activate all the safety devices envisaged and prevent access to controls which, if activated, could cause work injuries to the persons involved in the operations.

8.2 Replacing the electric motor

Replace the electric motor with a new one having the same structural and functional features.

If the motor is supplied by the Manufacturer, ask for original spare parts to ensure the safety and functionality of the equipment.

Disassembly

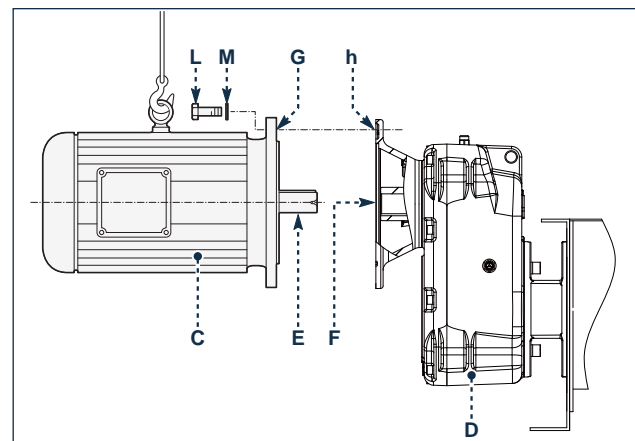


Danger - Warning

**Set the screw conveyor in safety condition (see glossary and terminology).
harness the electric motor appropriately and use suitable lifting means.**

Proceed as described.

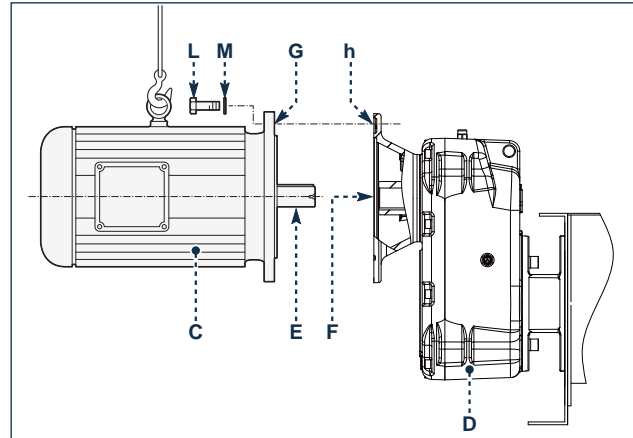
- 1) Open the junction box and disconnect the electricity connection cables from the motor terminals.
- 2) Harness the motor safely so as to avoid dangerous oscillations.
- 3) Slacken the fastening screws (L) of the motor (C) with the gear reducer (D).
- 4) Dismantle the motor from the gear reducer using a moderate decoupling force (do not use screwdrivers or levers as they can damage the flanges).



Assembly

Proceed as described.

- 1) Wipe the coupling surfaces of the new motor and gear reducer thoroughly.
- 2) Lubricate the shaft (E) of the electric motor and the relative seat (F) of the gear reducer with the prescribed lubricant (see "Table of lubricants and sealants").
- 3) Apply the prescribed sealant (see "Table of lubricants and sealants") on the coupling surfaces (G and h).
- 4) Fit the motor on the gear reducer.



i

Important

Do not force the coupling and do not use improper means as this will damage the coupling and the contact surfaces.

- 5) Insert the screws (L) and washers (M) in all bores provided in the coupling flange.
- 6) Tighten the screws (L) by applying the indicated tightening torque (see "Nuts and bolts tightening torques Table").
- 7) Make the electrical connection and on starting-up, ensure the screw conveyor or screw rotates in the correct direction (see "Electrical connection").

8.3 Replacing the gear reducer

Dismantling of the drive unit at inlet



Danger - Warning

**Set the screw conveyor in safety condition (see glossary and terminology).
Harness the gear reducer appropriately and use suitable lifting means. In case the screw is bending, make sure the internal spiral connected to the driving head cannot slip off from the trough and cause injuries to persons or damages to things (maintenance operators).**

See assembling instructions and picture at page 24 and proceed in reversed order.

Assembling of the drive unit at inlet

See assembling instructions and picture at page 24 and proceed in reversed order.

Dismantling of the drive unit at outlet



Danger - Warning

Before dismantling the gear reducer, block the screw conveyor or flight through the outlet spout, using adequate external means to prevent it from harming the persons directly involved in the operations. In case the screw is bending, make sure the internal flight connected to the driving head cannot slip off from the trough and cause injuries to people or damages to things (maintenance operators).

See assembling instructions and picture at page 24 and proceed in reversed order.

Assembling drive unit at outlet

See assembling instructions and picture at page 24 and proceed in reverse order.

8.4 Replacing the gear reducer seal



Danger - Warning

Set the machine in safety condition (see “Glossary and Terminology”).

Refer to Fig.1

TX, TX-AN, TO

- 1) Unscrew the nuts ref. 2
- 2) Remove the screws ref. 1
- 3) Open the packing gland flange. ref. 4
- 4) Replace the packing 3
 - Remove any residue of the old packing.
 - Place the new packing on the shaft.
- 5) Mount the flange 4 on the packing and secure it with screws 1. Before tightening the screws, check that the package is compact and well located inside the stuffing box flange.
- 6) Adjust the preload packing with bolts ref. 2

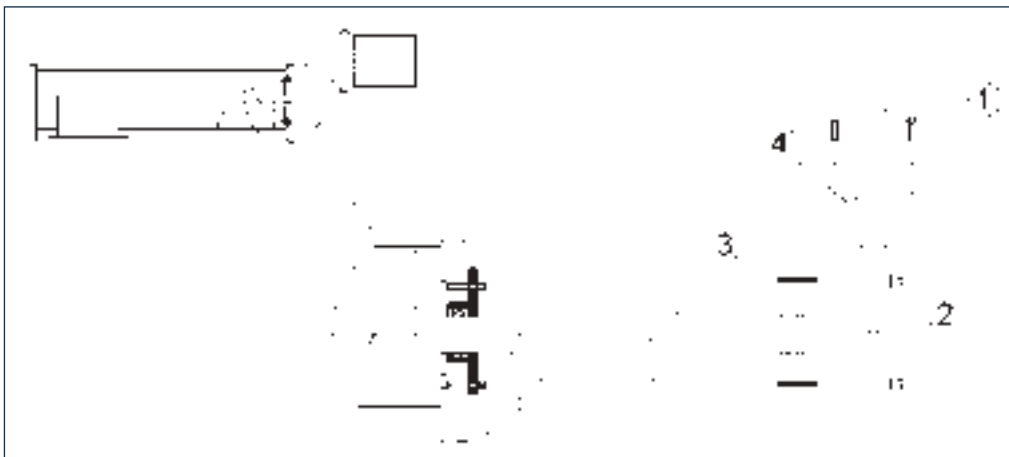


Fig. 1

TXF

- 1) Unscrew the nuts ref. 2
- 2) As reported in the “Disassembling and cleaning the TXF screw conveyor” paragraph, remove the pivot head and pull the screw just enough to free the seal from the shaft
- 3) Replace the packing 3
 - Remove any residue of the old packing.
 - Place a packing at a time inside the stuffing box flange 4, push it evenly into its final position and press.
 - It is very important that each packing is positioned and pressed individually.
- 4) To reassemble: proceed in reverse order.
- 5) Adjust the preload packing with bolts ref. 2

8.5 Replacement of intermediate hanger bearing xlh

With reference to Fig. 2

- 1) Unscrew all bolts.
- 2) Take off the body of the hanger bearing and the bush.
- 3) Replace the bush.
- 4) Re-assemble everything into the former position.

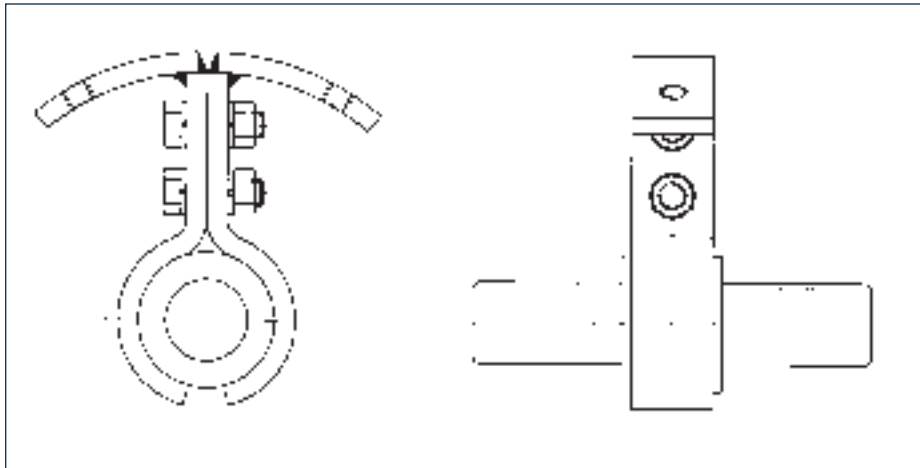


Fig. 2

8.6 Replacing the screw

For replacement of the screw or a screw section (inlet, intermediate, outlet), the screw feeder/conveyor must be dismantled from the plant or from the equipment in which it is installed and the work has to be carried out on the ground.



Danger - Warning

Replace the screw according to the information in the Manufacturer's Operation Manual.
The specialist technician authorized for replacement operations has to make sure all the necessary measures are adopted to ensure his safety and the safety of other persons directly involved.
The laws regarding workplace safety have to be strictly followed.
Use means and accessories (crane, ropes, hooks, shackles, etc.) suitable to the load to be lifted.
Pay attention in the lifting phase to balance the load to avoid uncontrolled movements which could cause work injuries to persons.

Disassembling the screw feeder/conveyor from the plant



Danger - Warning

Set the equipment concerned in safety condition (see glossary and terminology).

Proceed as described.

Disconnect the mains supply cable from the junction box of the electric motor.

Harness the screw feeder/conveyor depending on its configuration (see "Lifting method").

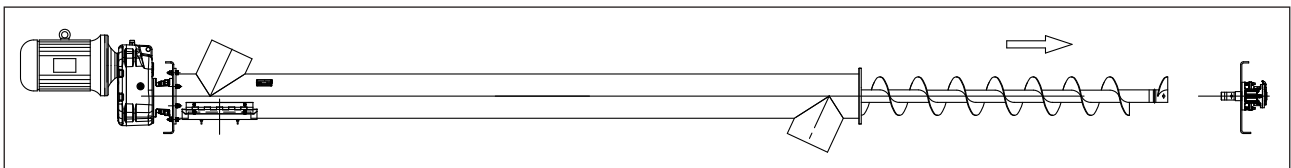
Separate the inlet and outlet spouts from the plant or equipment.

Remove all the supports of the screw feeder/conveyor.

Lift and place the screw feeder/conveyor on the ground on a flat surface to ensure stability.

Depending on the length of the screw feeder/conveyor (see Chap. 10) the screw to be replaced can be in one piece or made up of a number of sections; inlet, intermediate and/or outlet.

Disassembling the one piece screw



Proceed as described.

- 1) Dismantle the flanged end bearing.
- 2) Remove the screw from the external tube.

**Danger - Warning**

Provide appropriate safety measures to prevent risk of work accidents caused by accidental movement of the screw.

Assembling the screw

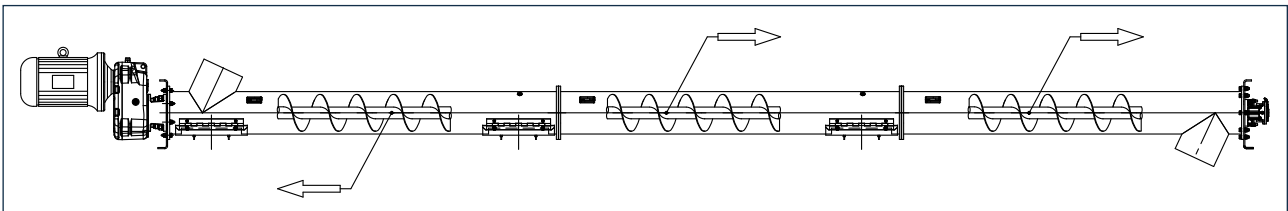
**Important**

Before carrying out the assembly, check the length of the new spare screw; its length must be equal to the length of the screw to be replaced ± 1 mm.

Proceed as described.

- 1) Insert the new screw into the tube.
Take care while inserting the screw in the correct direction because the screw is not symmetrical.
- 2) Fit the flanged end bearing.
- 3) Close the inspection hatch. Screw on the locking screw using the recommended tightening torque (see "Nuts and Bolts Tightening Torque Table").

Disassembling the screw in more sections



The specialist technician authorized for carrying out the replacement has to evaluate whether it is appropriate to replace the drive unit or the end bearing assembly.

Proceed as described.

- 1) Disassemble the gear reducer (see "Replacing the gear reducer").

**Danger - Warning**

Set the screw feeder/conveyor in safety condition (see glossary and terminology).

- 2) Dismantle the intermediate bearings which interfere with the disassembly of the screw section to be replaced (see “Replacing intermediate bearings”).
- 3) Remove in sequence the screw sections to reach the damaged or worn section to be dismantled.

**Danger - Warning**

Take all the necessary measures to avoid work injuries due to accidental movements of the screw.

Assembling the screw in more sections

**Important**

Before carrying out the assembly, check the length of the new spare screw(s); the length must be equal to the length of the screw(s) to be replaced ± 1 mm.

Proceed as described.

- 1) Insert the sections dismantled in sequence replacing the damaged or worn screw sections with new screw sections inside the tube.
Pay attention to the direction of insertion as the inlet and outlet screws are not symmetrical and have a specific direction for assembly.
- 2) Mount the intermediate bearings dismantled earlier (see “Replacing intermediate bearing”).
- 3) Assemble the gear reducer or end bearing assembly (see “Replacing the gear reducer”).
- 4) Close back the inspection hatches. Tighten the screws using the indicated tightening torque (see Tightening torque table”).
- 5) Fit the screw feeder/conveyor in the plant (see “Installation and fixing of screw feeder/conveyor”).
- 6) Connect the electric mains cable (see “Electric connection”).

8.7 Replacing the tubular trough

For replacement of the external tube of the screw feeder/conveyor or a section of the tube (inlet, intermediate, outlet) the screw feeder/conveyor has to be dismantled from the plant or the equipment on which it is installed.

**Danger - Warning**

Replace the external tube according to the information in the Manufacturer’s Operation Manual. The specialist technician authorized for replacement operations has to make sure all the necessary measures are adopted to ensure his safety and the safety of other persons directly involved. The laws regarding workplace safety must be strictly followed. Use means and accessories (crane, ropes, hooks, shackles, etc.) suitable for the load to be lifted. Pay attention in the lifting phase to balance the load to avoid uncontrolled movements which could cause accident to persons.

Disassembling the screw conveyor from the plant



Danger - Warning

Set the equipment concerned in safety condition (see glossary and terminology).

Proceed as described.

Disconnect the mains supply cable from the junction box of the electric motor.

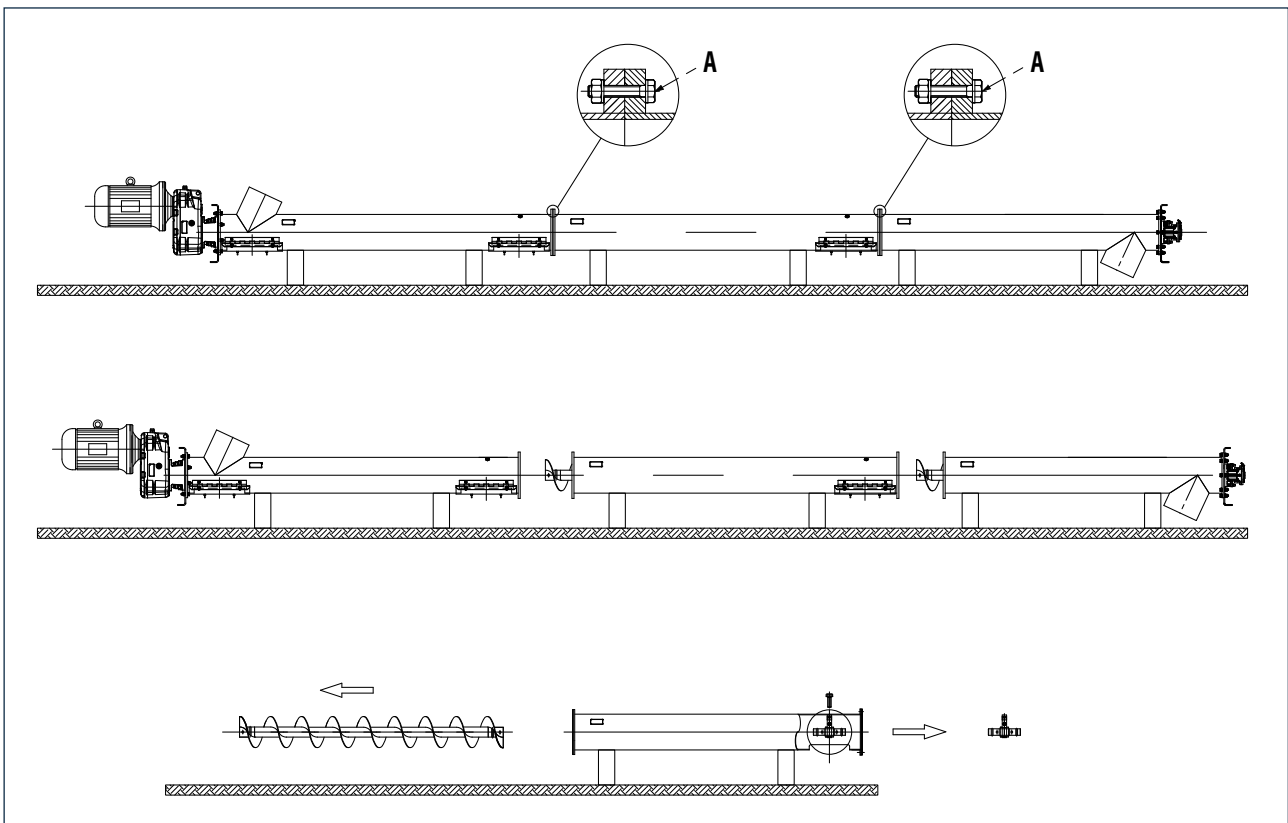
Harness the screw feeder/conveyor on the basis of its configuration (see "Lifting method").

Separate the inlet and outlet spouts from the plant or equipment.

Remove all the supports of the screw feeder/conveyor.

Lift and place the screw feeder/conveyor on the ground on a flat surface to ensure stability.

Disassembling the damaged external tube



Proceed as described.

- 1) Divide the screw feeder/conveyor in such a manner as to isolate the damaged section by unscrewing the bolts (A) of the flange concerned.
- 2) If necessary, remove the intermediate bearings (see "Replacing intermediate bearing").
- 3) If necessary, remove the gear reducer or end bearing assembly (see "Replacing the gear reducer").
- 4) Remove the screw from the damaged external tube.

Assembly**Important**

**Before carrying out the assembly, check the length of the external tube.
The length has to be within the tolerance range ± 2 mm as compared to the damaged tube.
The sections of the screw are not symmetrical, so if they are removed they must be remounted in the correspondent section.**

Proceed as described.

- 1) Insert the screw paying attention to the direction of the screw inside the new spare external tube.
- 2) Refit the components which were disassembled (see specific references such as, for example, “Replacing the gear reducer, “Replacing the intermediate bearing”, etc).
- 3) Join the screw feeder/conveyor section with the others (see “Complete assembly of screw feeder/conveyor”).
- 4) Close all the inspection hatches. Screw on the locking screw using the recommended tightening torque (see “Nuts and Bolts Tightening Torque Table”).
- 5) Fit the screw feeder/conveyor in the plant (see “Installation and fixing of screw feeder/conveyor”).
- 6) Connect the mains supply cable (see “Electric connection”).

8.8 Returning the equipment (the machine)

When returning the equipment (machine) use the original packaging if it has been preserved, otherwise fix the it on a pallet and cover it with nylon shrink-wrap, to protect it as best as possible from impact during transport. In any event, make sure there is no residue material inside the equipment (machine).

8.9 Dismantling and disposal

Dismantling of the equipment (machine) must be entrusted to personnel specialized in these activities and equipped with adequate skills.

Dismantle the components of the equipment (machine) concerned; if necessary contact the Manufacturer for further information.

The components dismantled have to be separated on the basis of the nature of the materials of which they consist, in compliance with the laws on the matter of “differential collection and disposal of wastes”.

With reference to the WEEE Directives, electrical and electronic components, marked with a special symbol, have to be disposed off in authorized collection centres meant for the purpose.

Unauthorized disposal of “Waste Electrical and Electronic Equipment” (WEEE) is punishable with fines governed by the laws concerning the matter.

9.1 trouble-shooting

Minor problems can be solved without consulting a specialist.

The following Table contains a list of the most common problems, the possible causes and possible remedies.

For particularly difficult actions which are not mentioned in the Table, contact the Manufacturer's Customer Service Department.



Danger - Warning

Before carrying out any operation "set the equipment (machine) concerned in safety" (see "Glossary and terminology"), operate according to the indications on the "Operation and Maintenance Manual" and in accordance with and in compliance with the standards in force as regards health and safety.

Minor problems can be solved without consulting a specialist. Below is a list of the more common problems with their possible causes and remedies.

PROBLEM	PROBABLE CAUSE	POSSIBLE REMEDY
The motor does not start	1) No connection	1) Check the fuses, replace if damaged
	2) Defective motor or defect in mains	2) Repair or replace defective part
	3) Presence of a generator	3) Check generator power
	4) Presence of an inverter which cuts the starting torque	4) Consult inverter Supplier
The motor starts but then stops	1) Direction of rotation incorrect	1) Reverse polarity (see "Electrical connection")
	2) Obstruction	2) Clean the screw feeder/conveyor (see "Clearing the screw feeder/conveyor following a jam")
	3) Feedrate or throughput rate too high	3) Check amperage and throughput. If both are too high, consult Manufacturer's Customer Service
	4) Motor burnt out	4) Find the cause (see point 3) then repair or replace
	5) End bearing assembly or gear reducer defective	5) Find the reason (see point 2), can be normal wear; replace the part
	6) Outlet spout blocked	6) Clean the outlet spout (see "Clearing the screw feeder/conveyor following a jam")
The motor "starts up" but the screw feeder/conveyor does not convey the material	1) The pinion or output shaft of the drive unit is defective	1) Find the reason and replace the damaged part
	2) Direction of rotation incorrect	2) Reverse polarity (see "Electrical connection")
The drive unit overheats	1) Quantity of oil insufficient inside drive unit	1) Check and restore correct level (see "Lubricating the drive unit")

9.2 Check-list in case of fault

If you have been unable to solve the problem on the equipment (machine) even after having carried out the operations suggested in paragraph "Trouble-shooting" please contact the plant technician/installer/or the Manufacturer.

If technical assistance is required, in addition to the equipment data, the plant technician/installer or Manufacturer will also need information concerning the plant in which the equipment (machine) is installed, its installation and its working, for better identification of the problem that has occurred.

Obviously many of the checking operations which are requested have already been performed in the various steps during installation, testing and start-up of the equipment (machine) concerned.



Danger - Warning

Before carrying out any operation "set the equipment (machine) concerned in safety" (see "Glossary and terminology"), operate according to the indications on the "Operation and Maintenance Manual" and in accordance with and in compliance with the standards in force as regards health and safety.

1) Information necessary

- a) Description of problem
- b) Photo showing the entire screw feeder/conveyor and how it is installed
- c) Feed rate of screw feeder or throughput rate of screw conveyor
- d) Does the screw feeder/conveyor start up without any problem after long shutdowns?
- e) If there is a butterfly valve at the outlet ensure that:
 - the valve axis and the screw feeder/conveyor axis are parallel
 - the valve opens completely when the screw feeder/conveyor starts up
- f) Is the outlet spout free of encrustations which reduce the cross-section?
- g) Is the vent of the weigh hopper into which the screw feeder/conveyor unloads material sized correctly, clean and does it work properly?

2) Checking the silo

- a) What is the inclination angle of the cone?
- b) How much material does it contain?
- c) Is the silo provided with a bridge-breaker baffle plate?
- d) Is the silo provided with an aeration/fluidisation system?
 - How many nozzles or pads are present on the cone, how are they arranged and what is their distance from the outlet flange of the silo?
 - What is its operating pressure and operating cycle?
- e) Is the silo provided with a vibrator or a hammering device?
 - What is its operating cycle?

3) Checking the electrical part

- a) Are voltage variations possible due to simultaneous start-up of various pieces of equipment?
- b) Is the plant equipped with a power generator?
- c) The thermal protection of the electric motor inside the panel has delayed action. Is its adjustment in line with the data on the motor rating plate?
- d) Check the power input of the motor without load, at breakaway current and when the screw feeder/conveyor is operating at full speed!!

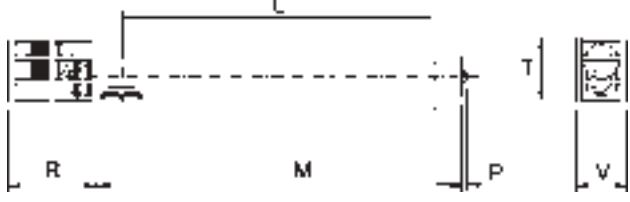

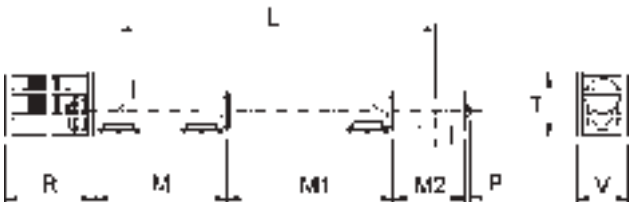
4) Checking the screw feeder/conveyor

- a) Has the screw feeder/conveyor been assembled correctly?
Are all the inspection hatches in the bottom position?
- b) Has the screw feeder/conveyor been fixed correctly?
- c) Does the screw sag? Have the parameters of alignment been checked?

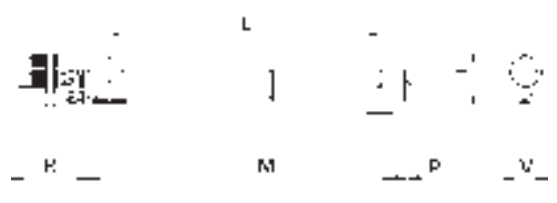
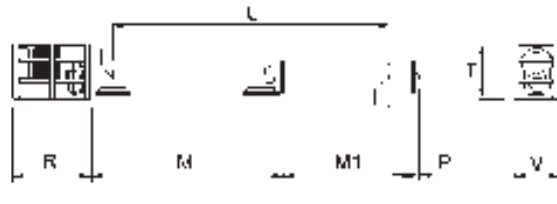
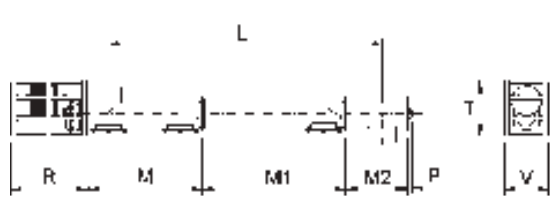

5) Checking the product

- a) Product description?
- b) Density? (kg/dm³)
- c) Particle size? (µm/mm)
- d) Moisture? (%)
- e) Flowability?
- f) Compressibility?
- g) Abrasiveness?

10.1 Composition
TX, TX-AN, TO

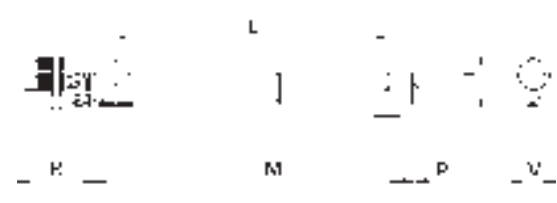
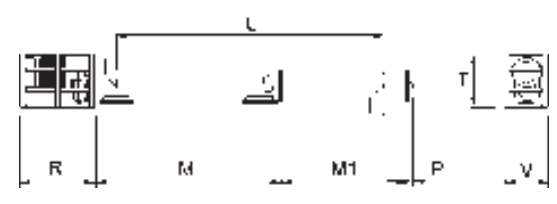

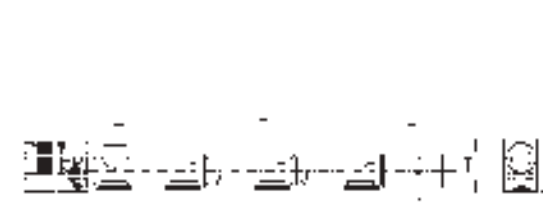
Ø 100 - 120	L	P	M	M ₁	M ₂	R _{max}	V _{max}	t _{max}
	500 - 2740	160	760 - 3000	-	-	700	500	600
	2840 - 3640	160	2200	900 - 1700	-	700	500	600
	3740 - 5740		3200	800 - 2800	-	700	500	600
	5840 - 6640	160	3200	1600 - 2400	1300	700	500	600
	6740 - 8740		3200	1000 - 3000	2800	700	500	600

S = Position of intermediate bearings

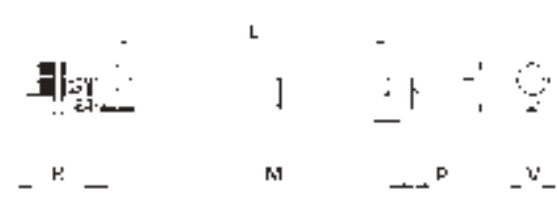

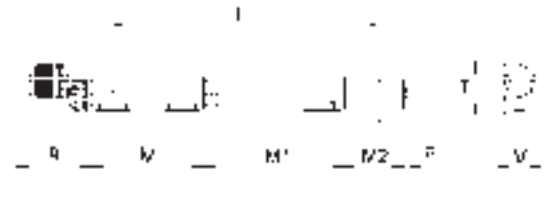
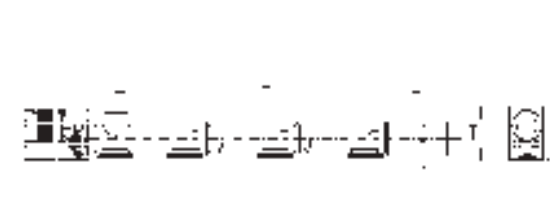
$\varnothing 150$	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	500 - 2700	182	800 - 3000	-	-	-	950	500	700
	2800 - 3600	182	2200	900 - 1700	-	-	950	500	700
	3700 - 5700		3200	800 - 2800	-	-			
	5800 - 6600	182	3200	1600 - 2400	1300	-	950	500	700
	6700 - 8700			1000 - 3000	2800	-			
	8800 - 9600	182	3200	1500	1600 - 2400	2800	950	500	700
	9700 - 11700			3000	1000 - 3000				

S = Position of intermediate bearings

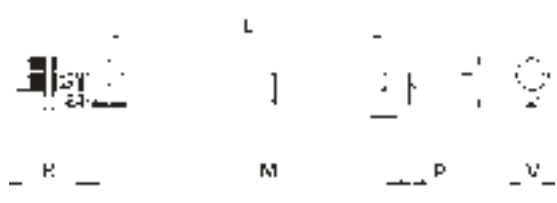
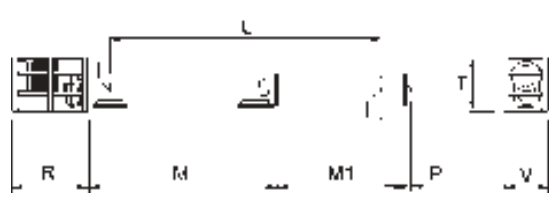

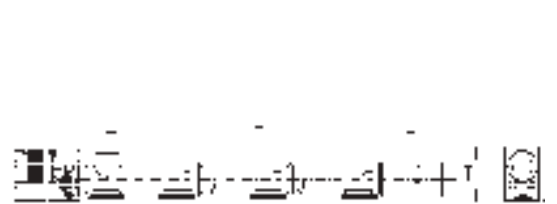
10.0 tEChNICAL DATA

Ø 200	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	500 - 2660	182	840 - 3000	-	-	-	950	500	700
	2760 - 3560	182	2200	900 - 1700	-	-	950	500	700
	3660 - 5660		3200	800 - 2800	-	-			
	5760 - 6560	182	3200	1600 - 2400	1300	-	950	500	700
	6660 - 8660			1000 - 3000	2800	-			
	8760 - 9560	182	3200	1500	1600 - 2400	2800	950	500	700
	9660 - 11660			3000	1000 - 3000				

S = Position of intermediate bearings

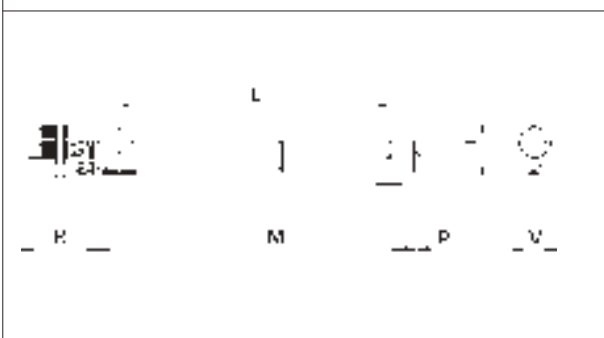
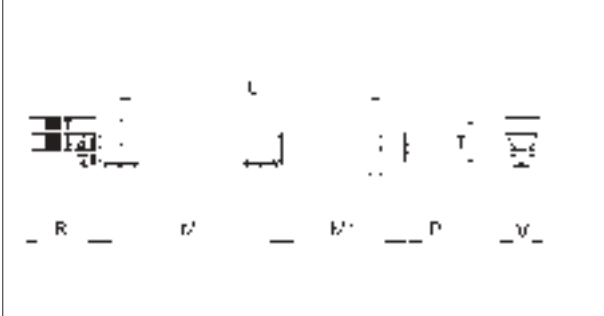
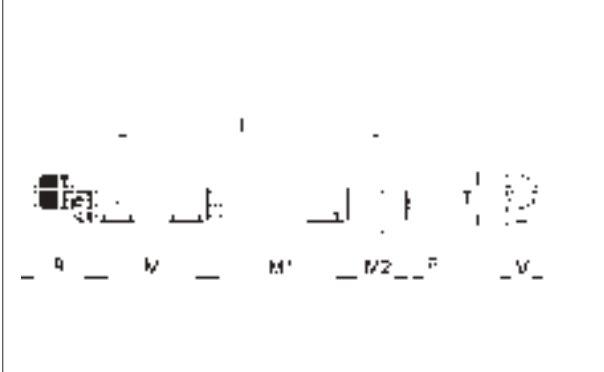

Ø 250	L	P max	M	M ₁	M ₂	M ₃	R max	V max	t max
	500 - 2600	225	900 - 3000	-	-	-	950	500	700
	2700 - 3500	225	2200	900 - 1700	-	-	950	500	700
	3600 - 5600		3200	800 - 2800	-	-			
	5700 - 6500	225	3200	1600 - 2400	1300	-	950	500	700
	6600 - 8600			1000 - 3000	2800	-			
	8700 - 9500	225	3200	1500	1600 - 2400	2800	950	500	700
	9600 - 11600			3000	1000 - 3000				

S = Position of intermediate bearings

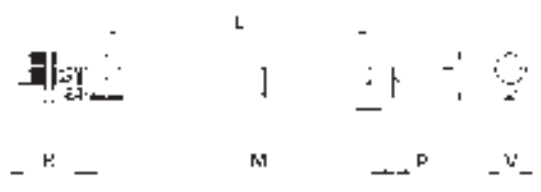
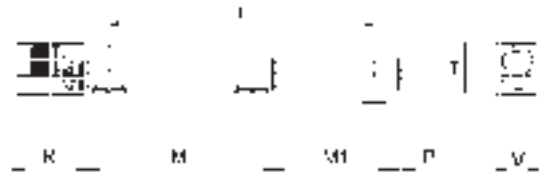
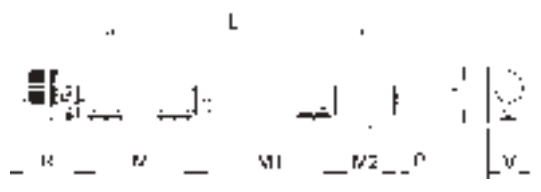
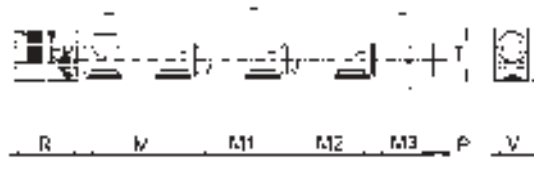
Ø 300	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	560 - 3060	235	1000 - 3500	-	-	-	950	600	800
	3160 - 3960	235	2300 - 2100	1300 - 2100	-	-	950	600	800
	4060 - 6560		3800	700 - 3200	-	-			
	6660 - 7460	235	3800	1600 - 2400	1700	-	950	600	800
	7560 - 10060			1000 - 3500	3200	-			
	/	/	/	/	/	/	950	600	800
	/			/	/				

S = Position of intermediate bearings

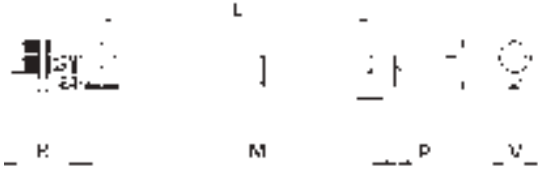

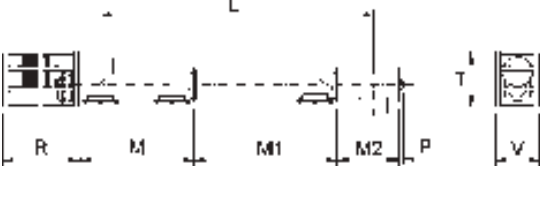
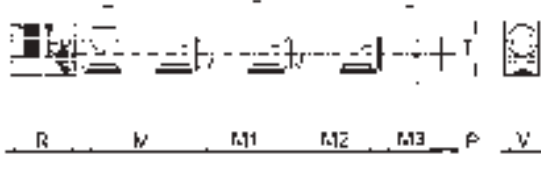
10.0 tEChNICAL DATA

Ø 350	L	P _{max}	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	450 - 2950	235	1000 - 3500	-	-	-	950	600	800
	3050 - 3850	235	2300	1300 - 2100	-	-	950	600	800
	3950 - 6450		3800	700 - 3200	-	-			
	6550 - 7350	235	3800	1600 - 2400	1700	-	950	600	800
	7450 - 9950			1000 - 3500	3200	-			
	/	/	/	/	/	/	950	600	800
	/			/	/				

S = Position of intermediate bearings

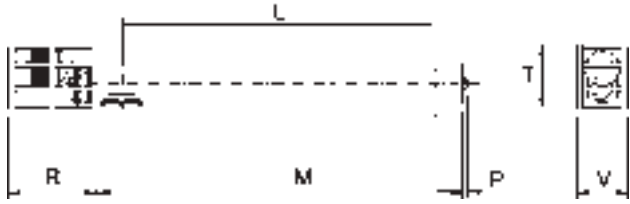
Ø 400	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	400 - 2900	270	1000 - 3500	-	-	-	950	600	800
	3000 - 3800	270	2300	1300 - 2100	-	-	950	600	800
	3900 - 6400		3800	700 - 3200	-	-			
	6500 - 7300	270	3800	1600 - 2400	1700	-	950	600	800
	7400 - 9900			1000 - 3500	3200	-			
	/	/	/	/	/	/	950	600	800
	/			/	/				

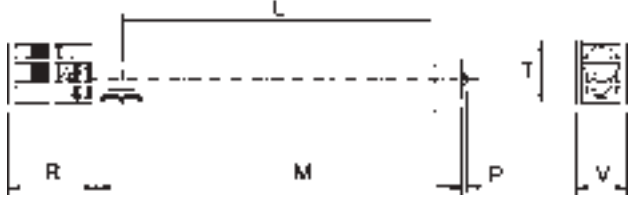
S = Position of intermediate bearings


Ø 500	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	300 - 2800	310	1000 - 3500	-	-	-	950	600	800
	2900 - 3700	310	2300	1300 - 2100	-	-	950	600	800
	3800 - 6300		3800	700 - 3200	-	-			
	6400 - 7200	310	3800	1600 - 2400	1700	-	950	600	800
	7300 - 9800			1000 - 3500	3200	-			
	/	/	/	/	/	/	950	600	800
	/			/	/				

S = Position of intermediate bearings

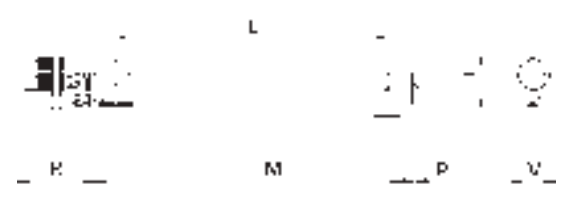
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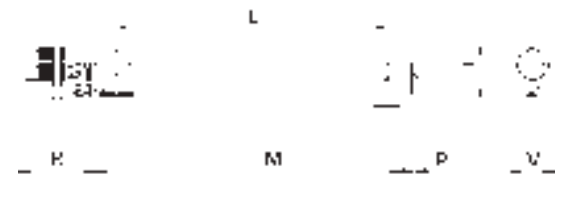
Ø 80	L	P	M	M ₁	M ₂	R _{max}	V _{max}	t _{max}
	500 - 2040	160	760 - 2340	-	-	700	500	600

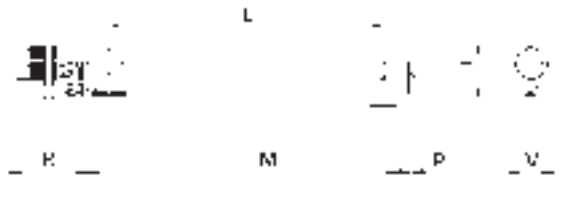
Ø 100 - 120	L	P	M	M ₁	M ₂	R _{max}	V _{max}	t _{max}
	500 - 3040	160	760 - 3340	-	-	700	500	600

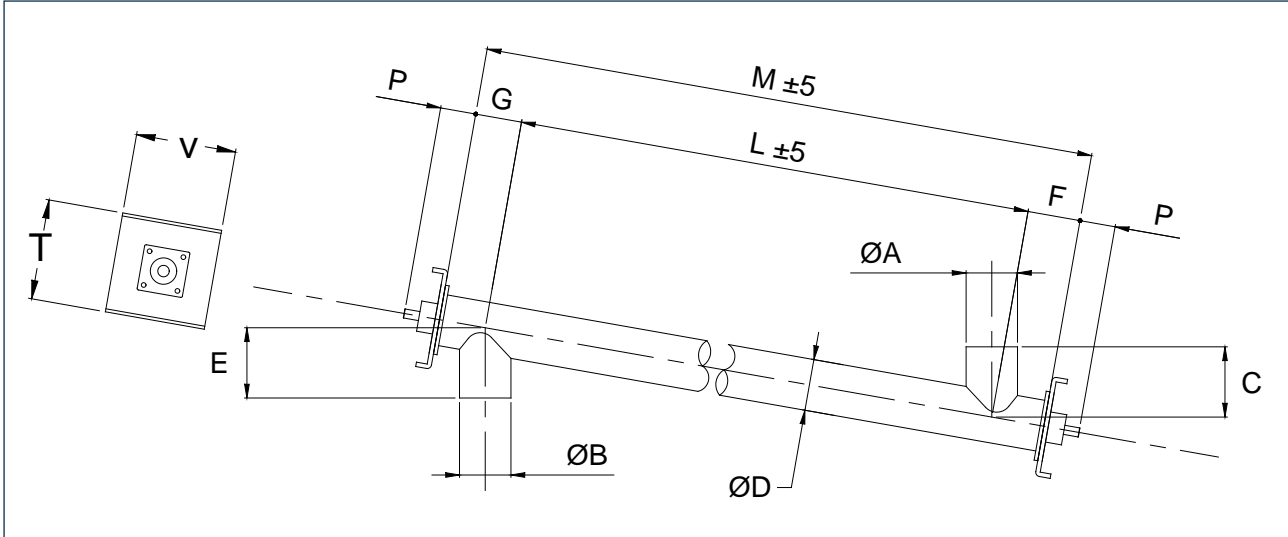
Ø 150	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	500 - 3500	182	800 - 3800	-	-	-	950	500	700

10.0 tEChNICAL DATa

\varnothing 200	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	500 - 3160	182	840 - 3500	-	-	-	950	500	700

\varnothing 250	L	P _{max}	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	500 - 3100	225	900 - 3500	-	-	-	950	500	700

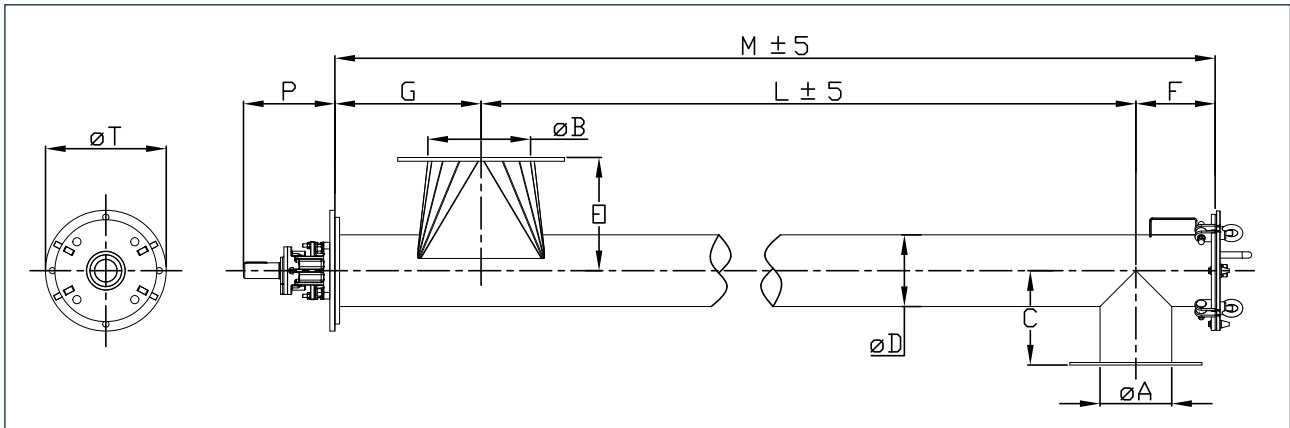
\varnothing 300	L	P	M	M ₁	M ₂	M ₃	R _{max}	V _{max}	t _{max}
	560 - 4860	235	1000 - 5300	-	-	-	950	600	800

10.2 Dimensions
TX, TX-AN, TO


type	100	120	150	200	250	300	350	400	500
Ø A	114	139	168	219	273	323	406	457	558
Ø B	114	139	168	219	273	323	406	457	558
C	1)								
Ø D	114	139	168	219	273	323	406	457	558
E	1)								
F	140	140	160	180	220	220	280	320	360
G	120	120	140	160	180	220	270	280	340
L	2)								
M	L + F + G								
P	114	114	124	124	124	124	151	151	162
t	280	280	280	355	410	465	535	590	740
V	265	265	265	315	365	435	485	540	655

1) see inlets/outlets

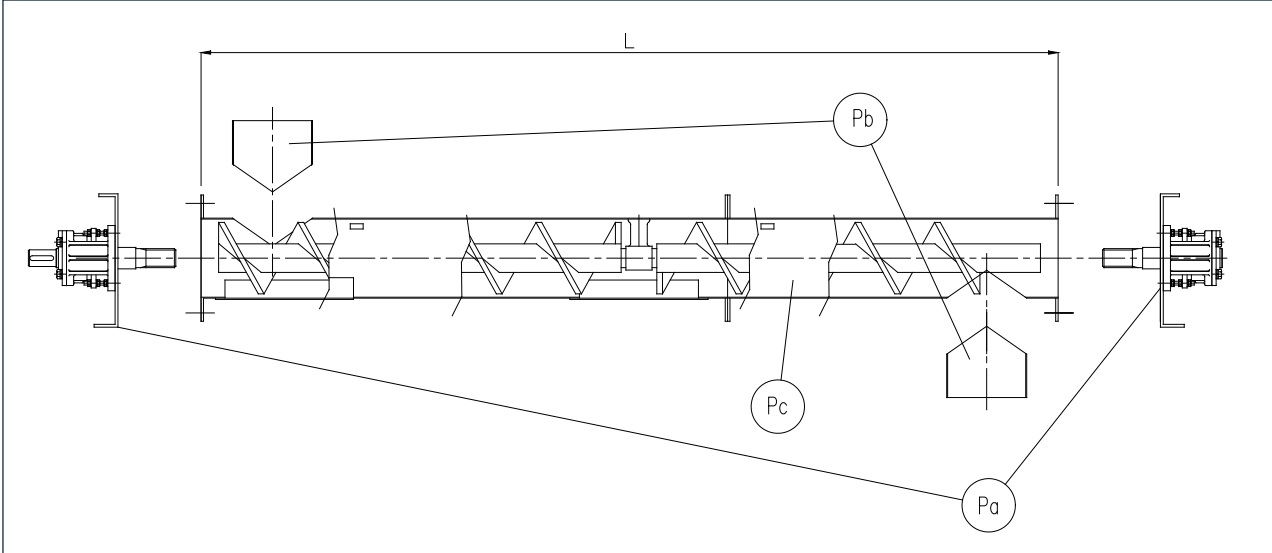
2) Rounded to 10 mm

TXF


type	80	100	120	150	200	250	300	350	400	500
Ø A	89	114	139	168	219	273	323	406	457	558
Ø B	89	114	139	168	219	273	323	406	457	558
C	1)									
Ø D	89	114	139	168	219	273	323	406	457	558
E	1)									
F	140	140	140	160	180	220	220	280	320	360
G	120	120	120	140	160	180	220	270	280	340
L	2)									
M	L + F + G									
P	114	114	114	124	124	124	124	151	151	162
t	169	190	190	250	275	330	405	470	520	620

1) see inlets/outlets

2) Rounded to 10 mm

10.3 Weights
TX, TX-AN, TO


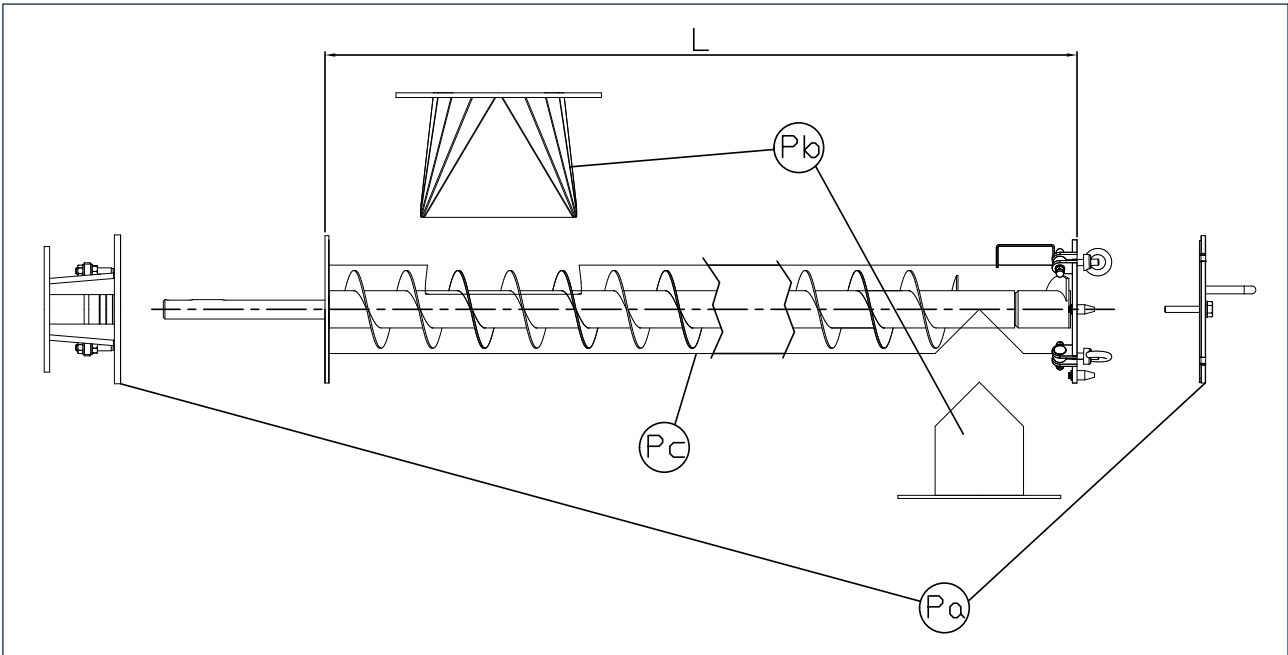
$$P_t = P_a + P_b + (P_c \cdot L)$$

P_t = Overall weight (kg)

L = Length (m)

Ø	100	120	150	200	250	300	350	400	500	600
P_a	16	16	23	26	38	51	81	96	148	180
P_b	4	5	8	16	20	26	50	56	84	90
P_c	22	28	33	40	46	55	77	86	110	130

kW	S39	S41	S43	S45	S47
0.55	29	45.5	58		
0.75	30	45.5	58		
1.1	35	54.5	67	96	
1.5	35	55.5	68	97	
2.2			77.5	106	169
3.0			78.5	107	170
4.0			87.5	116	179
5.5			111	140	203
7.5			125	154	217
9.2			133	162	225
11				197	260
15				226	289
18.5					315
22.0					362

TXF


$$P t = P a + P b + (P c \cdot L)$$

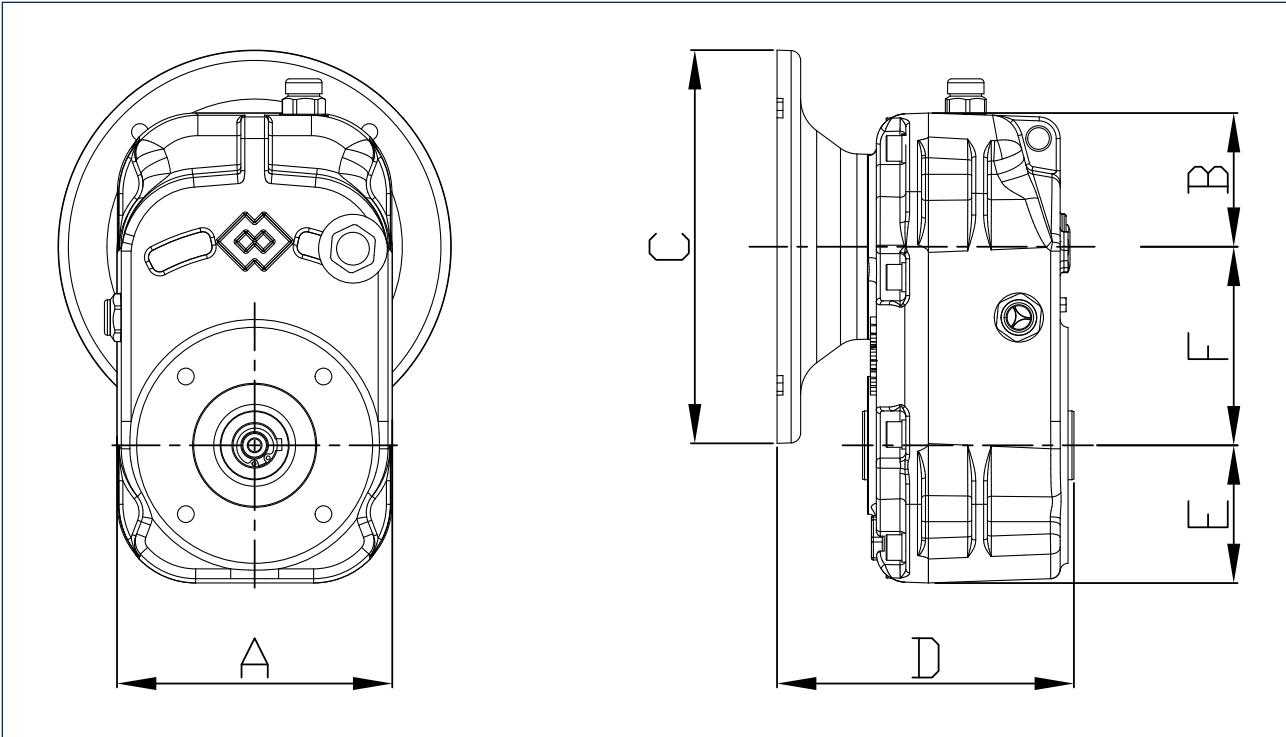
P t = Overall weight (kg)

L = Length (m)

type	80	100	120	150	200	250	300	350	400	500	600
Pa	6	6.5	6.5	8.5	10	16.5	21.5	-	-	-	-
PB	4.5	6.3	7.5	9.7	14.4	17.6	22.4	-	-	-	-
PC	9	11.5	13.4	16.6	26.1	32.3	41.4	-	-	-	-

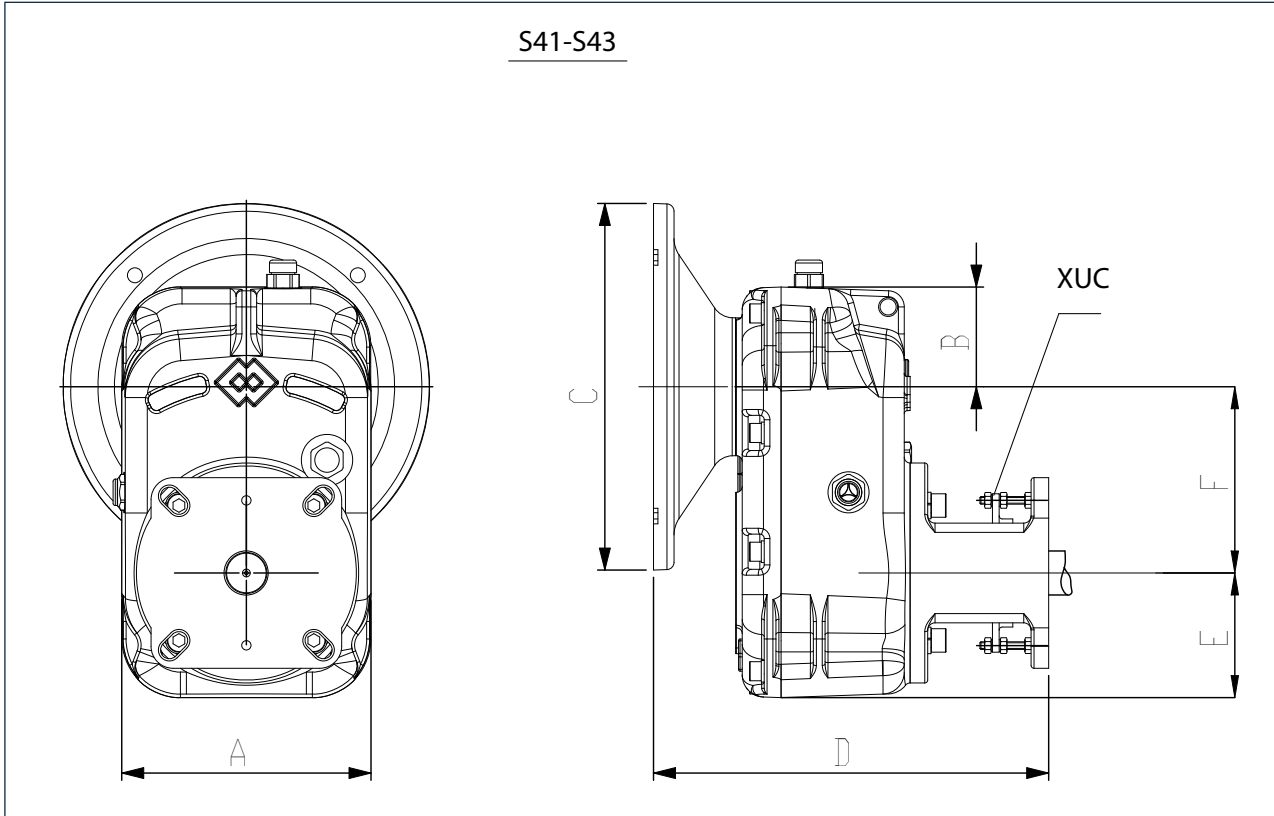
kW	S39	S41	S43	S45	S47
0.55	29	45.5	58		
0.75	30	45.5	58		
1.1	35	54.5	67	96	
1.5	35	55.5	68	97	
2.2			77.5	106	169
3.0			78.5	107	170
4.0			87.5	116	179
5.5			111	140	203
7.5			125	154	217
9.2			133	162	225
11				197	260
15				226	289
18.5					315
22.0					362

10.4 Gear reducer dimensions S39 with hollow shaft (CV)



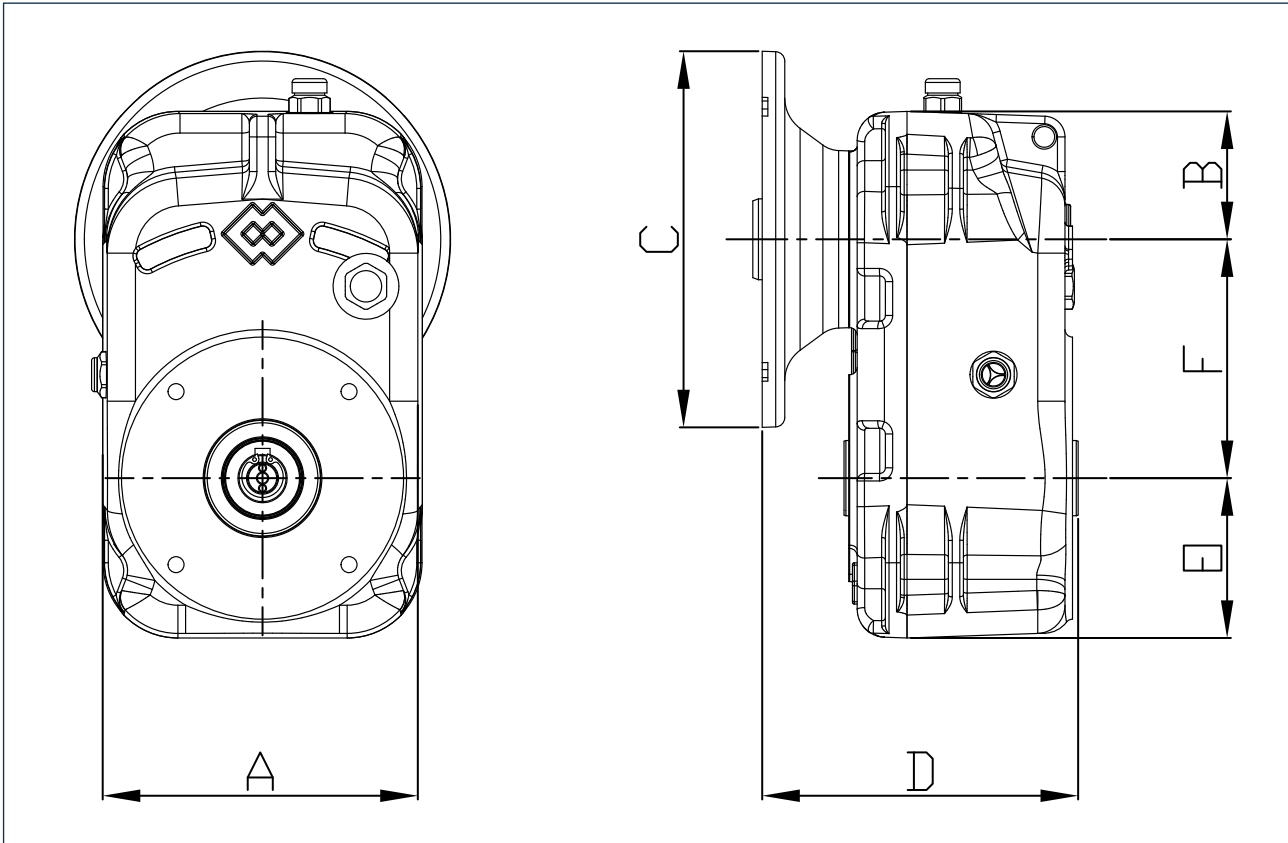
Gear reducer	Φ Screw	A	B	E	F
S39	/	140	68	70	101

Motor size	C	D	Weight [kg]
90	200	148	14
100-112	250	158	15.9

10.5 S41 - S43 Gear reducer dimensions


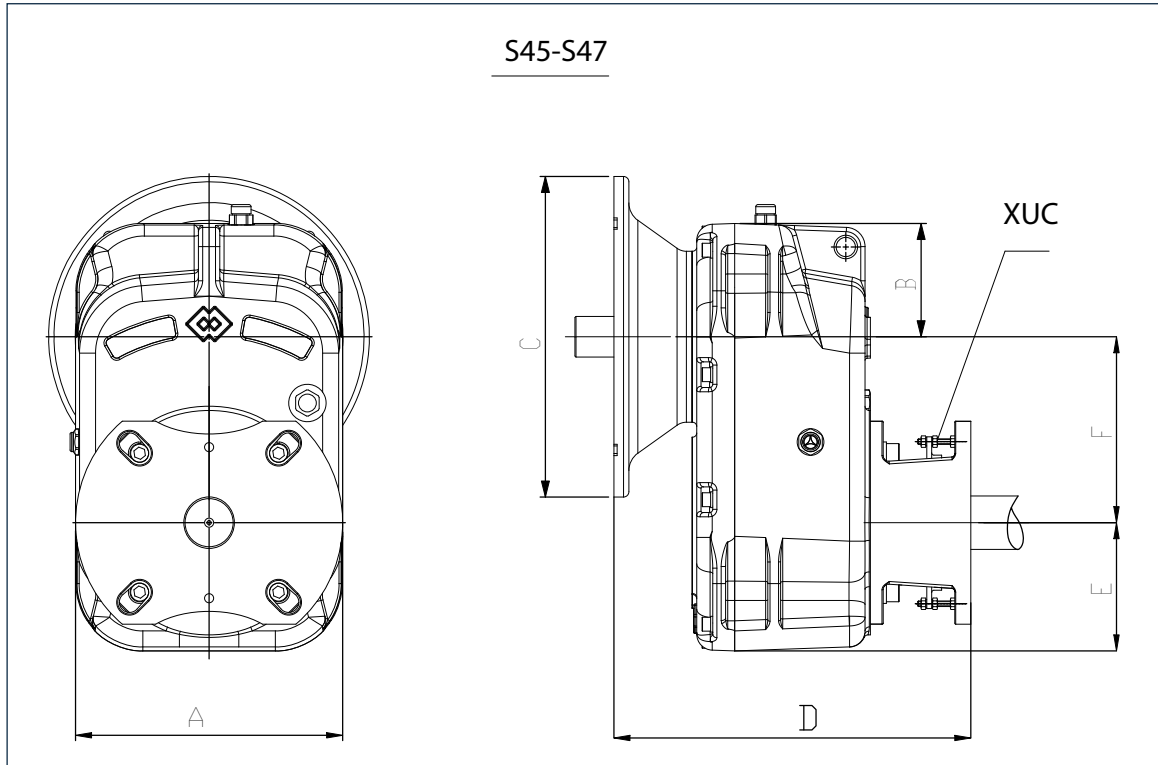
Gear reducer	Output	Ø Screw	A	B	E	F
S41	28	100 - 120	170	68	85	127
	40	150 - 200 - 250				
S43		150	200	83	99	138

Motor size	C	D	WEIGHT [kg]	
			(28)	(40)
71	160	243	27	28
80	200	259	28	29.5
90	200	259	28	29.5
100 - 112	250	269	30	31.5
			B63	
80	200	280,5	42	
90	200	280,5	42	
100 - 112	250	289,5	43,5	
132	300	309,5	46	

10.6 Gear reducer dimensions S41 and S43 with hollow shaft (CV)


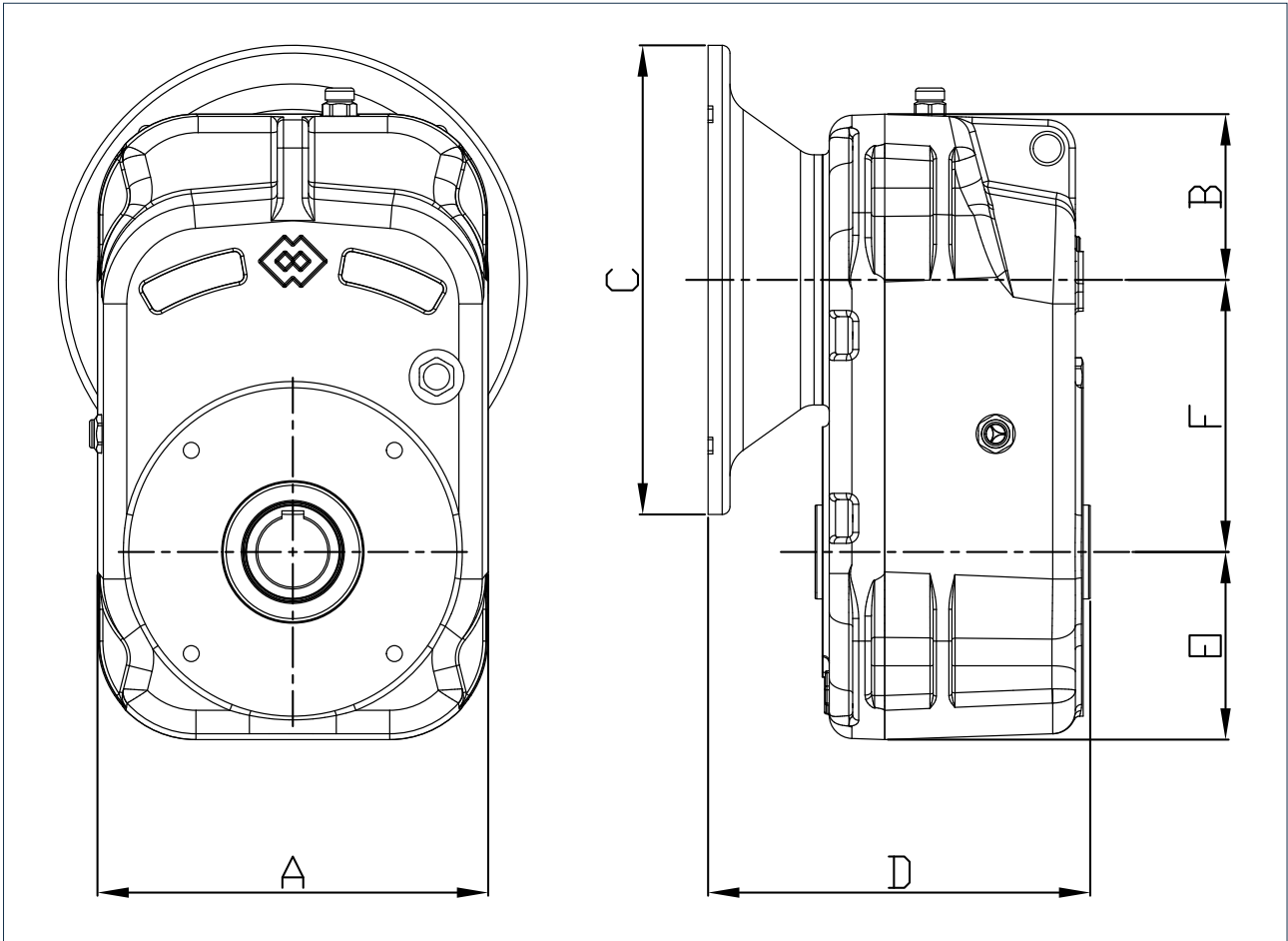
Gear reducer	Φ Screw	A	B	E	F
S41	/	170	68	85	127
S43	/	200	83	99	138

Motor size	C	D		Weight [kg]
71	160	152	S41	21
80	200	168		22
90	200	168		22
100-112	250	178		24
80	200	190	S43	32
90	200	190		32
100 - 112	250	199		34
132	300	219		36

10.7 S45 - S47 Gear reducer dimensions


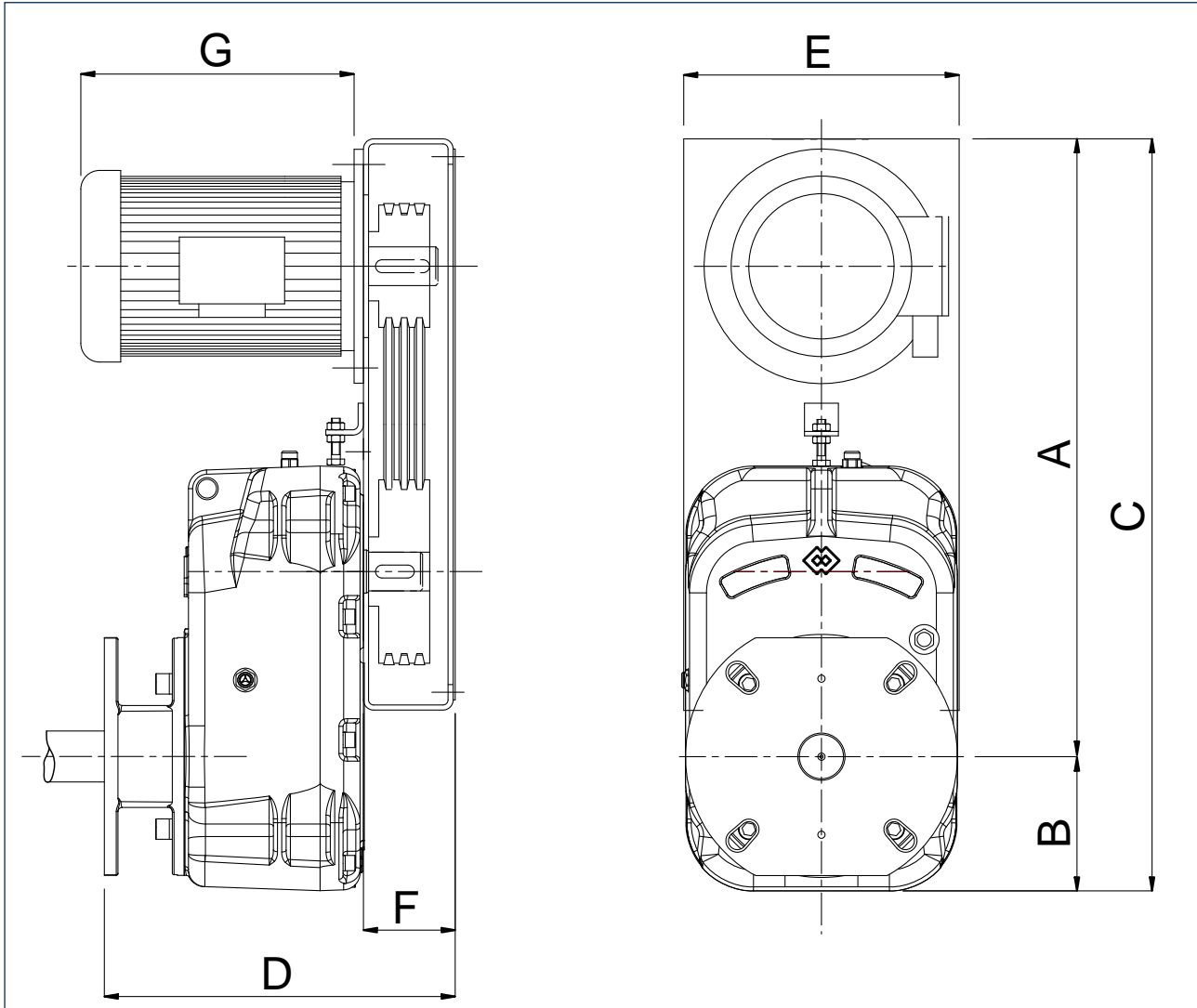
Gear reducer	Ø Screw	A	B	E	F
S45	/	250	106	120	174
S47	/	320	124	158	218

Motor size	C	D		WEIGHT [kg]
90	200	304	S45	71
100 – 112	250	314		72
132	300	334		75
160	350	364		79
180	350	364		79
100 – 112	250	351	S47	135
132	300	371		138
160	350	401		142
180	350	401		142
200	400	401		147

10.8 Gear reducer dimensions S45 and S47 with hollow shaft (CV)


Gear reducer	Φ Screw		B	E	F
S45	/	250	106	120	174
S47	/	320	124	158	218

Motor size	C	D		Weight [kg]
90	200	214.5	S45	54
100 – 112	250	224.5		55
132	300	244.5		58
160	350	274.5		63
180	350	274.5		63
100 – 112	250	261	S47	106
132	300	281		108
160	350	311		112
180	350	311		112
200	400	311		117

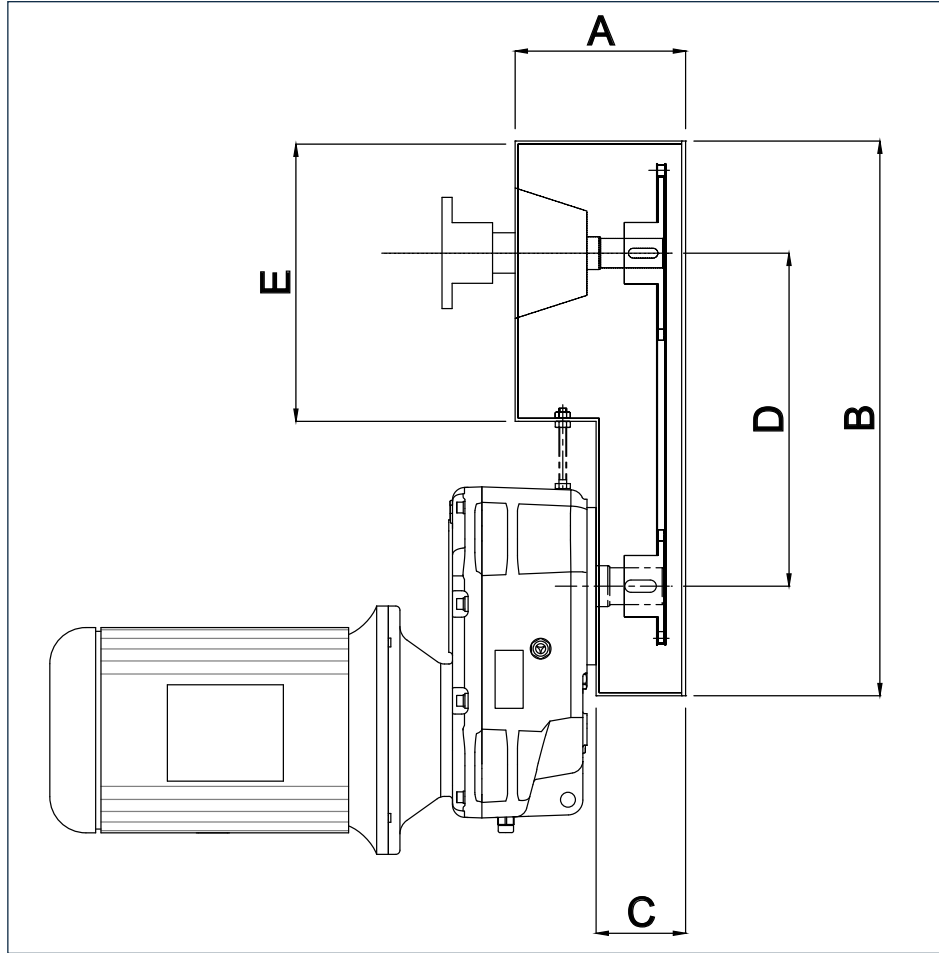
10.9 Dimensions of the belt transmission ("S" - Type gear reducer)


S 41							
kW	A	B	C	D	E	F	G
0.55	518	100	618	299	240	70	240
0.75	518	100	618	315	240	70	260

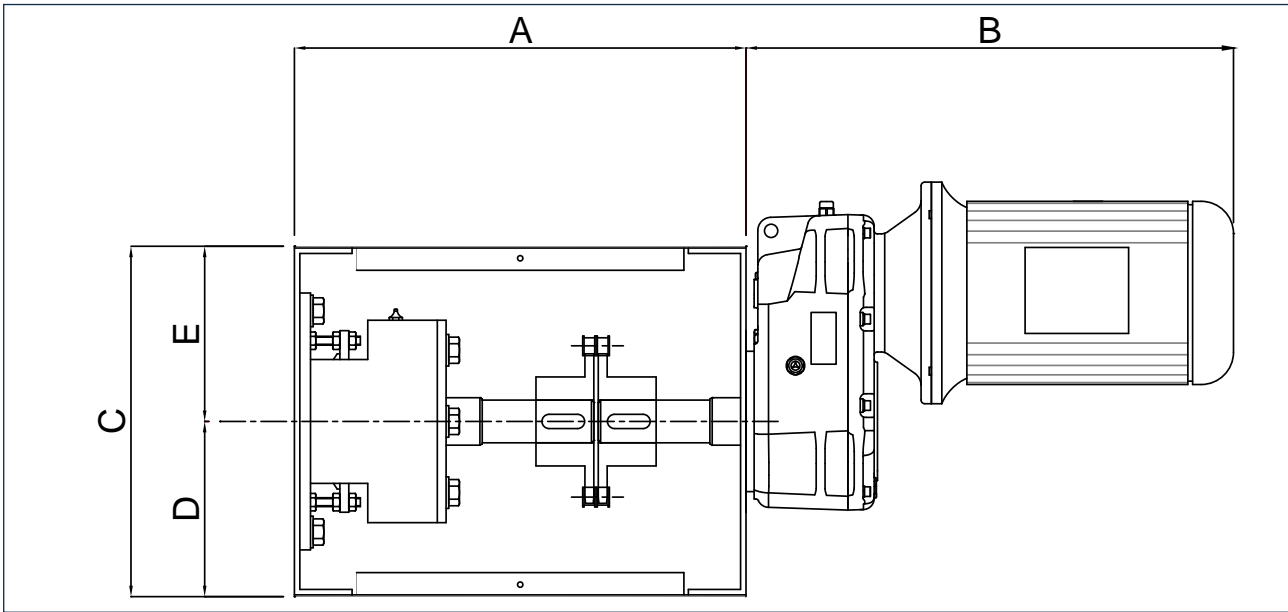
S 43							
kW	A	B	C	D	E	F	G
1.1	565	113	698	346,5	240	80	247
1.5	565	113	698	346,5	240	80	247

S 45							
kW	A	B	C	D	E	F	G
2.2	645	140	840	390	280	100	305
3	645	140	840	390	280	100	305

S 47							
kW	A	B	C	D	E	F	G
4	670	176	961	414	280	130	340
5.5	750	176	1021	440	330	130	380
7.5	750	176	1021	440	330	130	410

10.10 Dimensions of the chain transmission ("S" - Type gear reducer)


t type	A	B									C	D								E								
		150	200	250	300	350	400	500	600	150		200	250	300	350	400	500	600	150	200	250	300	350	400	500	600		
S 41	XSV035	280	575	645	705	/	/	/	/	/	75	300	320	350	/	/	/	/	/	260	320	375	/	/	/	/	/	/
S 43	XSV035	280	625	695	755	820	890	940	/	/	95	315	345	375	410	450	470	/	/	260	320	375	440	510	575	/	/	
	XSV045	340	625	695	755	820	890	940	/	/		315	345	375	410	450	470	/	/	260	320	375	440	510	575	/	/	
S 45	XSV045	340	/	/	790	855	925	990	1190	1355	120	/	/	375	410	450	485	585	670	/	/	375	440	510	575	720	885	
	XSV055	370	/	/	790	855	925	990	1190	1355		/	/	375	410	450	485	585	670	/	/	375	440	510	575	720	885	
S 47	XSV055	370	/	/	/	975	1045	1105	1250	1415	140	/	/	/	465	505	535	605	690	/	/	/	440	510	575	720	885	
	XSV065	420	/	/	/	975	1045	1105	1250	1415		/	/	/	465	505	535	605	690	/	/	/	440	510	575	720	885	
	XSV080	510	/	/	/	/	1045	1105	1250	1415		/	/	/	/	505	535	605	690	/	/	/	/	510	575	720	885	

10.11 Dimensions of the coupling transmission ("S" - Type gear reducer)


Bearing

S41							
kW	∅	∅	A	B	C	D	E
0.55	150	35	330	387	260	126	134
	200	35	330	387	320	169	151
0.75	150	35	330	428	260	126	134
	200	35	330	428	320	169	151

Bearing

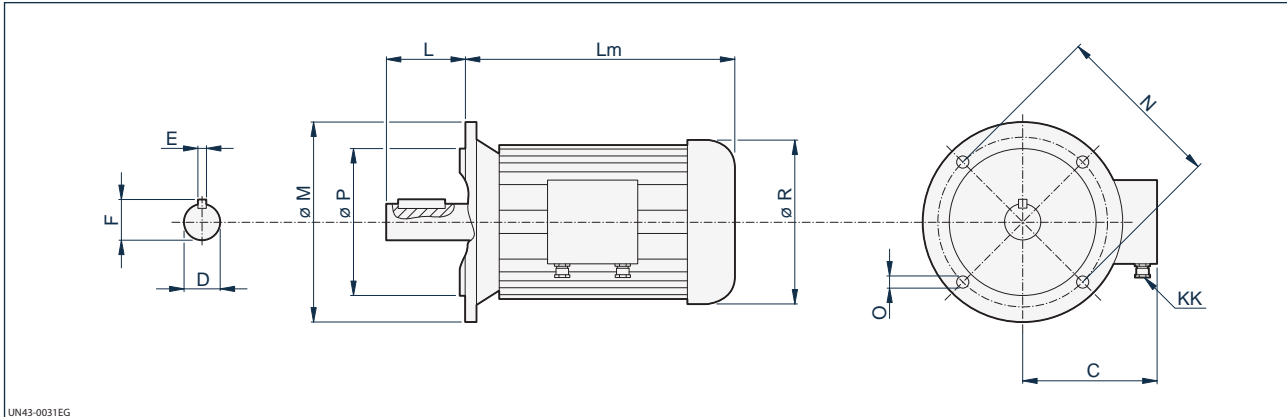
S 43							
kW	∅	∅	A	B	C	D	E
1.1	150	35	350	466,5	260	126	134
	200	35	350	466,5	320	169	151
		45	423	466,5	320	169	151
1.5	150	35	350	491,5	260	126	134
	200	35	350	491,5	320	169	151
		45	423	491,5	320	169	151
	250	35	350	491,5	375	199	176
45		423	491,5	375	199	176	

Bearing .

S 47							
kW	∅	∅	A	B	C	D	E
4	300	55	500	607	440	229	211
	350	55	500	607	510	259	251
	400	55	500	607	440	293	282
5.5	300	55	500	710	702	229	211
	350	55	500	702	510	259	251
	400	55	500	702	575	293	282
		65	550	702	575	293	282
	500	55	500	702	720	368	352
		65	550	702	720	368	352
600	55	500	702	885	453	432	
7.5	300	55	500	742	440	229	211
	350	55	500	742	510	259	251
	400	55	500	742	575	293	282
		65	550	742	575	293	282
	500	55	500	742	720	368	352
		65	550	742	720	368	352
	600	55	500	742	885	453	432
		65	550	742	885	453	432

Bearing

S 45							
kW	∅	∅	A	B	C	D	E
2.2	200	45	447	570	320	169	151
	250	45	447	570	375	199	176
	300	55	473	570	440	229	211
3	200	45	447	570	320	169	151
	250	45	447	570	375	199	176
	300	55	473	570	440	229	211
	350	55	473	570	510	259	251
	400	55	473	570	575	293	282
4	300	55	473	570	440	229	211
	350	55	473	570	510	259	251
	400	55	473	570	575	293	282
	500	55	473	570	720	368	352
		55	473	570	720	368	352

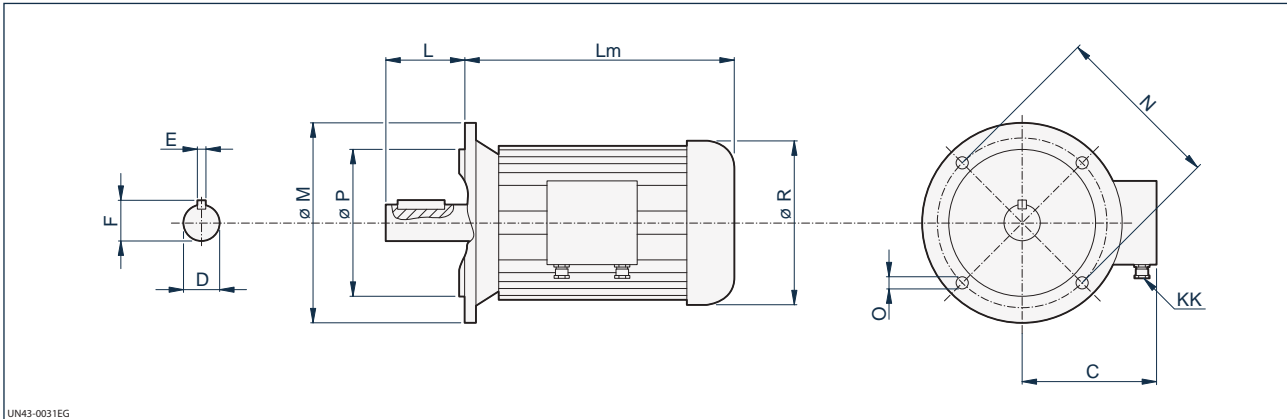
10.12 Electric motors


kW	Size	Code	C	D	E	F	L	Lm*	M	N	O	Bores nr	[mm]			[kg]	K K
													P	Q	R		
1.1	90 S	MT0900S04145	155	24	8	27	50	248	200	165	12.5	4	130	3.5	180	25	M25x1.5
1.5	90 L	MT0900L04145	155	24	8	27	50	273	200	165	12.5	4	130	3.5	180	26	M25x1.5
2.2	100 LR	MT100LR04145	180	28	8	31	60	306	250	215	15	4	180	4	218	34	M25x1.5
3.0	100 LH	MT100LH04145	180	28	8	31	60	306	250	215	15	4	180	4	218	35	M25x1.5
4.0	112 M	MT1120M04145	190	28	8	31	60	334	250	215	15	4	180	4	218	44	M25x1.5
3.0 - 1.5	112 M	MT1120M48A45	190	28	8	31	60	334	250	215	15	4	180	4	218	47	M25x1.5
5.5	132 S	MT1320S04145	210	38	10	41	80	371	300	265	15	4	230	4	258	65	M25x1.5
3.3 - 2.2	132S	MT1320S48A45	210	38	10	41	80	371	300	265	15	4	230	4	258	65	M25x1.5
7.5	132 M	MT1320M04145	210	38	10	41	80	409	300	265	15	4	230	4	258	79	M25x1.5
4.4 - 3	132 M	MT1320M48A45	210	38	10	41	80	409	300	265	15	4	230	4	258	79	M25x1.5
9.2	132 ML	MT1320L04145	210	38	10	41	80	409	300	265	15	4	230	4	258	87	M25x1.5
11.0	160 M	MT1600M04245	255	42	12	45	110	485	350	300	19	4	250	5	300	118	M32x1.5
6.0 - 4.5	160 MA	MT160MA48A45	255	42	12	45	110	485	350	300	19	4	250	5	300	118	M32x1.5
8.5 - 6.0	160 MB	MT160MB48A45	255	42	12	45	110	485	350	300	19	4	250	5	300	118	M32x1.5
15.0	160 L	MT1600L04245	255	42	12	45	110	529	350	300	19	4	250	5	300	147	M32x1.5
10.0 - 7.5	160 L	MT1600L48A45	255	42	12	45	110	529	350	300	19	4	250	5	300	147	M32x1.5
18.5	180 M	MT1800M04245	285	48	14	51.5	110	543	350	300	19	4	250	5	340	173	M32x1.5
22	180 L	MT1800L04245	285	48	14	51.5	110	585	350	300	19	4	250	5	340	220	M32x1.5
15.0 - 10.0	180 L	MT1800L48A45	285	48	14	51.5	110	585	350	300	19	4	250	5	340	220	M32x1.5

- Cable glands are made of plastic.

Junction box is on the LH side of the motor (seen from behind fan guard).

* With different brands ± 50 mm tolerances are possible.

10.13 Electric motors IE2 IEC 60034 - 30


UN43-0031EG

kW	Size	Code	C	D	E	F	L	Lm*	M	N	O	Bores nr	P	Q	R	[kg]	K K
			[mm]										[mm]				
1.1	90 S	MT0900S041452	155	24	8	27	50	280	200	165	12.5	4	130	3.5	195	25	M25x1.5
1.5	90 L	MT0900L041452	155	24	8	27	50	295	200	165	12.5	4	130	3.5	195	26	M25x1.5
2.2	100 LR	MT100LR041452	180	28	8	31	60	340	250	215	15	4	180	4	218	34	M25x1.5
3.0	100 LH	MT100LH041452	180	28	8	31	60	340	250	215	15	4	180	4	218	35	M25x1.5
4.0	112 M	MT1120M041452	190	28	8	31	60	350	250	215	15	4	180	4	240	44	M32x1.5
5.5	132 S	MT1320S041452	210	38	10	41	80	390	300	265	15	4	230	4	275	65	M32x1.5
7.5	132 M	MT1320M041452	210	38	10	41	80	430	300	265	15	4	230	4	275	79	M32x1.5
9.2	132 ML	MT1320L041452	210	38	10	41	80	450	300	265	15	4	230	4	275	87	M32x1.5
11.0	160 M	MT1600M042452	255	42	12	45	110	560	350	300	19	4	250	5	335	118	M32x1.5
15.0	160 L	MT1600L042452	255	42	12	45	110	590	350	300	19	4	250	5	335	147	M32x1.5
18.5	180 M	MT1800M042452	285	48	14	51.5	110	600	350	300	19	4	250	5	380	173	M32x1.5
22.0	180 L	MT1800L042452	285	48	14	51.5	110	640	350	300	19	4	250	5	380	220	M32x1.5
30.0	200 L	MT2000L042452	310	55	16	59	110	710	400	350	19	4	300	5	420	255	M50x1.5

- Cable glands are made of plastic.

Junction box is on the LH side of the motor (seen from behind fan guard).

* With different brands ± 50 mm tolerances are possible.

A1 Nuts and bolts tightening torques table

thread diameter	Tightening torques [Nm]		
	Resistance Class 8.8	Resistance Class 10.9	Resistance Class 12.9
M6	9.5	13.0	16.0
M8	23.0	32.0	39.0
M10	46.0	64.0	77.0
M12	80.0	110.0	135.0
M14	125.0	180.0	215.0
M16	195.0	275.0	330.0
M18	270.0	390.0	455.0
M20	385.0	540.0	650.0
M22	510.0	720.0	670.0
M24	660.0	930.0	1100.0
M27	980.0	1400.0	1650.0
M30	1350.0	1850.0	2250.0

Oil filler, drainage, venting, and level plugs in gear reducers	Tightening torque 16 ÷ 18 [Nm]
M16 locking screw for inspection hatches	Tightening torque 25 ÷ 30 [Nm]

A2 Lubricants and sealants table

Lubricant and anti-rust paste for electric motor shaft and gear reducer bushing	KLUBER-PASTE 46 MR 401
	FLENDER
	MONTAGEPASTE
	NILS WEGA 3

Sealant for electric motor flange and gear reducer	LOCTITE 510
	LOXEAL 59-10

Lubricant anti-rust and anti-seizure grease for splined shafts and bushes	ALPEC 380	VISCOL S.p.A.
	EP graphite grease	
	NILS MARS	

End bearings / Flanged head bearings / XUC....N Lubricant / Chain transmission	
Grease containing mineral oil thickened with lithium soap NLGI 2 type. Satisfies the classification requisites DIN 51502 K 2K-20	
Grease	Brand
GR – MU 2	AGIP
ARALUP HL 2	ARAL
ENERGREASE L 2	BP
CALYPSOL 433	CALYPSOL
ANDOK B	ESSO
MOBILUX 2	MOBIL
MOBILPLEX 47	
TUKAN EP 2	NILS
ATOMIC RH	
ALVANIA 2	SHELL
GLISSANDO FL20	TEXACO
MULTIFAX 2	

A3 Drive unit lubricants table

Oil quantity

Dimension	Output with shaft	Assembly position	Qty. OIL [l]						
			INCLINATION (α)						
			tail				head		
			0°	15°	30°	45°	-15°	-30°	-45°
S39	Solid and hollow	B5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
		B51	-	-	-	-	-	-	-
		B52	-	-	-	-	-	-	-
		B53	-	-	-	-	-	-	-
		V1	-	-	-	-	-	-	-
		V3	-	-	-	-	-	-	-
S41	Solid and hollow	B5	1.15	1.15	1.15	1.15	1.15	1.15	1.15
		B51	1.15	1.15	1.15	1.15	1.15	1.15	1.15
		B52	1.26	1.26	1.26	1.26	1.26	1.26	1.26
		B53	1.00	1.50	1.50	1.50	1.50	1.50	1.50
		V1	1.50	1.50	1.50	1.50	1.50	1.50	1.50
		V3	1.50	1.50	1.50	1.50	1.50	1.50	1.50
S43	Solid and hollow	B5	1.75	1.75	1.75	1.75	1.75	1.75	1.75
		B51	1.65	1.65	1.65	1.65	1.65	1.65	1.65
		B52	2.10	2.10	2.10	2.10	2.10	2.10	2.10
		B53	1.55	2.20	2.20	2.20	2.20	2.20	2.20
		V1	2.20	2.20	2.20	2.20	2.20	2.20	2.20
		V3	2.20	2.20	2.20	2.20	2.20	2.20	2.20
S45	Solid and hollow	B5	3.75	3.75	3.75	3.75	3.75	3.75	3.75
		B51	3.00	3.00	3.00	3.00	3.00	3.00	3.00
		B52	4.10	4.10	4.10	4.10	4.10	4.10	4.10
		B53	3.00	4.50	4.50	4.50	4.50	4.50	4.50
		V1	4.30	4.30	4.30	4.30	4.30	4.30	4.30
		V3	4.30	4.30	4.30	4.30	4.30	4.30	4.30
S47	Solid and hollow	B5	8.70	9.00	9.30	9.90	8.10	7.70	7.20
		B51	6.50	6.20	5.80	4.90	7.10	7.20	7.40
		B52	8.00	8.80	9.30	9.70	7.80	7.60	7.30
		B53	6.50	10.10	9.90	9.50	10.70	11.10	11.70
		V1	9.95	9.95	9.95	9.95	9.95	9.95	9.95
		V3	9.95	9.95	9.95	9.95	9.95	9.95	9.95

The Manufacturer uses synthetic oil which has viscosity grade in accordance with ISO VG.

Gear oil in accordance with DIN 51517/3 CLP 220	
Mineral oil	Brand
BLASIA 220 (*)	AGIP
DEGOL BG 220	ARAL
ENERGOL GR - XP 220	BP
NL GEAR COMPOUND 220	CHEVRON
SPARTAN EP 220	ESSO
MOBILGEAR 630	MOBIL
RIPRESS EP 220	NILS
OMALA 220	SHELL
MEROPA 220	TEXACO

(*) First filling oil

For temperatures lower than 0°C replace the mineral oil with synthetic one having the same viscosity.

In this case:

- change the oil the first time after 2000 hours of operation;
- change the oil subsequently after 10000 hours or every 5 years.

Synthetic gear oil in accordance with DIN 51517/3 CLP PG 220	
Synthetic oil	Brand
BLASIA S 220	AGIP
DEGOL GS 220	ARAL
ENERSYN HTX 220	BP - MACH
SYNTERMA P20	ELF
GLICOLUBE 220	ESSO
KLÜBERSYNTH GH 6-220	KLÜBER
GLYGOYLE HE 220	MOBIL
RIPRESS SYNT 220	NILS
TIVELA SC 220	SHELL
PINNACLE EP 220	TEXACO

The lubricants brands are in alphabetic order without any reference to the product quality.

This list does not cover the entire range of lubricants; therefore other lubricants can be used as long as they have the same technical features.

A4 Repainting



Important

Paint the electric motors or the gear reducer according to the indications given in the specific instruction Manuals provided by the motor and gear reducer manufacturers; otherwise the warranty will be invalid.

We recommend painting the screw feeder/conveyor after it is completely assembled before installation.



Important

Before repainting the equipment concerned, “mask” all the safety signs applied on the screw feeder/conveyor.

When the painting operation is complete, uncover the safety signs ensuring that they are all present as indicated in the “Safety signs and information” paragraph.

If even only one of these signs is partially covered, contact the Manufacturer for new signs and apply them in their original position (see “Safety signs and information”).

- Repainting painted surfaces with powder primer

If a finishing coat of 2K Epoxy (bicomponent), 2K Epoxy-vinyl (bicomponent) and 2K Polyurethane (bicomponent) paint is to be applied, it is enough to just remove the dirt that can have accumulated during shipping and storage.

Other types of finishing products can be applied, but it will be necessary to wipe the surface to be repainted with a matting Scotch Brite cloth.

After this operation, wipe the surface with a clean cotton cloth and ethyl alcohol or nitro solvent.

Then proceed with painting the surface of the equipment concerned with the selected finishing coat.

- Repainting painted surfaces with finishing powder coat

To obtain perfect adherence of the liquid paint on the existing powder paint, follow the operations described below.

- Wipe the screw feeder/conveyor with a cloth soaked in “anti-silicon solvent” defined as “solvent naphtha”.
- Wipe with a Scotch Brite sponge (3M or similar) and clean with nitro solvent.
- Dry the surface with a cloth.
- Repaint with liquid paint.

- Repainting painted surfaces with high-solid liquid paint

Repainting to be done on gear reducers, electric motors and end bearings.

To obtain perfect adherence of the liquid paint on the existing high-solid synthetic enamel, follow the operations described below.

- Degrease the surfaces with a cloth slightly moist with thinner.
- Repaint with high-solid synthetic enamel.
- To repaint with another type of paint, it is advisable to apply a base epoxy primer coat.