Extruders for plastic & rubber

Rossi

Contents

1

Rossi for You

Innovation
Rossi S.p.A. offers a wide range of solutions for an evolving industry, flexible and innovative gear reducers and gearmotors for customer tailored solutions to maximize performances and minimize the Total Cost of Ownership (TCO).

High quality, 3 years warranty
Our drive is to innovate and boost operations by manufacturing performing, precise, reliable and high-quality products all over the world. We are always one step forward in offering and developing solutions that can satisfy an unlimited number of application needs, even in the most demanding conditions.

Reliability
We are a reliable company with the right flexibility and know-how to respond to worldwide market requests, in all application fields, without leaving aside our commitment for the environment and value on human safety, to protect everyone's future.

Tools and processes
We continue to invest in new tools and processes, so our highly skilled specialist team in different fields are supporting you to find the best solution suitable for your demands, always by your side on every step of the project.

After-sale service
Highly trained mechanics and support teams can ensure a fast and efficient after-sale service providing support worldwide.

Digital support
Alongside our 24/7 Rossi for You portal you have a suite of digital support tools enabling real time access to your order tracking, invoices, spare part tables download and contact to our service.

Experience
70 YEARS

Shaped by more than 70 years of history Rossi meets your unique needs whether you need a standard design or a customized solution.


ROSSI

1.1

Global presence local service

Local support
Sales, customer service, technical support, spare parts

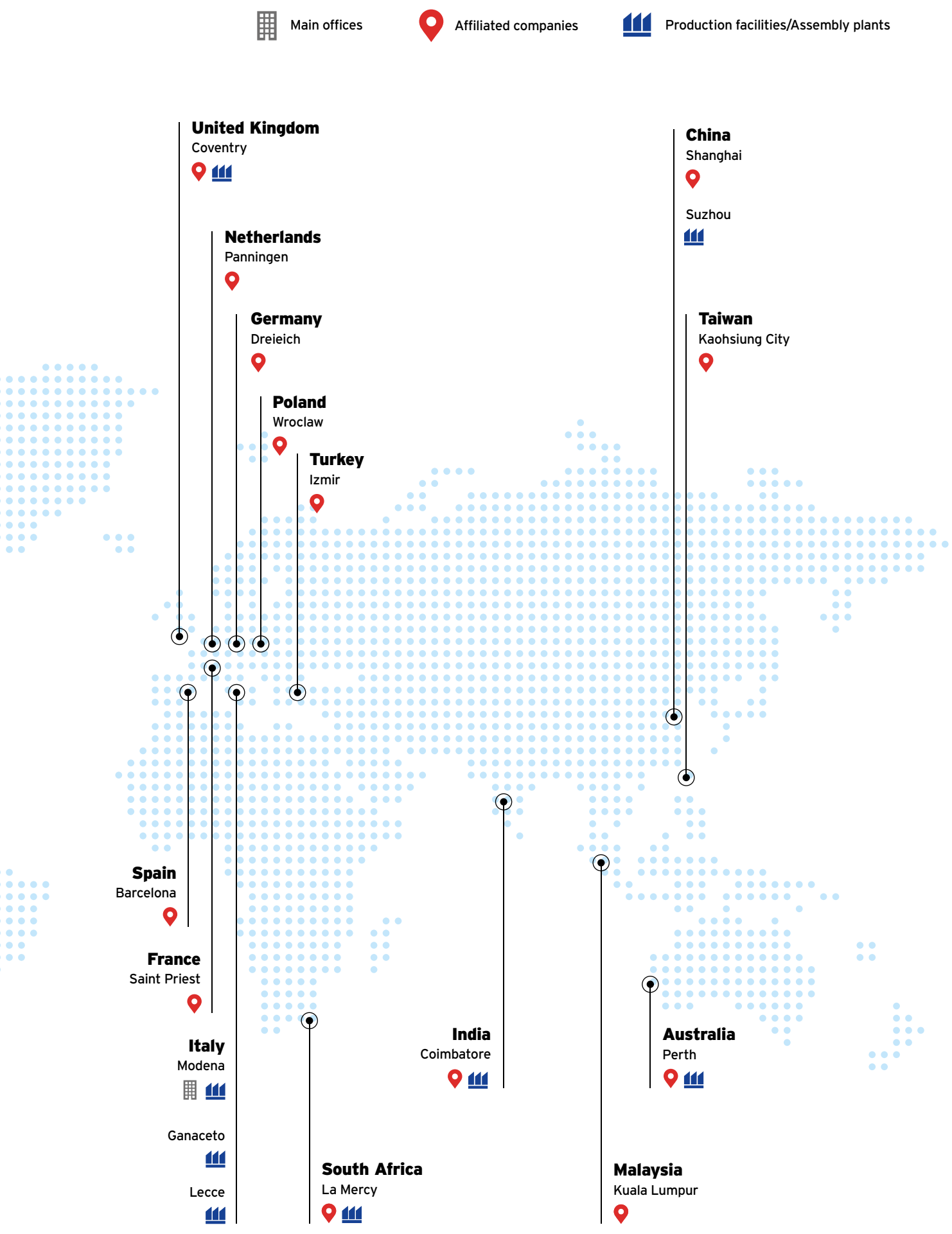
17 branches*

Worldwide distribution network*

A global network of subsidiaries and dealers. From design and execution to after-sales service. Rossi is always close to you: a local, reliable and flexible partner.

Alongside our 24/7 **Rossi for You** portal you have a suite of digital support tools enabling real time access to your order tracking, invoices, spare part tables download and contact to our service.

*All contacts available on **www.rossi.com**


Main offices
Affiliated companies
Production facilities/Assembly plants
United Kingdom
Coventry
Netherlands
Panningen
Germany
Dreieich
Poland
Wroclaw
Turkey
Izmir
China
Shanghai
Suzhou
Taiwan
Kaohsiung City
Spain
Barcelona
France
Saint Priest
Italy
Modena
Ganaceto
Lecce
South Africa
La Mercy
India
Coimbatore
Malaysia
Kuala Lumpur
Australia
Perth

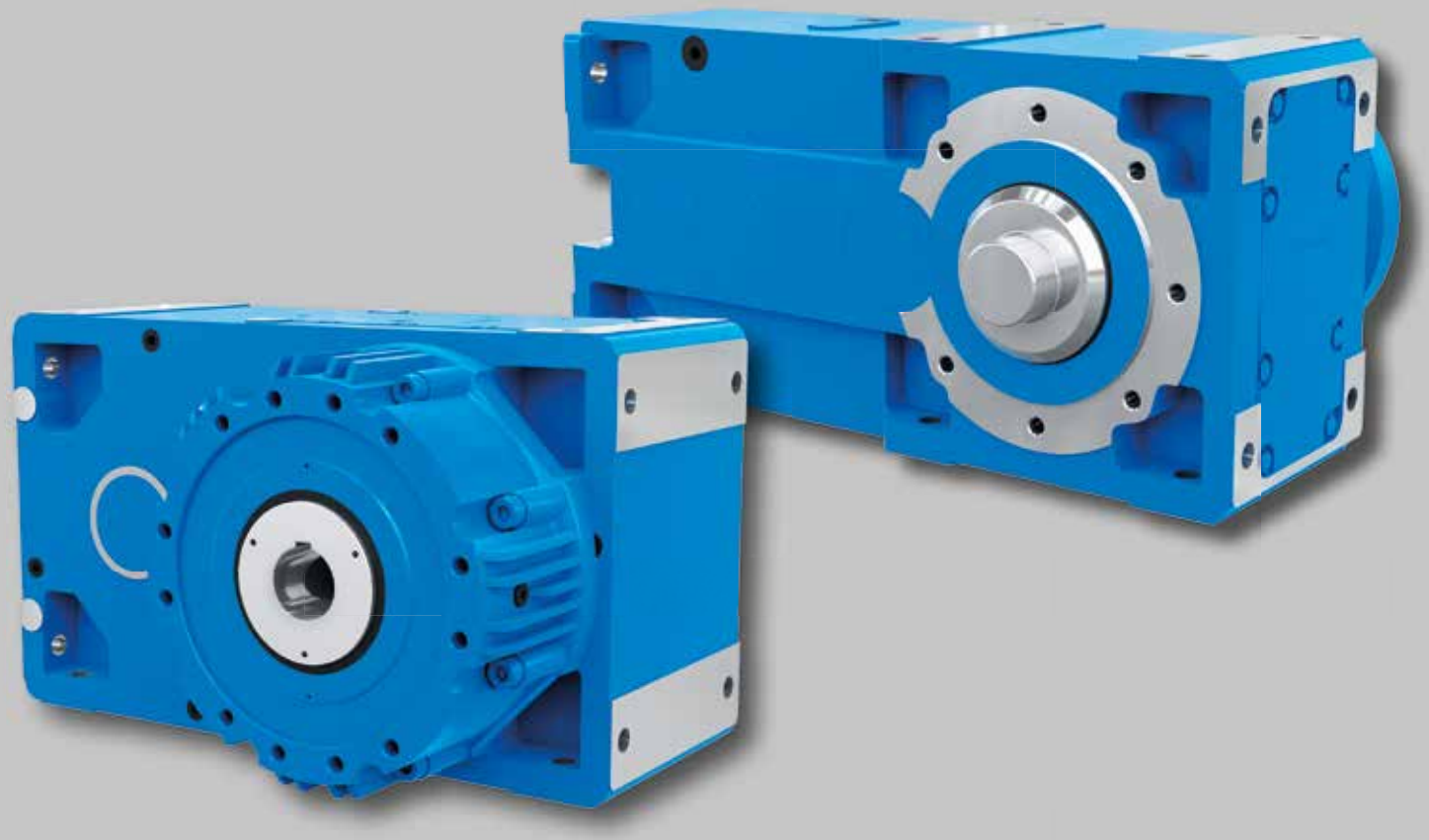
2

Product Overview

Section contents

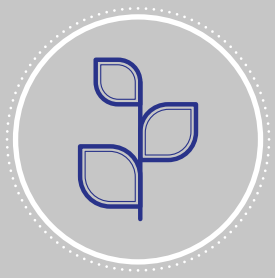
2.1

Features & Benefits



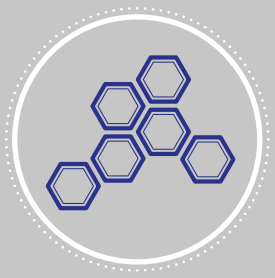
Maximum performance

We drive the heaviest applications worldwide



Sustainability

We care about environment



Modular system

For cost–effective and high quality solutions

Innovation

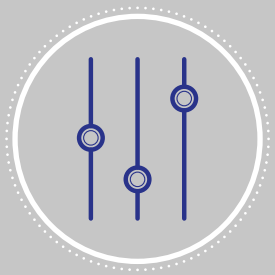
We are constantly thinking forward, solutions for an evolving industry

Digitalization

Rossi for You is always at your disposal for any info

Know-how

We support you through interdisciplinary know-how



Customization

Cost-effective solutions starting from standard products

2.2

Plastic & rubber recycling

Nowadays recycling becomes more and more important for several industrial fields: plastic & rubber are among the front runners in recycling process.
Rossi, with its extensive manufacturing program, offers a complete drive solution connected with the whole recycling process.

Thanks to its cutting edge technology, Rossi products - gear reducers and electric motors - ensure top performances in terms of efficiency, and help reduce CO_2 emissions, keeping world environment safer and greener.

Helical and bevel helical gear units in extruder design about plastic or rubber extrusion

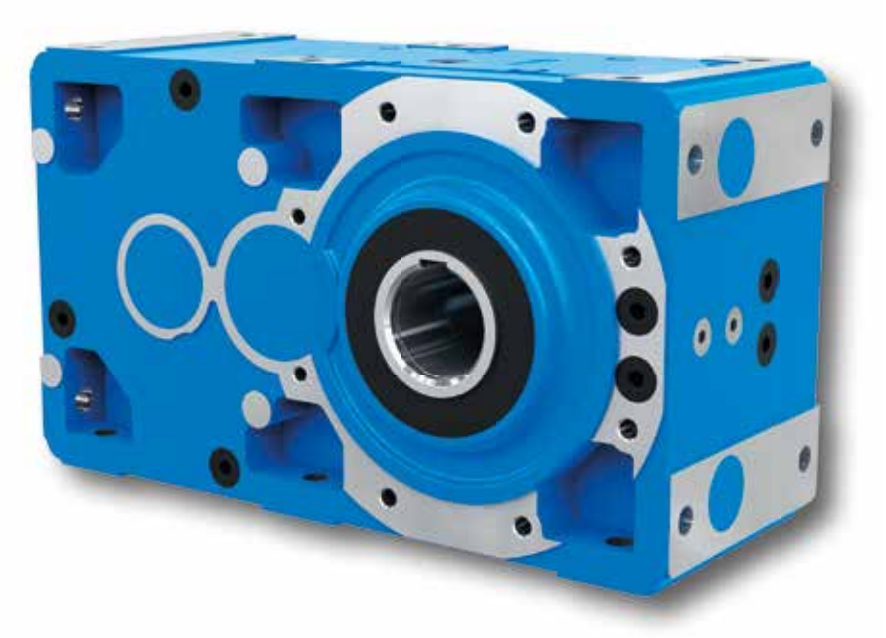

58ESVE

2.3

Shredders

Nowadays recycling becomes more and more important for several industrial fields: plastic & rubber are among the front runners in recycling process.
Rossi, with its extensive manufacturing programm, offers a complete drive solution connected with the whole recycling process.

Thanks to its cutting edge technology, Rossi offers helical and bevel helical gear reducers with hollow low speed shaft with keyway or shrink disc or splined. Products ensure top performances in terms of efficiency, and help reduce CO_2 emissions, keeping world environment safer and greener.



Helical and bevel helical gear units in shredder design

3

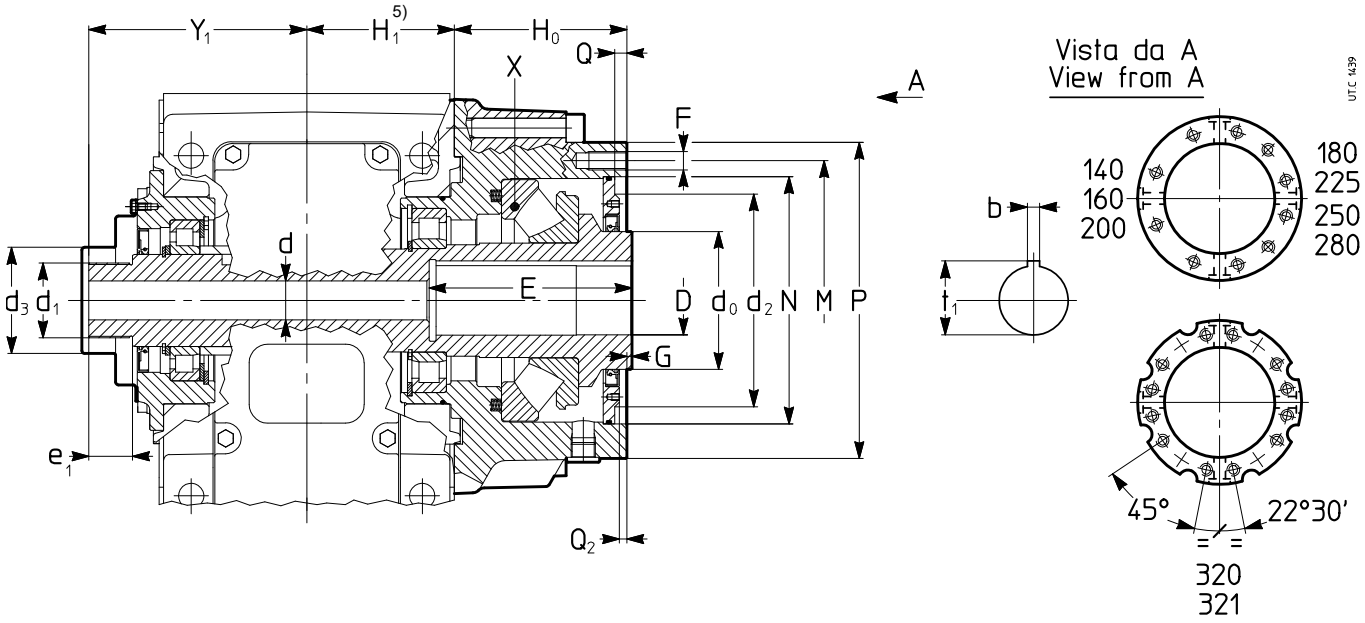
Extruder supports - Designs and dimensions

Section contents

3.1

Extruder support N

140 ... 321



Size	Bearing		D[1]	E[1) 4)]	b	d	d_0	d_1	d_2	d_3	e_1	F[2) 3)]	G	H_0	M[2)]	N[2)]	P[2)]	Q	Q_2	t_1	Y_1
	Design **N**		Ø			Ø	Ø	Ø	Ø	Ø					Ø	Ø	Ø				
	X	**C** kN	H7							≈						H7		0 +0,5			≈
140	**294 17E**	633	40	103	12	34	110	M50 ×1,5	110	74	30	$M16^{8}$	1	131	208	180,5	240	8	8	43,3	165
160	**294 17E**	633	50	118	14	34	110	M65 ×2	110	84	40	$M16^{8}$	1	131	208	180,5	240	8	8	53,8	191
180	**294 20E**	863	60	133	18	34	120	M65 ×2	180	93	40	$M16^{12}$	1	150	243	215	275	10	6,5	64,4	190
200	**294 22E**	1 010	70	133	20	43	130	M85 ×2	200	113	45	$M20^{8}$	1	164	278	243	318	10	8,5	74,9	212
225	**294 26E**	1 380	80	158	22	43	160	M85 ×2	250	113	45	$M20^{12}$	1	182	318	283	358	10	5,5	85,4	224
250	**294 30E**	1 610	90	158	25	43	200	M85 ×2	319	143	45	$M24^{12}$	1,5	222	400	358	450	12	10,5	95,4	251
280	**294 34E**	2 020	100	188	28	43	200	M90 ×2	319	143	45	$M24^{12}$	1,5	222	400	358	450	12	10,5	106,4	267
320, 321	**294 40E**	2 760	110	188	28	72	240	M120×2	361	173	45	$M30^{12}$	1,5	277	535	483	595	12	8	116,4	306

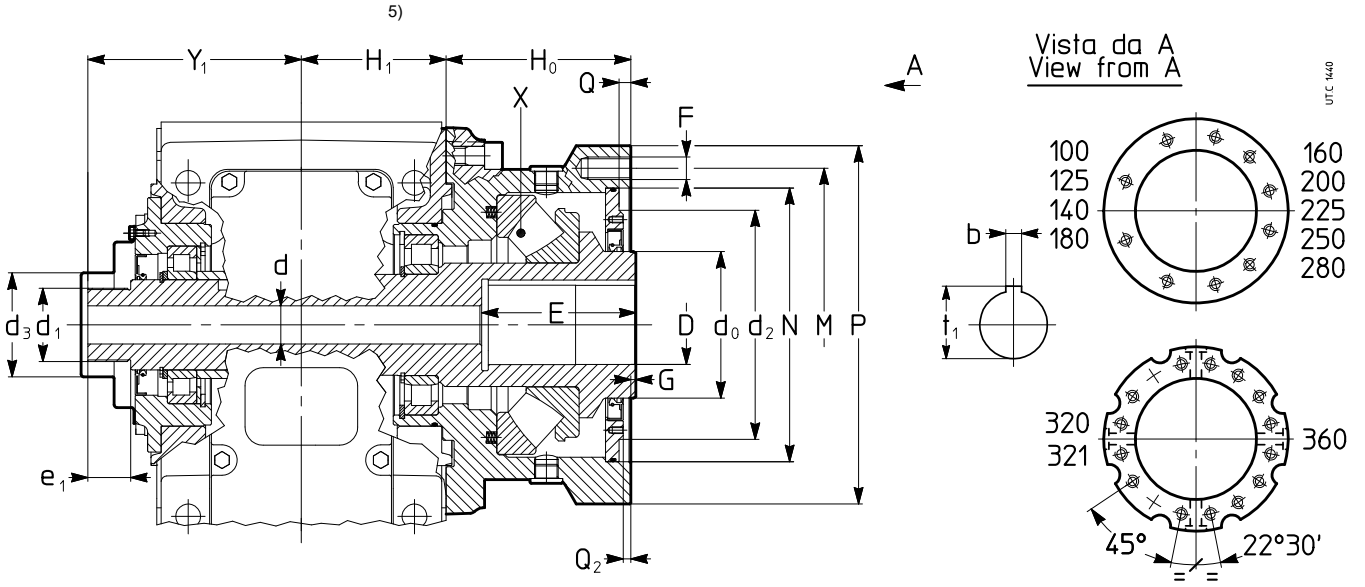
1) Other D×E values available on request: consult us.
2) Other flanges available on request: consult us.
3) Working length of thread 2 · F.
4) E dimension includes machining relief and is often higher than the shank length; when the screw shoulder must be on hole bottom – upon technical approval; consult us –, state it in full in the designation (see ch. 3 on GX catalog).
5) For H_1 dimension, see pag. 20 ... 22 on GX catalog.

Different type of thrust bearings (294 ...) could be available in addition to the a.m. stated ones. In case these could be requested, contact Rossi S.p.A.

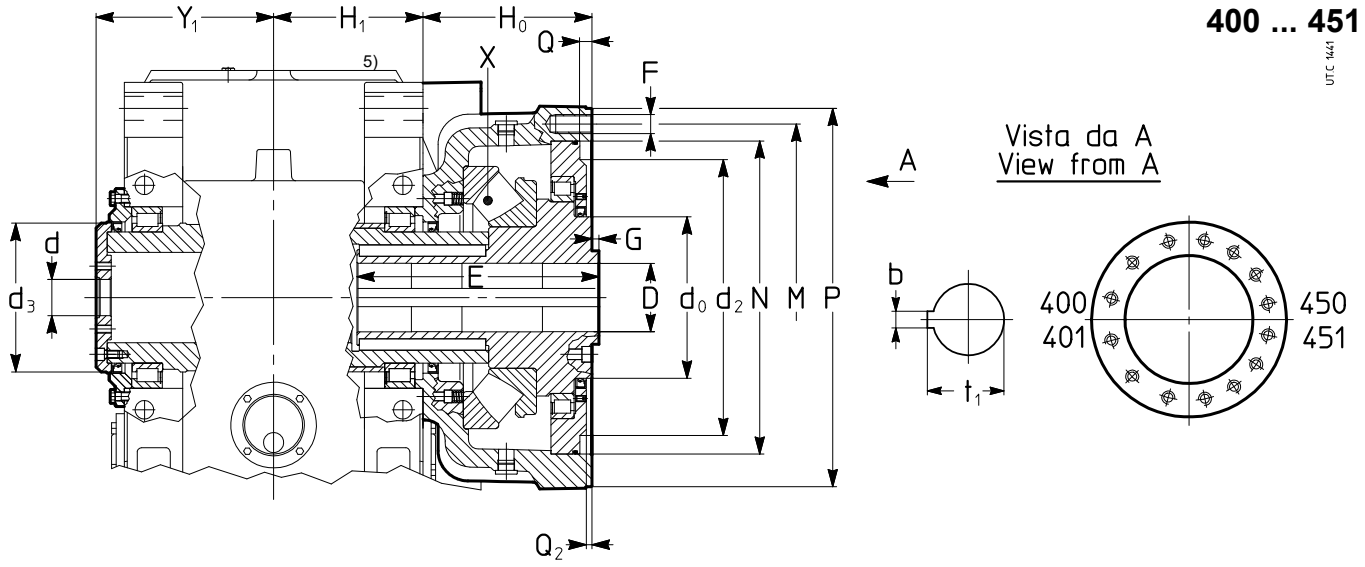
3.2

Extruder support H

100 ... 360



400 ... 451



Size	Bearing		D[1]	E[1) 4)]	b	d	d_0	d_1	d_2	d_3	e_1	F[2) 3)]	G	H_0	M[2)]	N[2)]	P[2)]	Q	Q_2	t_1	Y_1
	X	C	Ø			Ø	Ø	Ø	Ø	Ø					Ø	Ø	Ø	0 +0,5			
		kN	H7							≈						H7					≈
100	**294 12E**	345	30	78	8	18	95	M35 ×1,5	95	59	25	M12[8]	5	100	160	140	180	7	7	33,3	128
125	**294 16E**	575	40	103	12	27	110	M50 ×1,5	110	69	30	M14[8]	1	120	208	180,5	240	8	8	43,3	148
140	**294 18E**	702	50	118	14	34	120	M50 ×1,5	180	74	30	M16[8]	1	150	243	215	300	8	6,5	53,8	165
160	**294 20E**	863	60	133	18	34	120	M65 ×2	180	84	40	M16[12]	1	150	243	215	300	8	6,5	64,4	191
180	**294 22E**	1 010	70	133	20	34	130	M65 ×2	200	93	40	M20[8]	1	164	278	243	350	10	8,5	74,9	190
200	**294 26E**	1 380	80	158	22	43	160	M85 ×2	250	113	45	M20[12]	1	182	318	283	380	10	5,5	85,4	212
225	**294 30E**	1 610	90	158	25	43	200	M85 ×2	272	113	45	M24[12]	1	202	350	308	400	12	10,5	95,4	224
250	**294 34E**	2 020	100	188	28	43	200	M85 ×2	319	143	45	M24[12]	1,5	222	400	358	450	12	10,5	106,4	251
280	**294 38E**	2 480	110	188	28	43	240	M90 ×2	344	143	45	M30[12]	1,5	242	435	383	510	12	10,5	116,4	267
320, 321	**294 48E**	2 990	125	203	32	72	280	M120×2	361	173	45	M30[12]	1,5	277	535	483	595	12	8	132,4	306
360	**294 52E**	3 510	140	203	36	72	280	M120×2	361	173	45	M30[16]	1,5	277	535	483	595	12	8	148,4	325
4000, 4001	**294 56E**	4 310	135	393	36	72	320	–	563	295	–	M36[16]	2	335	680	620	750	16	11,5	143,4	352
4500, 4501	**294 64E**	4 950	145	393	36	72	360	–	563	315	–	M36[16]	2	335	680	620	750	16	11,5	153,4	352

Design **H**

See notes on previous page.

4

Technical features

Section contents

4.1

General

For all technical data, service factor, sound level, thermal power max input speed into gear reducers / gearmotors, performances of gear reducers / gearmotors at different input speed we kindly ask you to refer to what stated into G catalog. To select the most correct service factor, as stated into G catalog, we recall your attention towards this additional table with coefficient to be used according to requested output speed of gear reducers / gearmotors.

These values have to be multiplied by the service factor indicated in G catalog.

n_2 min^{-1}	
560 ÷ 355	1,25
355 ÷ 224	1,18
224 ÷ 140	1,12
140 ÷ 90	1,06
⩽ 90	1,00

4.2

Thermal index of extruder support

Being now the lubrication in common between gear reducer and extruder support for all frame sizes, except from 400 to 451, the thermal index check of extruder support is no more so important as before, but it is always recommended to carry it on. In case this check is not satisfied, we will apply a cooling device.

Should it occur, contact us in order to decide the most suitable cooling device.

For a proper selection it's necessary to evaluate both the extruder support and the gear reducer thermal power as stated below.

Extruder support

It is necessary to evaluate the thermal power of the extruder support verifying that the thermal index stated in the table satisfies the following condition:

$$\text{thermal index} \geqslant \frac{n_2^{1,12} \cdot F_{ad} \cdot (D + d)}{40\,000\,000}$$

where:

n_2 [min^{-1}] speed of low speed shaft;
D, d [mm] external and internal diameters of thrust bearing (see following table);
F_{ad} [N] axial dynamic force.

Thermal index

T amb. [°C]	design **N** size bearing **294...** D + d								design **H** size bearing **294...** D + d												
	140	**160**	**180**	**200**	**225**	**250**	**280**	**320, 321**	**100**	**125**	**140**	**160**	**180**	**200**	**225**	**250**	**280**	**320, 321**	**360**	**400, 401**	**450, 451**
	...17E	**...17E**	**...20E**	**...22E**	**...26E**	**...30E**	**...34E**	**...40E**	**...12E**	**...16E**	**...18E**	**...20E**	**...22E**	**...26E**	**...30E**	**...34E**	**...38E**	**...48E**	**...52E**	**...56E**	**...64E**
	265	*265*	*310*	*340*	*400*	*450*	*510*	*600*	*190*	*250*	*280*	*310*	*340*	*400*	*450*	*510*	*570*	*680*	*740*	*800*	*900*
10	300	300	400	500	630	950	950	1 500	150	236	355	355	450	560	710	950	1 060	1 500	1 500	2 120	2 120
20	**265**	**265**	**355**	**450**	**560**	**850**	**850**	**1 320**	**132**	**212**	**315**	**315**	**400**	**500**	**630**	**850**	**950**	**1 320**	**1 320**	**1 900**	**1 900**
30	236	236	315	400	500	750	750	1 180	118	190	280	280	355	450	560	750	850	1 180	1 180	1 700	1 700
40	200	200	265	335	425	630	630	1 000	100	160	236	236	300	375	475	630	710	1 000	1 000	1 400	1 400
50	160	160	212	265	335	500	500	800	80	125	190	190	236	300	375	500	560	800	800	1 120	1 120

Whenever the verification is not satisfactory use **water cooling**, **with coil** (consult us) or **independent cooling unit** with oil/water heat exchanger (see ch. 12).

On request, the product is supplied with the **calculation** of **thrust bearing life**, according to ISO 281, considering the load conditions (*F* axial dynamic, n_2) of Customer application.

4.3 Designs, dimensions, mounting positions, weights and oil quantities

Refer to G catalog, ch. 8, 10, 12 and 14.
Refer to H catalog, ch. 8 and 10 for sizes 4000 ... 4501.

4.4 Radial loads *Fr*1 [N] on high speed shaft end & gear reducer input face

Refer to G catalog, ch. 16.1.
Refer to H catalog, ch. 11.1.

4.5 Gearmotor input face

The gearmotor input face has a motor mounting flange (see in G catalog page 48 for maximum allowable bending moment values M_{bmax}) inlcuding bolts for standardized motor and a hollow high speed shaft provided for d ⩾ 38, with **axial cuts** and **hub clamp**.
The **keying system** with **key** and **hub clamp** ensures a high connection stability, easier installing and removal (absence of fretting corrosion), best alignment and compactness.

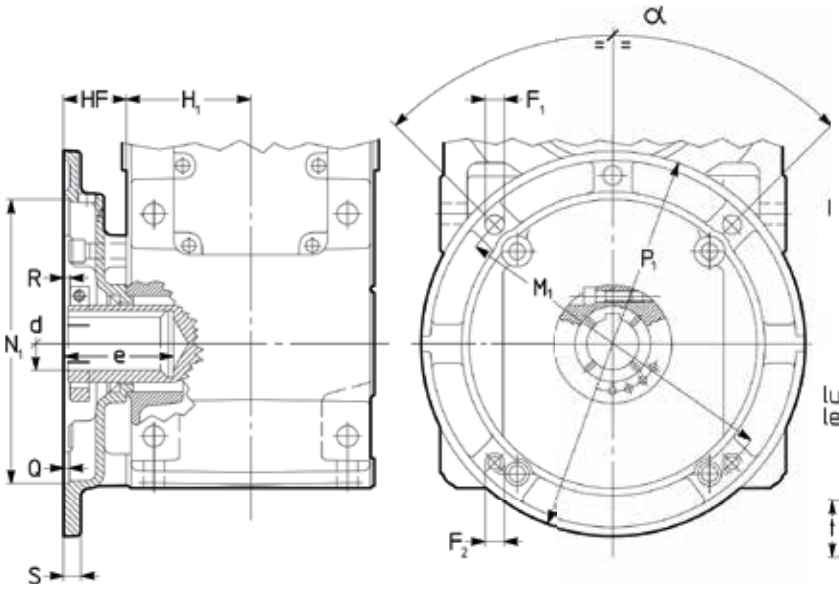
Hollow high speed shaft with keyway, hub clamp (dynamically balanced) and axial cuts.

Important: always verify that

$$M_b \leqslant M_{bmax}$$

where:
M_b = G · (X + HF) / 1000 [N m]
G [N] motor weight
X [mm] distance between motor centre of gravity and flange surface
HF [mm] given in the table

Refer to G catalog where M_b is already checked (see table on page 48).



Hole		Hub clamb		Parallel key					Keyway		
d[1] ∅	e	Screw 2)	M_S[3] N m	b	×	h	×	l*	b	t	t_1 ±0,1
24	53	–	–	8	×	7	×	40	8	4	27,3
28	63	–	–	8	×	7	×	50	8	4	31,3
38	83	M8	25	10	×	8[4]	×	70	10	5	40,2[6]
42	113	M12	143	12	×	8	×	90	12	5	45,3
48	113	M12	143	14	×	9	×	90	14	5,5	51,8
55	113	M12	143	16	×	10	×	90	16	6	59,3
60	143	M12	143	18	×	11	×	125	18	7	64,4
65	143	M12	143	18	×	11	×	125	18	7	69,4
75	143	M12	143	20	×	12[5]	×	125	20	7,5	79,9[7]
80	173	M14	135	22	×	14	×	125	22	9	85,4

* Recommended length.
1) Tolerance: G6 for d ⩽ 28, F6 for d ⩾ 38.
2) UNI 5931-84 class 8.8 (12.9 for M12).
3) Tightening torque.
4) 10×7×70 for sizes. 100, 125 and 140.
5) 20×11×125 for sizes. 200 and 225.
6) Value **not** to standard.
7) For sizes 200 and 225 dimension t_1 = 78,8 (value **not** standard).

Hole	Flange				Gear reducer size																																	
					100					125					140					160, 180					200, 225					250, 280[2]					320 ... 360[2]				
d[1] ∅	P_1 ∅	M_1 ∅	N_1 ∅ H7	Q	F_1 ∅	F_2 ∅	R	S	HF	F_1 ∅	F_2 ∅	R	S	HF	F_1 ∅	F_2 ∅	R	S	HF	F_1 ∅	F_2 ∅	R	S	HF	F_1 ∅	F_2 ∅	R	S	HF	F_1 ∅	F_2 ∅	R	S	HF	F_1 ∅	F_2 ∅	R	S	HF
24	200	165	130	4	11,5	M10	–	14	45																														
28	250	215	180	5	14	14	–	14	45	14	M12	–	16	55																									
38	250	215	180	5	14	14	15	16	65	14	M12	15	16	55	12	M12	14	16	55																				
	300	265	230	5	14	14	15	16	65	14	14	18,5	16	60,5	M12	M12	15	16	55																				
42	350	300	250	6						18	18	20	18	75	M16	18	20	18	75	M16	M16	20	18	75	M14	M14	10	18	67										
48	350	300	250	6						18	18	20	18	75	M16	18	20	18	75	M16	M16	20	18	75	M14	M14	10	18	67										
55	400	350	300	6																M16	18	8	18	65	M16	M16	8	18	67	M16	M16	6,5	18	65					
60	400	350	300	6																					M16	M16	34,5	20	97	M16	M16	32	20	95					
	450	400	350	6																18	18	35	20	95	18	18	35,5	20	97	18	18	34,5	20	95					
65	400	350	300	6																					M16	M16	22	20	97	M16	M16	22,5	20	95	M16	M16	17	20	85
	450	400	350	6																					18	18	26	20	97	18	18	23,5	20	95	M16	M16	17	20	85
	550	500	450	6																					18	18	22	22	97	18	18	23,5	22	95					
75	450	400	350	6																					18	18	26	20	97	18	18	23,5	20	95	M16	M16	17	20	85
	550	500	450	6																					18	18	22	22	97	18	18	23,5	22	95	18	18	23,5	22	95
80	660	600	550	7																										22	22	27	25	115	22	22	28	25	115

Note: α = 90 for P_1 ⩽ 400; α = 45 for P_1 ⩾ 450.
1) Tolerance: G6 for d ⩽ 28, F6 for d ⩾ 38.
2) For EN4U and EH4U consult us.

4.6

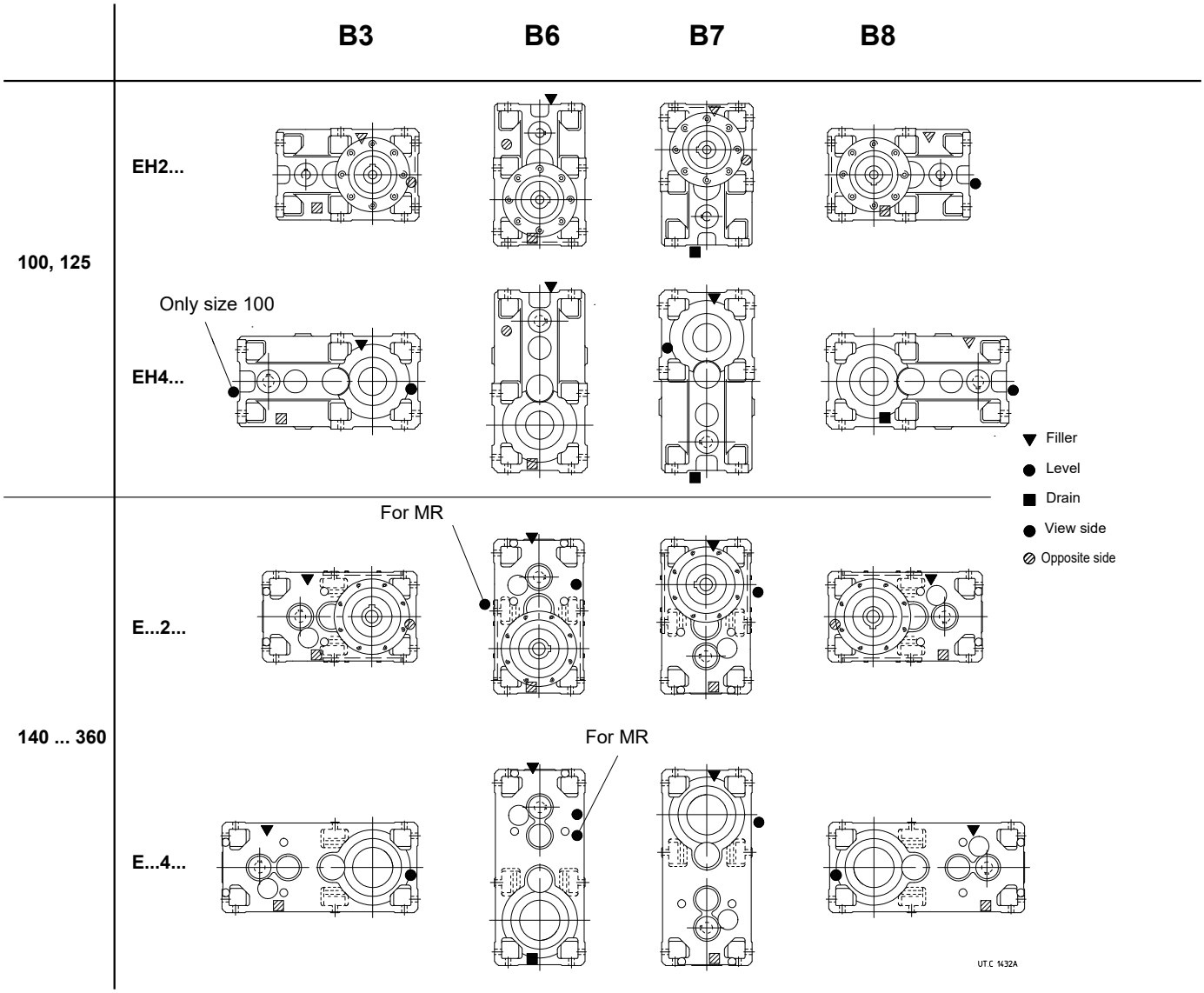
Lubrication

About plug positions and oil quantity, according to different mounting positions, see cat. G, ch. 8, 10, 12 and 14.
About frame sizes 4000 ... 4501, see cat. H, ch. 8 and 10.

For a complete motor options description see cat. TX motors of series HB.

Plug position and dimension

The scheme show plug types and positions for standard gear rreducers. For non-standard design, consult us.
For sizes. 4000 ... 4501, consult us.



Threaded holes	Size					
	100	125	140	160 ... 225	250 ... 280	320 ... 360
Gear reducer	1/2" G	1/2" G	1/2" G	3/4" G	3/4" G	1" G
Extruder support	M16×1,5	M16×1,5	1/2" G	1/2" G	3/4" G	3/4" G

4.8

Cooling systems

4.8.1 Water cooling by coil (sizes 125 ... 360)

Gear reducers and gearmotors sizes 125 ... 360, excluding ICI train of gears and mounting positions V... with groove side towards the bottom, can be supplied with copper alloy coil for water cooling.

On request, available also stainless steel coil (AISI 316) or cupro-nickel; consult us.

Cooling water specifications:

- be not too hard ⩽ 12 °F (French degrees) ;
- max temperature 20 °C;
- capacity 10 ÷ 20 dm^3/min;
- pressure 0,2 ÷ 0,4 MPa (2 ÷ 4 bar).

A smooth metallic pipe (with external diameter **d** stated on table) is sufficient for the connection.

The load loss in the coil, according to the water flow and pressure, is of 0,6 ÷ 0,8 bar for diameter Ø d16 and 0,8 ÷ 1 bar for diameter Ød 12.

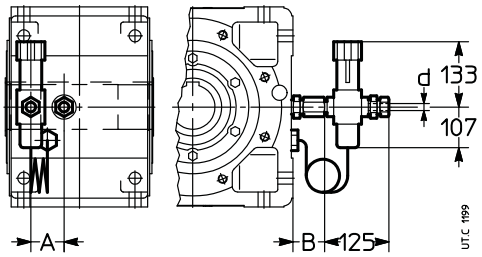
On request **thermostatic valve** which, automatically and without auxiliary supply need, permits water circulation when gear reducer oil reaches the set temperature; the valve sensor is equipped with immersion bulb. Mounting and setting, adjustable within 50 ÷ 90 °C, are Buyer's responsibility.

For ambient temperature lower than 0 °C consult us.

Supplementary description when ordering by **designation: water cooling by coil** or **water cooling by coil and thermostatic valve.**

Size	A	B	d	*M* [Nm]
125 ... 180	40	40	10	30
200 ... 280	50	40	12	30
320 ... 360	60	45	16	35

1) Values valid for B3 mounting position and U ... A design.
For other mounting positions and/or designs: consult us.



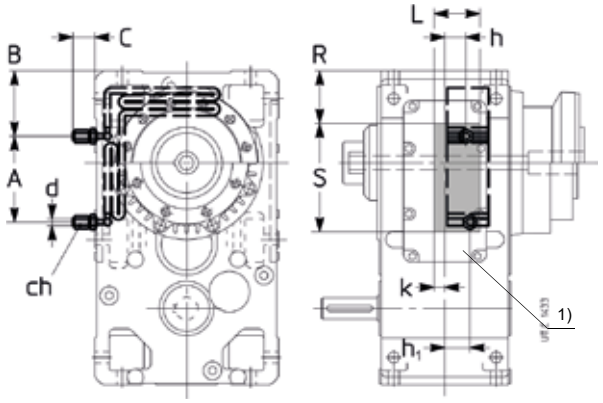
4.8.2 Water cooling

Gear reducers and gearmotors can be supplied with lubrication oil cooling by water.

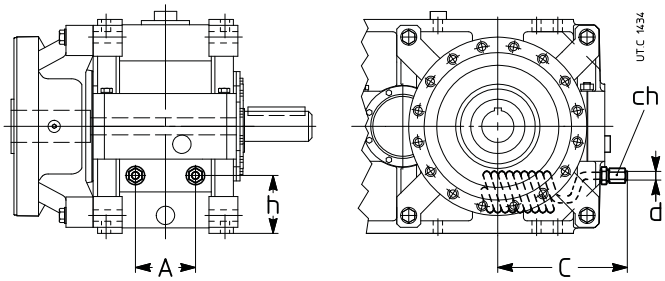
Sizes **140 … 360**: inner and **removable** aluminium finned heat exchanger (for easier maintenace operations) mounted onto the gear reducer inspection cover.

Sizes **4000 … 4501**: **fixed** copper coil mounted onto the gear reducer housing.

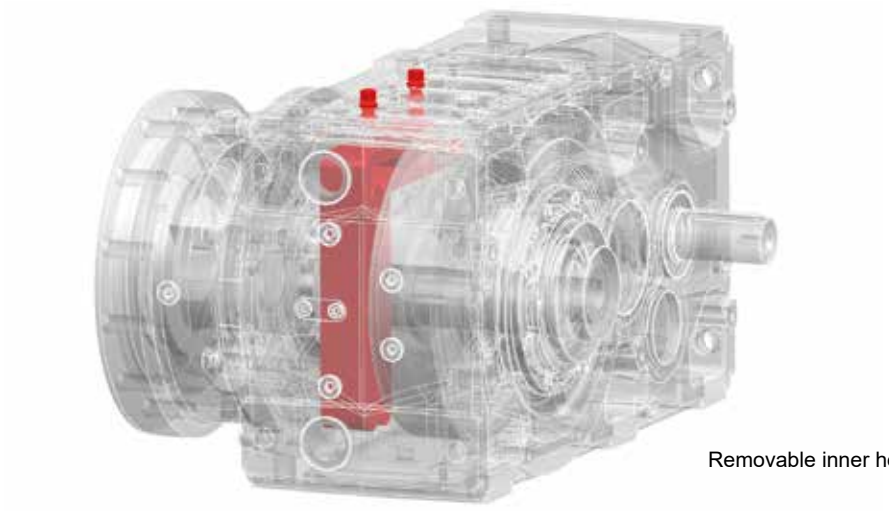
Inner heat exchanger mounted onto gear reducer inspection cover.



140 ... 360



4000 ... 4501

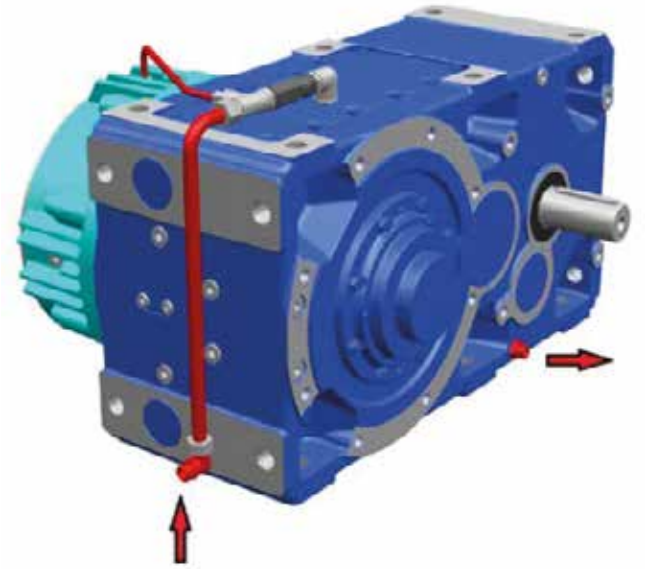


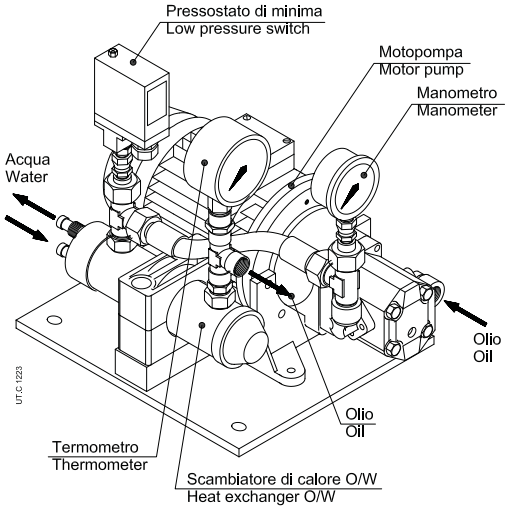
Removable inner heat exchanger

4.8.3 Independent cooling unit

An oil cooling system when coil cooling is not sufficient anymore (for thermal power verification see ch. 4).
Consisting of oil/water heat exchanger, motor pump, analogic manometer, low pressure switch and remote controller of oil temperature (composed by a Pt100 probe and by a 2 set point signalling device) allowing the pump to start.
Connections realised by a flexible pipes (type SAE 100 R1, maximum length 4 m) between gear reducer and cooling unit and the mounting of a 2 set point signalling device (separately supplied for the mounting on rail DIN EN 50022) are Buyer's responsibility.
On request, several accessories are at disposal (thermometers, flowswitches, filters, etc., separately supplied; assembly is at Buyer's responsibility) in order to satisfy all functionality and safety needs.

About thermal factors, refer to G catalog.

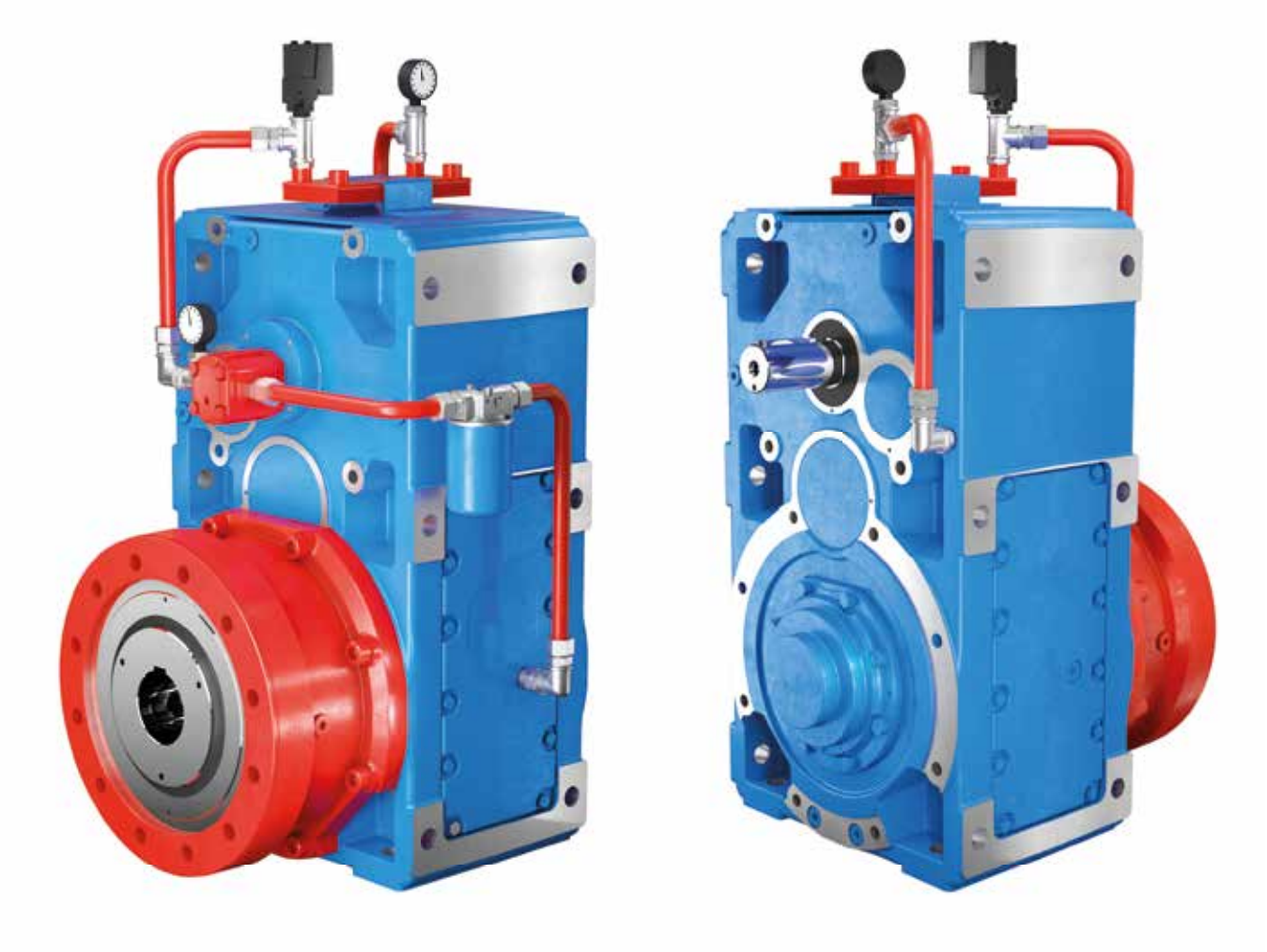




Extruder bearing with forced lubrication
by external cooling unit

4.9

Plate heat exchanger with driven pump

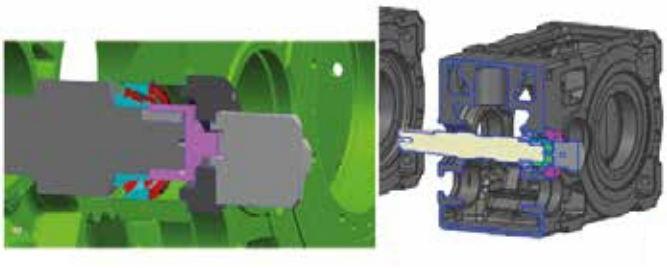


For all other available accessories, refer to G catalog.

The system made of:
- Oil/water heat exchanger with stainless steel plates, brazed plates vacuum with copper ally, heat exchanger installed on board reducer.
- Volumetric pump
- Thermometer, pressure gauge, pressure switch
- Oil temperature probe Pt100

Accessories on request:
- Bi-metal type thermostat
- Flow switch
- Filter

The driven pump shall be mounted in place of the backstop device.
It is not possible to mount the backstop device in the same time with the driven pump.
- The maximum operating pressure of the exchanger is 30 bar.
- The operating temperature of the heat exchanger is between 0 °C and + 125 °C.
- The maximum difference between the temperatures of the two fluids is 100 °C.
- Nominal water flow: 10 - 20 dm3/min
- Maximum water flow: 50 dm3/min



Outside water cooling by pump driven by gear reducer shaft and plate heat exchanger

When the machine on which it is installed is running at rated speed, it is necessary to check the exchanter's flow rate.
This can be done easily by controlling its thermal jump that should not be too low (too high flow rate), nor too high (low flow rate).
It is a good rule to consider a cooling water thermal jump of 10 °C when the inlet water temperature is 20 °C and a thermal jump of 5 °C with higher water temperatures.

Maximum water flow rate is 50 litres/min.
To obtain the maximum efficiency of the exchanger, the water flow must be counter-current with the oil flow.
Additional description when ordering by designation:
oil-water cooling unit UR O/W ..., possibly integrated, when required by the application, with description: "Forced lubrication ..." and the statement of bearings and/or gear pairs to be lubricated. For dimensions, accessories and further technical details, see specific literature.

For the heat exchanger power required by the independent cooling unit:

$$P_S \geqslant (P_1 - Pt_N \cdot ft_1 \cdot ft_2 \cdot ft_3 \cdot ft_4 \cdot ft_5) \cdot (1 - \eta) \cdot K_1$$

where:

P_S	nominal power of unit [kW], i.e. the power dissipable with hot oil at approx. 80 °C and cooling air at 40 °C (O/A) or cooling water at 20 °C (O/W) with stated capacity (see next table);
P_1	power at gear reducer input [kW] (consider the power installed when being uncertain about the power absorbed).
Pt_N	nominal thermal power of gear reducer [kW] (see ch. 4 of G and H cat.);
ft_1	thermal factor according to input speed (see ch. 4 of G and H cat.);
ft_2	thermal factor according to ambient temperature (see ch. 4 of G and H cat.);
ft_3	thermal factor according to mounting position (see ch. 4 of G and H cat.);
ft_4	thermal factor according to altitude (see ch. 4); for UR O/A derate also the exchanger power: multiply P_S by 0,85 (for 1 000 ÷ 2 500 m a.s.l.) or by 0,71 (for 2 500 ÷ 5 000 m a.s.l.);
ft_5	thermal factor according to air speed on the housing (see ch. 4 of G and H cat.);
η	gear reducer efficiency (see ch. 6 of G and H cat.);

K_1 = 1,18 takes into account the decrease of the exchanger efficiency due to dirt on the external surface.

Technical data					
		Ps [kW]	n [min^{-1}]	Pump Flow rate [dm^3/min]	Exchanger
UR O/W P	**BA WA**	5	1000	10	M18-10
		7	1200	13	
		8	1500	16	
		10	1800	19	
		7	1000	14	
		9	1200	17	
		11	1500	21	
		14	1800	25	
		22	1000	16	M18-10
		27	1200	18	
		34	1500	21	
		41	1800	24	
	BI	7	1000	14	M18-10
		9	1200	17	
		11	1500	21	
		14	1800	25	
		8	1000	16	
		10	1200	19	
		13	1500	24	
		15	1800	28	
		13	1000	16	M18-20
		14	1200	19	
		16	1500	24	
		19	1800	28	

For all other available accessories, refer to G catalog.

At nominal speed, the pump flow rate in dm^3/min must always be less than 1,2 times the amount of oil in the gear reducer:
pump flow rate [dm^3/min] $\leqslant$ **1,2 × quantity of oil in gear reducer** [dm^3]

Pump directions of rotation

BA black arrow direction of rotation
WA white arrow direction of rotation
BI bidirectional direction of rotation

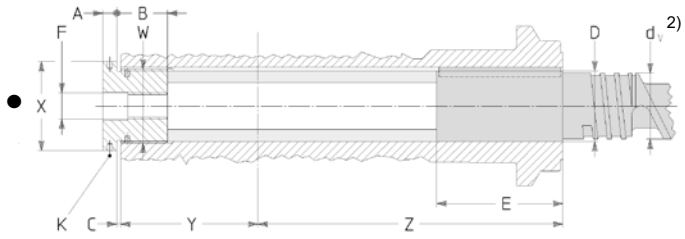
4.10

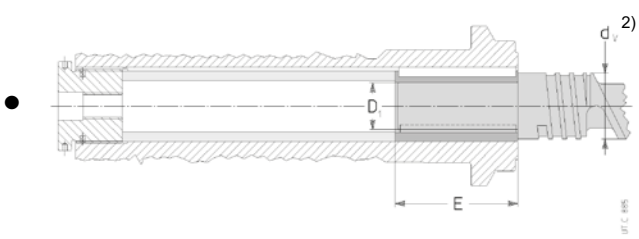
Rear extraction of extruder shaft

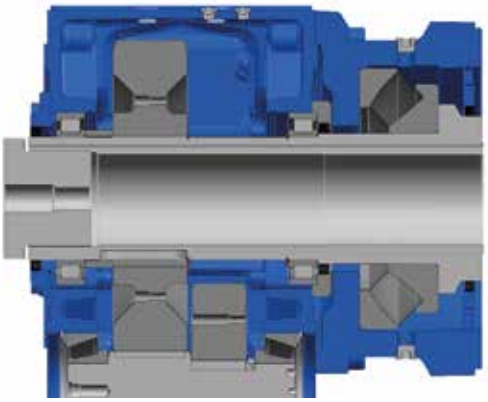
Note that this particular kind of extraction is only possible with the H extruder support and with this particular design the lubrication between gear reducer and extruder support will be separated and no more in common. For that it becomes very important to check the thermal capacity of extruder support.

Refer to table related to thermal index.

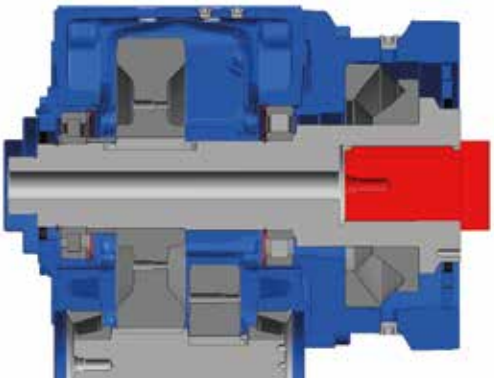
Design HA: fitting extruder screw using key







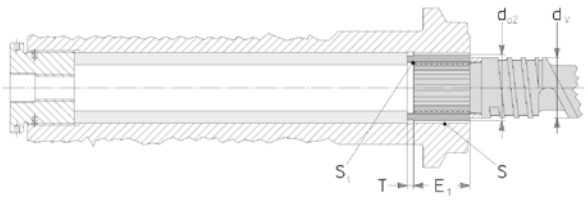
HA design: screw (with keyway) extraction on the opposite side to extruder



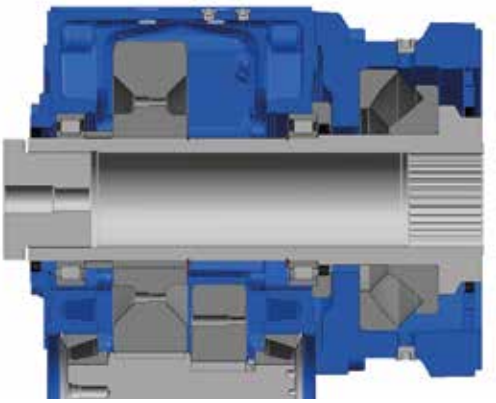
Screw shoulder on front face

2)

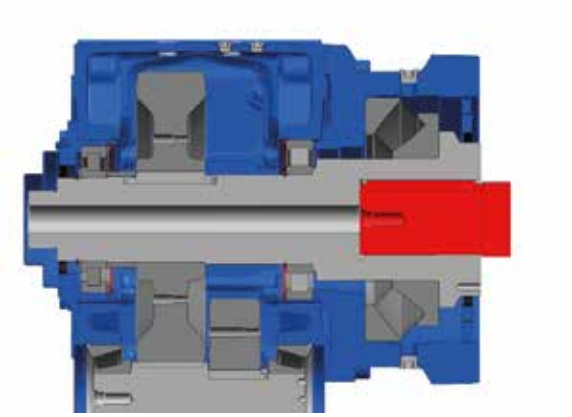
Design HB: fitting extruder screw using spline profile



• Reference groove side (see cat. G).



HB design: screw (spline) extraction on the opposite side to extruder



Ground bottom for screw support

Gear reducer size	Threaded bush							Hollow shaft/extruder screw spigot											
	A	**B**	**C**	**F**	**K**[1] ∅	**X**	**W** ∅	**D**[2] ∅ max H7	**E** max	**D_1** ∅ max H7	**E_1**	**Y**	**L**	**L_1** max	**S** max DIN 5480	**d_{a2}**[2] ∅	**S_1**[3] max DIN 5480	**T**	**V_1** H7	**Z**
125	15	38	3	M 24 × 2	6 × 8	68	M 55 × 1,5	52	105	35	40	110	253,5	13	50 × 2	46	35 × 2	6	52	224,5
140	15	42	3	M 24 × 2	6 × 8	78	M 62 × 1,5	60	105	40	48	125	285,5	15	60 × 2	52	40 × 2	6	60	254,5
160	18	48	3	M 24 × 2	6 × 8	88	M 70 × 1,5	67	130	45	52	136	312,5	17	65 × 3	59	45 × 2	6	67	279,5
180	18	53	3	M 24 × 2	6 × 8	100	M 80 × 1,5	75	130	52	60	150	327,5	19	75 × 3	69	55 × 2	6	75	293,5
200	24	64	4	M 36 × 3	8 × 11	118	M 95 × 2	90	150	63	72	167	368	22	90 × 3	84	65 × 3	8	90	341
225	24	74	4	M 36 × 3	8 × 11	140	M 110 × 2	105	180	75	85	180	378	26	105 × 4	97	75 × 3	8	105	361
250	24	86	6	M 36 × 3	8 × 11	155	M 125 × 3	120	210	85	95	206	438,5	30	120 × 4	112	90 × 3	11	120	418,5
280	30	96	6	M 36 × 3	10 × 14	175	M 140 × 3	135	230	95	108	222	451,5	34	135 × 4	127	100 × 3	11	135	438,5
320, 321	30	108	8	M 56 × 4	10 × 14	190	M 155 × 4	150	260	110	120	254	540	38	150 × 5	140	110 × 4	13,5	150	519,5
360	30	126	8	M 56 × 4	10 × 14	225	M 185 × 4	170	300	125	150	273	511	45	180 × 5	170	135 × 5	13,5	180	519,5

1) N. 4 holes for sizes. 125 ... 250, n. 6 holes for sizes. 280 ... 360.
2) d_v dimensions must not be higher than (0,94 ÷ 0,97) · D or (0,94 ÷ 0,97) · d_{2a}.
* Grey objects are on Buyer's care.

Frame size	With Technical System units	With SI units
starting or stopping **time** as a function of an acceleration or deceleration, of a starting or braking torque	$t = \frac{v}{a}$ [s] $t = \frac{Gd^2 \cdot n}{375 \cdot M}$ [s]	$t = \frac{J \cdot \omega}{M}$ [s]
velocity in rotary motion	$v = \frac{\pi \cdot d \cdot n}{60} = \frac{d \cdot n}{19{,}1}$ [m/s]	$v = \omega \cdot r$ [m/s]
angular velocity	$n = \frac{60 \cdot v}{\pi \cdot d} = \frac{19{,}1 \cdot v}{d}$ [min^{-1}]	$\omega = \frac{v}{r}$ [rad/s]
acceleration or deceleration as a function of starting or stopping time	$a = \frac{v}{t}$ [m/s^2]	
angular **acceleration** or **deceleration** as a function of a starting or stopping time, of a starting or braking torque	$\alpha = \frac{n}{9{,}55 \cdot t}$ [rad/s^2] $\alpha = \frac{39{,}2 \cdot M}{Gd^2}$ [rad/s^2]	$\alpha = \frac{\omega}{t}$ [rad/s^2] $\alpha = \frac{M}{J}$ [rad/s^2]
starting or stopping distance as a function of an **acceleration** or deceleration, of a final or initial velocity	$s = \frac{a \cdot t^2}{2}$ [m] $s = \frac{v \cdot t}{2}$ [m] $w = \frac{\alpha \cdot t^2}{2}$ [rad]	
starting or stopping **angle** as a function of an angular acceleration or deceleration, of a final or initial angular velocity	$\varphi = \frac{n \cdot t}{19{,}1}$ [rad]	$\varphi = \frac{\omega \cdot t}{2}$ [rad]
mass	$m = \frac{G}{g}$ $[\frac{\text{kgf s}^2}{\text{m}}]$	m è l'unità di massa [kg]
weight (weight force)	G è l'unità di peso (forza peso) [kgf]	$G = m \cdot g$ [N]
force in vertical (lifting), horizontal, inclined motion of translation (μ = coefficient of friction; φ = angle of inclination)	$F = G$ [kgf] $F = \mu \cdot G$ [kgf] $F = G\,(\mu \cdot \cos\varphi + \text{sen}\,\varphi)$ [kgf]	$F = m \cdot g$ [N] $F = \mu \cdot m \cdot g$ [N] $F = m \cdot g\,(\mu \cdot \cos\varphi + \text{sen}\,\varphi)$ [N]
dynamic moment Gd², moment of inertia J due to a motion of translation (numerically $J = \frac{Gd^2}{4}$)	$Gd^2 = \frac{365 \cdot G \cdot v^2}{n^2}$ [kgf m^2]	$J = \frac{m \cdot v^2}{\omega^2}$ [kg m^2]
torque as a function of a force, of a dynamic moment or of a moment of inertia, of a power	$M = \frac{F \cdot d}{2}$ [kgf m] $M = \frac{Gd^2 \cdot n}{375 \cdot t}$ [kgf m] $M = \frac{716 \cdot P}{n}$ [kgf m]	$M = F \cdot r$ [N m] $M = \frac{J \cdot \omega}{t}$ [N m] $M = \frac{P}{\omega}$ [N m]
work, energy in motion of translation, in rotary motion	$W = \frac{G \cdot v^2}{19{,}6}$ [kgf m] $W = \frac{Gd^2 \cdot n^2}{7160}$ [kgf m]	$W = \frac{m \cdot v^2}{2}$ [J] $W = \frac{J \cdot \omega^2}{2}$ [J]
power in motion of translation, in rotary motion	$P = \frac{F \cdot v}{75}$ [CV] $P = \frac{M \cdot n}{716}$ [CV]	$P = F \cdot v$ [W] $P = M \cdot \omega$ [W]
power available at the shaft of a single-phase motor ($\cos\varphi$ = power factor)	$P = \frac{U \cdot I \cdot \eta \cdot \cos\varphi}{736}$ [CV]	$P = U \cdot I \cdot \eta \cdot \cos\varphi$ [W]
power available at the shaft of a three-phase motor	$P = \frac{U \cdot I \cdot \eta \cdot \cos\varphi}{425}$ [CV]	$P = 1{,}73 \cdot U \cdot I \cdot \eta \cdot \cos\varphi$ [W]

Note. Acceleration or deceleration are understood constant; motion of translation and rotary motion are understood rectilinear and circular respectively.

4.12

Gear selection form

Date	Agent
Customer name	
Customer reference	
Annual purchased quantity	

SCREW

Screw diameter DS [mm]				
Working pressure [bar]				
Shank (include drawing if unusual)	Cylindrical (standard)	diameter [mm] :		
	Splined			
Shank length E [mm]				
Contact area type (see attached drawing)	OPTION A		OPTION B	

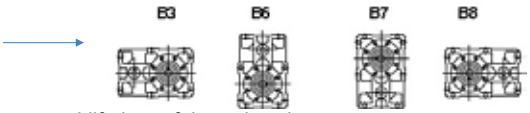
MOTOR

Nominal power kW]
Nominal speed [min-1]
Ambient Temperature [°C]
Max speed (constant power) [min-1]
Motor position (support side “U” / opposite side “Z”)

CONNECTION WITH GEARBOX

Coupling	(no other information required)	
gearmotor (data required also for bell housing & coupling)	Shaft diameter [mm]	
	Shaft length [mm]	
	Flange diameter [mm]	
	Weight [kg]	
	Total length (without shaft) [mm]	
Belts & pulleys	belts type and number	
	motor pulley diameter [mm]	
	gear reducer pulley diameter [mm]	

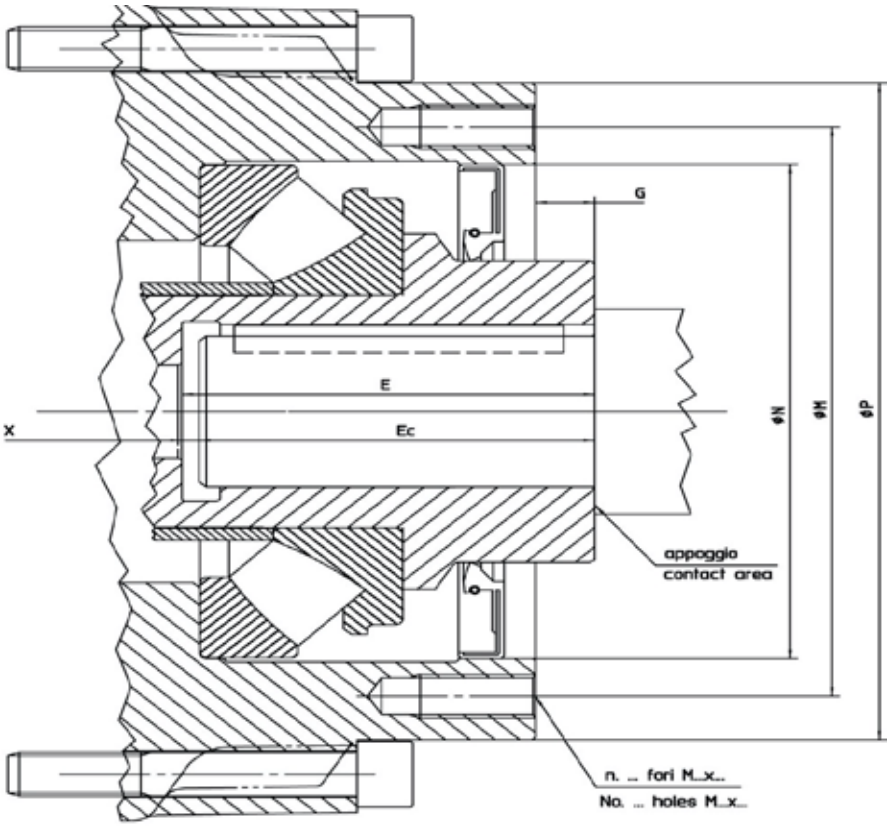
GEAR REDUCER

Helical		Bevel helical	
Transmission ratio			
Mounting position			
Requested Torque by the application [Nm]			
Lh = ….. [h]		Requested lifetime of thrust bearing	
Direction		Sense of rotation, clockwise - counter clockwise - or both	
Direction		Direction of axial force, against the gear reducer or pulling	

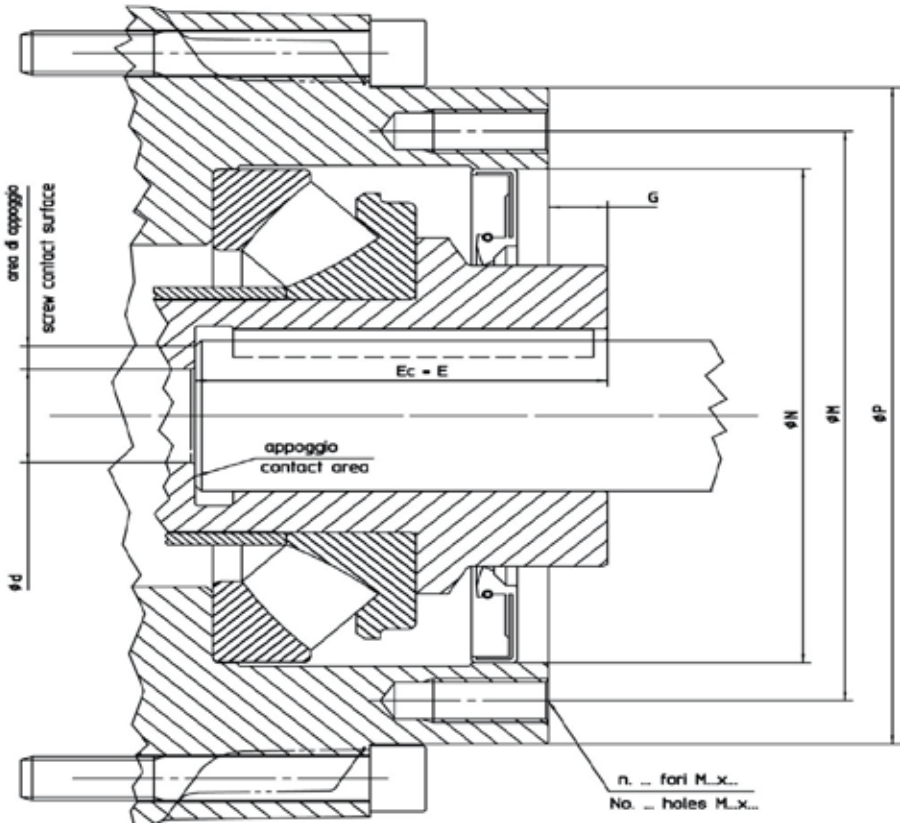
NON-STANDARD FEATURES (please provide us with a drawing)

Extruder support flange (see attached drawing)	P=	M=	N=	G=
Fixing threaded holes	No.	M….x…..		
Screw extraction design				
Others				

OPTION A



OPTION B



Notes

Notes

Notes



Rossi
Solutions for an evolving industry

HEADQUARTERS

Rossi S.p.A.
Via Emilia Ovest 915/A
41123 Modena - Italy

info@rossi.com
www.rossi.com

2632.BRO.EXT-21.09-0-EN