

EP WINCH series



**Operating instructions
EP Winch drives**

rossi.com

Important note.

The images in the catalog are for illustrative purposes only and may include elements of the winch designed by the customer, where necessary. These elements do not constitute design constraints, nor do they imply liability on the part of Rossi. The system designer is entirely responsible for the design of the winch, including compliance with applicable technical standards.

Index

1	General information	5
2	Conditions and limits of use	9
3	Supply status	10
4	Lifting, handling and storage	12
5	Installation	14
6	Universal flange adapter	18
7	Motor mounting or replacement	19
8	Oil quantities	21
9	Lubrication	24
10	Input, options and cooling systems	26
11	Commissioning and maintenance	34

This document provides information about handling, installation and maintenance of planetary gear reducers and gearmotors (EP Winch series).

All the people involved in these activities will carefully read and follow all present instructions.

Information and data contained in this document correspond to the technical level reached at the moment the catalog is printed. Rossi reserves the right to introduce, without notice, the necessary changes to improve efficiency and safety of its products.

Decommissioning, Disposal and Recycling

Before decommissioning any gear reducer or gearmotor, it must be made inactive by disconnecting any electrical contacts and emptying it from lubricant, keeping in mind that waste oil has a strong environmental impact and therefore should not be dispersed into soil or surface water.



Decommissioning must be carried out by trained and experienced operators, in compliance with applicable occupational health, safety and environmental protection laws.

All gear reducer or gearmotor parts must be disposed of at authorized collection sites for waste treatment, recycling and disposal, according to the regulations in force in the country where the disposal will take place.

Component	Material
Cylindrical gears and internal (planetary gears) toothing Shafts Roller bearings Keys	Case hardened or through hardened steel
Fan covers	Steel sheets
Fans	Aluminum or technopolymers
Gear reducer housings, covers, flanges Planet carrier	Gray or spheroidal cast iron Carbon steel
Seal rings O-ring	Elastomers and steel
Couplings	Elastomers and steel
Lubricants	EP additive mineral oil Synthetic PAG-based oil (factory supply) Synthetic PAO-based oil Synthetic grease for bearings, gears and seals
Cooling coil	Copper or aluminum
Forced lubrication circuit: pipes and fittings	Steel or copper

Motor component	Material
Housing - Endshields - Flanges	Aluminum or cast iron
Stator	Steel and copper
Rotor	Steel and aluminum
Roller bearings	Steel
Seal rings	Elastomer and steel
Brake	Steel, copper, plastics, elastomers

Disposal of packaging material

The materials that compose the packaging should be disposed of at authorized collection centers, giving preference to separate collection and recycling, according to the legal provisions in force in the country where the disposal will take place; reference should also be made to the information contained on the environmental labeling, if any, on the packaging or available on digital channels (e.g.: APPs, QR codes, websites);


Type of packaging	Material
Wooden cases, pallets, beams, ...	Wooden packaging
Cardboard packaging and boxes, cardboard and corrugated paper sheets, curled paper, ...	Paper and cardboard packaging
Plastic packaging, barrier sacks, bubble wraps, performed ...	Plastic packaging

For information on the proper disposal of the gearbox or gearmotor, its components and packing material, or on the nearest authorized collection centers for treatment, recycling and disposal, contact your local Rossi subsidiary.

Safety

The paragraphs marked with symbols shown below contain dispositions to be strictly respected in order to assure personal **safety** and to avoid any heavy **damages** to the machine or to the system.

(Electric or mechanical) danger, such as:

- live parts;
- temperature higher than 50 °C;
-  - components rotating during operation;
- suspended loads (lifting and transport);
- eventual high sound level (> 85 dB(A)).

Lifting instructions

IMPORTANT: gear reducers and gearmotors supplied by Rossi are **partly completed machinery** to be incorporated into machinery and **should not be commissioned before the machinery in which the components have been incorporated conforms to:**

- **Machinery directive 2006/42/EC and subsequent updatings; in particular, possible safety guards for shaft ends not being used for eventually accessible fan cover passages (or other) are the Buyer's responsibility;**
- **«Electromagnetic compatibility (EMC)» 2004/108/EC and subsequent updatings.**



Attention! It is recommended to pay attention to all instructions of present handbook, all standards concerning correct installation and all existing safety laws. Whenever personal injury or property damage may occur, foresee adequate supplementary protection devices against:

- **release or breakage of fastening screws;**

If deviations from normal operation occur (temperature increase, unusual noise, etc.) immediately switch off the machine.

Installation

An incorrect installation, an improper use, the removing or disconnection of protection devices, the lack of inspections and maintenance, improper connections may cause severe personal injury or property damage. Therefore the component must be moved, installed, commissioned, handled, controlled, serviced and repaired **exclusively by responsible qualified personnel**. The qualified personnel must be **specifically instructed** and have the experience necessary to **recognize** and prevent **dangers** (see table page 8 - Residual risks) connected to present products avoiding all possible emergencies.

Gear reducers and gearmotors of present handbook are normally suitable for installations in **industrial areas**: additional protection measures, if necessary, must be adopted and assured by the personnel responsible for the installation.

Attention! Components in non-standard design or with special executions or with constructive variations may differ in the details from the ones described here following and may require additional information.



Attention! For the installation, use and maintenance of the **electric motor** (standard, brake of non-standard motor) or of the eventual motor variator and/or electric supply device (frequency converter, soft-start etc.), and/or optional electric devices (e.g.: independent cooling unit, etc.), consult the attached specific documentation. If necessary, require it.

Maintenance

When operating on gear reducer or on components connected to it the **machine** must be **at rest and cold**: disconnect motor (including auxiliary equipments) from power supply, gear reducer from load, be sure that safety systems are on against any accidental starting and, if necessary, pre-arrange mechanical locking devices (to be removed before commissioning).



Attention! During the running the gear reducers could have **hot surfaces**; always wait that the gear reducer or the gearmotor to cool before carrying out any operations.

Please download further technical documentation (e.g.: catalogs) from our website www.rossi.com or contact Rossi. For any clarification and/or additional information consult Rossi and specify all name plate data.

Do not reuse parts or components that have been replaced as a result of maintenance or repair work but which may nevertheless appear to still be intact and fit for use; this could result in a serious loss of product functionality and safety.

Residual risks

The products supplied by Rossi S.p.A. have been designed and manufactured according to the essential health and safety requirements provided for by the Machine Directive 2006/42/EC - Annex I.

The following table lists the residual risks that the user must deal with in compliance with the instructions contained in this document and in those eventually attached to the shipment.

Nature/Cause of Risk	Countermeasures
Installation and maintenance operations	<p>The component must be handled, installed, commissioned, operated, inspected, maintained, and repaired only by qualified, responsible personnel who must carefully read and strictly follow all instructions in this document, including any instructions enclosed with the shipment. They shall also be specifically instructed and have the necessary experience to recognize the hazards and potential hazards (electrical or mechanical) associated with these products, such as, but not limited to:</p> <ul style="list-style-type: none"> - presence of electrical voltage; - presence of temperature higher than 50 °C; - presence of moving parts during operation; - presence of suspended loads; - presence of possible high sound level (> 85 dB (A)). <p>It must be equipped with appropriate personal protective equipment (PPE) and be familiar with and comply with all applicable regulations regarding proper installation and current safety laws in order to ensure the safety of persons and avoid significant damage to the machine or system.</p>
Falling or projecting objects	<p>For gearboxes fitted with a coupling (high and/or low speed shaft), provide protection against the projection of objects resulting from breakage of the coupling itself.</p>
Movable elements	<p>Provide safety guards for unused shaft ends and accessible fan cover passages (or other).</p> <p>Any work on the gearbox or gearmotor must be carried out with the machine stopped and disconnected from the power supply and the gearbox or gearmotor cooled down.</p>
Extreme Temperatures	<p>During the operation, the gearboxes may have hot surfaces (> 50 °C); before starting any operation, always wait for the gearbox or gearmotor to cool down (wait about 1 to 3 hours depending on the size); if necessary, carry out a temperature measurement on the surface of the gearbox or gearmotor near the high speed shaft. The same applies to the hydraulic coupling, if present.</p> <p>After a period of operation, the gearbox is subjected to a slight internal overpressure that can result in the leakage of burning fluid.</p> <p>Therefore, before loosening the caps (of any kind) wait for the gearbox to cool down; otherwise, use appropriate protection (PPE) against burns resulting from accidental contact with hot oil.</p> <p>In any case, always proceed with the utmost caution.</p>
Noise	<p>Depending on the size, gear ratio, gearbox, type of service, and mounting system of the gearbox or gearmotor, the noise emission level may exceed 85 dB(A). Perform field measurements and, if necessary, equip the personnel concerned with appropriate personal protective equipment (PPE).</p>
Changes that may affect the safety of the equipment	<p>Do not make any structural modification to the products supplied by Rossi (gear reducers, gearmotors, control group, etc.) without prior approval by Rossi S.p.A.</p>
Use of substitute components with characteristics not suitable for the application	<p>Spare parts must be those authorized by Rossi S.p.A.</p>

Gear reducers are suitable to operate at ambient temperature 0 °C ÷ +40 °C (with peaks -20 °C ÷ +50 °C), with standard seal rings and components.

The operation outside this range, with a minimum of -40 °C and a maximum of +60 °C, must be evaluated in relation to the specific operating conditions, duty cycle, type of lubricant, type of seals and cooling/heating system (where possible); please contact Rossi S.p.A.

Allowed operational and storage ambient temperature in relation to lubricant type ¹⁾		Synthetic Lubricant	Mineral Lubricant
Ambient Temperature T_{amb}	Running conditions		
	Minimum ambient temperature	-20 °C	-10 °C
	Maximum ambient temperature	+50 °C	+40 °C
	Storage condition		
	Minimum ambient temperature of storage condition	-10 °C	-10 °C
	Maximum environment temperature of storage condition	+50 °C	+50 °C
Oil Temperature T_{oil}	Minimum oil temperature for partial load starting condition ²⁾	-20 °C	-10 °C
	Minimum oil temperature for full load starting condition	-10 °C	-5 °C
	Maximum nominal stabilized oil temperature allowed in continuous running condition (S1)	+95 °C	+95 °C ³⁾
	Maximum peak and occasional oil temperature allowed with intermittent duty only	+110 °C	+110 °C

1) For selection of lubricant and optimal viscosity according to temperature T_{amb} and in case of independent lubrication unit, refer to ch. 9 (Lubrication).

For starts and services with $T_{oil} < 0$ °C, consider higher absorption on the electric motor according to the type of lubricant.

2) If full load service is required, provide gradual starting and stopping ramps, avoiding overloads and shocks.

3) For temperature value of $T_{oil} > 75$ °C and < 95 °C it is recommended to use oils with at least viscosity grade 30 cSt at 95 °C.

How supplied

Name plate

Every gear reducer is provided with a name plate in anodized aluminium containing main information necessary for a correct identification of the product; the name plate must not be removed and must be kept integral and readable. All name plate data must be specified on eventual spare part orders.

Assembled by Rossi Italy

Labels for the nameplate fields:

- Gear reducer size
- Ratio
- Product code
- Serial number
- QR code
- Mass
- Drum side interface
- Input
- Mounting position
- Repairing number
- Date

Assembled by subsidiaries

Labels for the nameplate fields:

- Gear reducer size
- Ratio
- Product code
- Serial number
- Mass
- Drum side interface
- Input
- Mounting position
- Repairing number
- Date

Nameplate of PB parking brake

Every brake is provided with a name plate in anodized aluminium containing main information necessary for a correct identification of the product; the name plate must not be removed and must be kept integral and readable. All name plate data must be specified on eventual spare part orders.

Labels for the nameplate fields:

- Brake size
- Product code
- Serial number
- QR code
- Mass
- Static braking torque
- Release pressure
- Max. release pressure
- Date

Standard painting

Internal painting	External painting		Notes
	Final color Blue RAL 5010	Features	
Single-compound ester epoxy or phenolic resin basis primer (preainted)	Single-compound ester epoxy or phenolic resin basis primer (preainted) + Two component water borne acrylic polyurethane finish	Resistant to atmospheric and aggressive agents <small>(atmospheric corrosivity category C3 L according to ISO 12944-1 and ISO 12944-2).</small>	The internal painting does not resist polyglycol synthetic oils (polyalphaolefines synthetic oils are suitable). Remove by a scraper or solvent the possible paint of gear reducer coupling surfaces

Protections and packing

Overhanging free shaft ends are treated with protective anti-rust long life oil.

All internal parts are protected with protective anti-rust oil. Unless otherwise agreed in the order, products are adequately packed: on pallet, protected with a polyethylene film, wound with adhesive tape and strap (bigger sizes); in carton pallet, wound with adhesive tape and strap (smaller sizes); in carton boxes wound with tape (for small dimensions and quantities).

If necessary, gear reducers are conveniently separated by means of anti-shock foam cells or of filling cardboard.

Generally the packing is suitable for the normal road/rail transport. For sea transport it is necessary to foresee a special packing, when ordering.

Before handling or transporting the gear reducers, be sure that the packing is in good conditions and suitable for the transport. Do not stock packed products on top of each other.

Lifting and handling operations must be carried out by qualified and specifically trained personnel and in compliance with safety regulations.

Receipt

Upon receipt verify that the unit corresponds to the one ordered and has not been damaged during the transport.

In case of damages, report them immediately to the courier.

Avoid commissioning gear reducers, that are even slightly damaged. Report any non-compliance to Rossi.

Lifting and handling

First make sure that the lifting equipment (e.g. crane, hook, eye bolt, straps etc.) is suitable for the weight and size of the gear reducer (the weight of the product are given in the name plate). When lifting, use only the attachment point marked in the following figures.

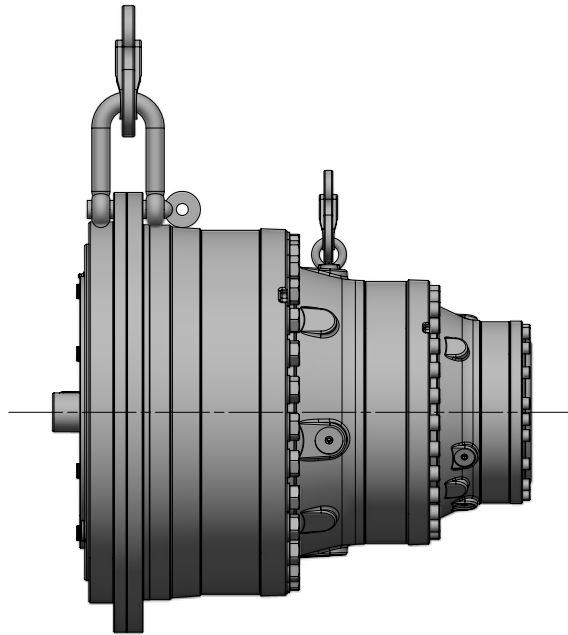
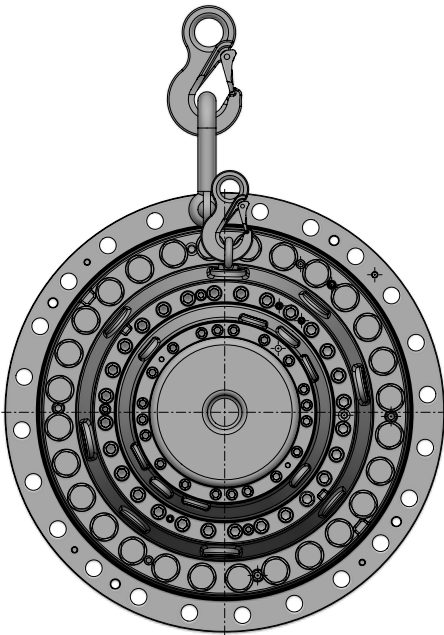
Pay attention to avoid lifting (max 15° during handling) and, if necessary, use additional straps only to balance the load.

Do not use front threads at the input shaft ends to lift the gear reducers.



Warning!

- Suspended load can fall
- Do not stand under the load
- Improper transport may result in damage to the gear reducer



Storage

Environment should be sufficiently clean, dry and free from excessive vibrations ($v_{\text{eff}} \leq 0,2 \text{ mm/s}$) to avoid damage to bearings (excessive vibration should also be guarded during transit, even if within wider range) and ambient storage temperature should be $0 \div +40 \text{ °C}$; peaks of 10 °C above and below are acceptable (see also operation condition ch. 2).

The gear reducer filled with oil must be positioned according to the mounting position mentioned on the name plate.

Every six months rotate the shafts (some revolutions are sufficient) to prevent damage to bearings and seal rings.

In normal environments and provided there has been adequate protection during transport, the product is provided for a storage period of up to 1 year.

For a 2 year storage period in normal environment it is necessary to pay attention also to the following instructions:

- generously grease the sealing, the shafts and the unpainted machined surfaces, if any, and periodically control conservation state of the protective anti rust oil
- completely fill the gear reducers with lubrication oil

For storages longer than 2 years or in aggressive environment or outdoors, consult Rossi S.p.A..

General

To ensure the correct operation of the winch prior to assembly, clean and degrease the contact and centering surfaces which must be paint-free and preferably processed with a machine tool.

Support structure and drums must be developed to ensure appropriate rigidity for the unit, to prevent deformation and misalignment when fixing to the reduction gear.

For the correct orientation of the gearbox, please refer to the UP marking visible on the front, which have to be on the top of the gearbox.

Before the installation:

- verify that there are no damages on shafts and on mating surfaces
- check that all the nameplate data (see page 10) correspond to what requested
- check that internal clearance (model G0 or G1) is the one requested by the application (see the next page)
- verify that design is suitable to the environment (temperature, atmosphere, etc.)
- be sure that the structure on which gear reducer is fitted is plane, levelled and strong enough in order to assure fitting stability and vibration absence (vibration speed $v_{\text{eff}} \leq 3,5$ mm/s for $P_N < 15$ kW and $v_{\text{eff}} \leq 4,5$ mm/s for $P_N > 15$ kW are acceptable), keeping in mind all transmitted forces due to the masses, to the torque, to the radial and axial loads
- avoid any obstruction to the air flow; heat sources near the gear reducer that might affect the temperature of cooling air and of gear reducer (for radiation); insufficient air recycle and applications hindering the steady dissipation of heat
- verify that the gear reducer housing is dust-free in order to achieve an efficient heat dissipation
- gear reducers and gearmotors should be protected, whenever possible and by appropriate means, from solar radiation and extremis of weather
- mating surfaces (of gear reducer and machine) must be clean and sufficiently rough to provide a good friction coefficient (indicatively $Ra 1,6 \div 3,2$ μm). Remove by a scraper or solvent the eventual paint of gear reducer on coupling surfaces and, especially in presence of external radial loads or torque required $M_2 \geq 0,7 \times M_{N2}$, apply **locking adhesives**
- when external loads are present use pins or locking blocks, if necessary

Before wiring-up the gearmotor make sure that motor voltage corresponds to input voltage. If direction of rotation is not as desired, invert two phases at the terminals.

Y- Δ starting should be adopted for no-load starting (or with a very small load) and for smooth starts, low starting current and limited stresses, if requested.

If overloads are imposed for long periods or if shocks or danger of jamming are envisaged, then motor-protection, electronic torque limiters, fluid couplings, safety couplings, control units or other similar devices should be fitted.

Protection of the motor with a thermal cut-out is recommended. Where duty cycles involve a high number of on-load starts, it is necessary to utilise **thermal probes** for motor protection (fitted on the wiring); magnetothermic breaker is unsuitable since its threshold must be set higher than the motor nominal current of rating.

Connect thermal probes, if any, to auxiliary safety circuits.

Use varistors and/or RC filters to limit voltage peaks due to contactors.

- For accessories not supplied by Rossi pay attention to their correct dimensioning; if necessary consult us.



Warning!

Bearings life, safe shaft and coupling running depend on precise alignment of the shafts.

Carefully align the gear reducer with the motor and the driven machine (with the aid of shims if need be), interposing flexible couplings whenever possible.

Whenever a leakage of lubricant could cause heavy damages, increase the frequency of inspections and/or envisage appropriate control devices (e.g.: remote oil level gauge, lubricant for food industry, etc.).

In polluting environment, take suitable precautions against lubricant contamination through seal rings or other.

For brake or special motors, consult us for specific information.

Screws and tightening torques

The performance of the gearbox indicated in chapter 1 is calculated considering the use of class 10.9 fastening screws tightened to their respective class.

We recommend the use of class 10.9 screws.

It is the customer's responsibility to limit the maximum performance required according to the class of use of the chosen screw, as indicated in the table. The suggested tightening torque value are valid for an estimated friction coefficient of $\mu = 0,14$ typical for lightly oiled steel bolts, black annealed or phosphatised and dry, cut mating threads in steel or cast iron.

Do not use lubricants altering the friction coefficient for they may overload the screw connection.

Always use dynamometric wrench or similar and verify the tightening torque after the first hours of running.

Tightening torque [N m]

Ø	Class	
	8.8 $M_2 < 70\% M_{n2}$	10.9
M10	50	70
M12	85	120
M16	210	300
M20	400	560
M24	690	1000
M30	1380	1950

To ensure correct winch functioning, the winch frame and the drum must be made in such a way that the dimensions shown in the figure are within the specified tolerances. The winch supports must be perfectly aligned to avoid pulling the frame out of shape once the gearbox is fixed to it. The winch frame must ensure adequate rigidity.

All contact surfaces between the winch and the gearbox must be perfectly clean and degreased prior to installation of the gearbox.

Internal clearance type configuration

EP Winch gear reducers are available in two versions:

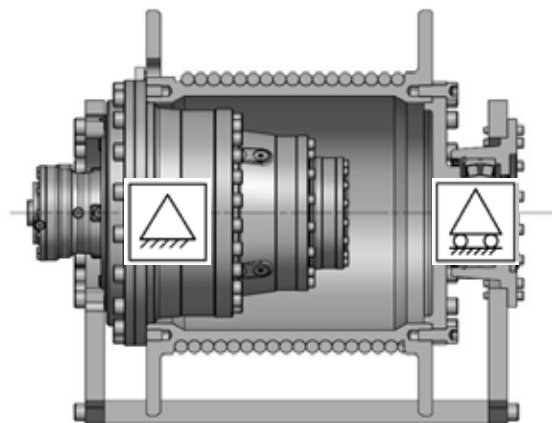
- Without internal clearance (model G0);
- With internal clearance (model G1), only for installation in pairs at opposite ends of the same drum.

In all applications, gearboxes require a minimum of axial clearance between the drum-gearbox assembly and the winch frame.

Installation with only one EP Winch unit - without internal clearance (G0)

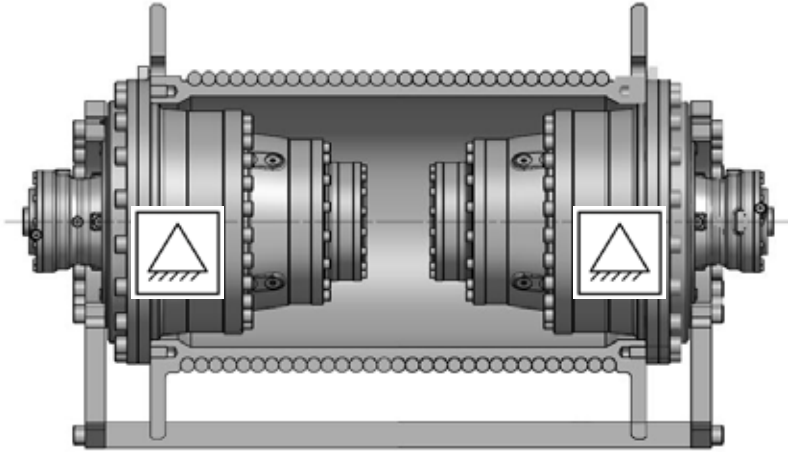
The drum shoulder bearing on the opposite side to the gearbox always has to be axially free, to avoid overloads.

Opposite side bearing is not in the scope of supply.



Installation with two EP Winch units - with internal clearance (G1)

If you need to install gearboxes in pairs at opposite ends of the same drum, and you cannot install the winch in a way that leaves the drum-gearbox assembly free to move both rotationally and axially, you must use "G1" option.



Drum mounting

To ensure correct winch functioning, the winch frame and the drum must be made in such a way that the dimensions shown in the figure are within the specified tolerances. The winch supports must be perfectly aligned to avoid pulling the frame out of shape once the gearbox is fixed to it. The winch frame must ensure adequate rigidity.

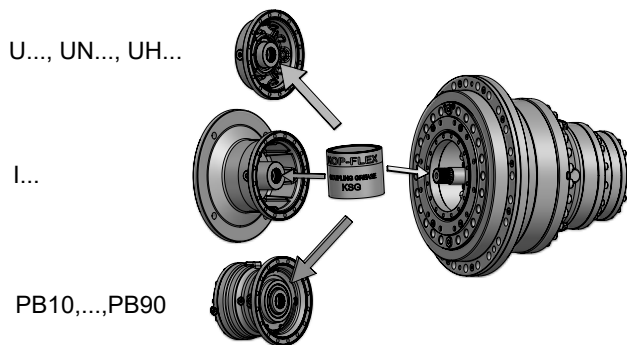
All contact surfaces between the winch and the gearbox must be perfectly clean and degreased prior to installation of the gearbox. For splined couplings apply proper lubricants. In the case of gearboxes with IEC input, in some cases the external diameter of the IEC flange may be greater than the centering diameter of the frame.

In this case, it is necessary to disassemble the IEC input to allow the frame to be correctly mounted on the gearbox.

This operation can be easily performed without causing oil leakage.

Before mounting the IEC input to the gearbox, grease the splined connection with KOP-FLEX grease and tighten the screws to the specified torque.

This operation can be done for all the input in the following figure (if needed):

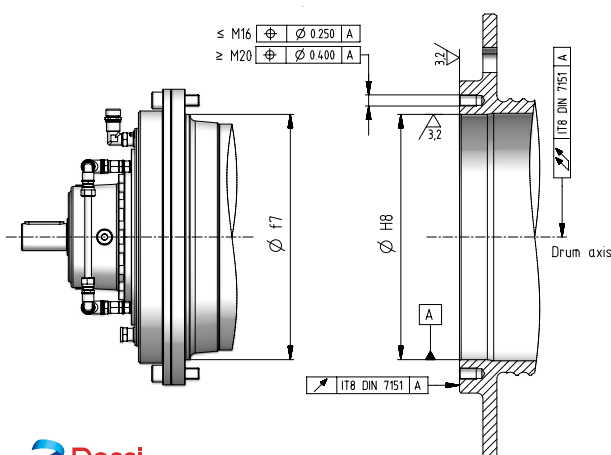


Before mounting, pay attention to clean carefully mating surfaces.

If required torque is $M_{2req} \geq 0,7 \times M_{N2}$, apply locking adhesives.

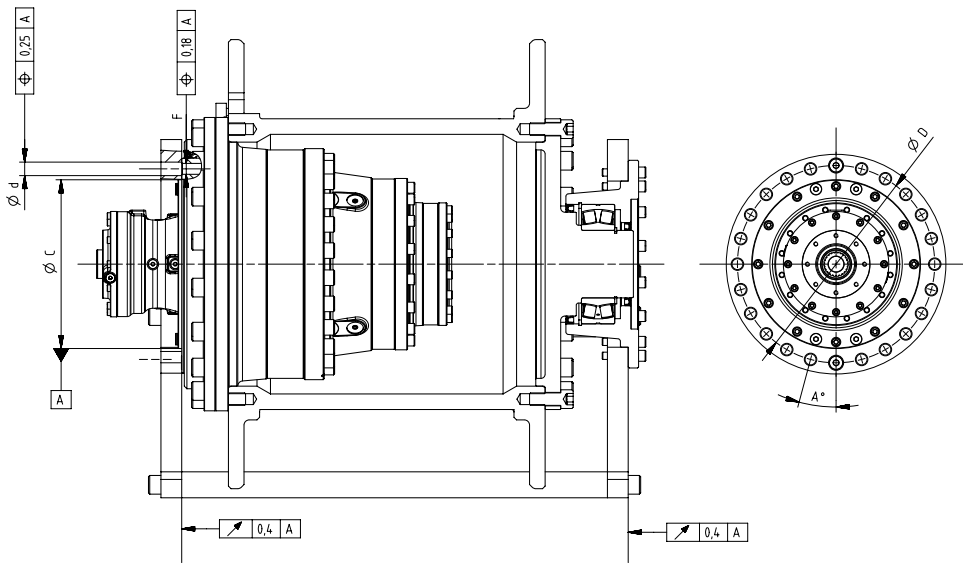
Tighten the screws according to the values given in the table on previous page.

To machine the matching frame, please refer to the drawings below.

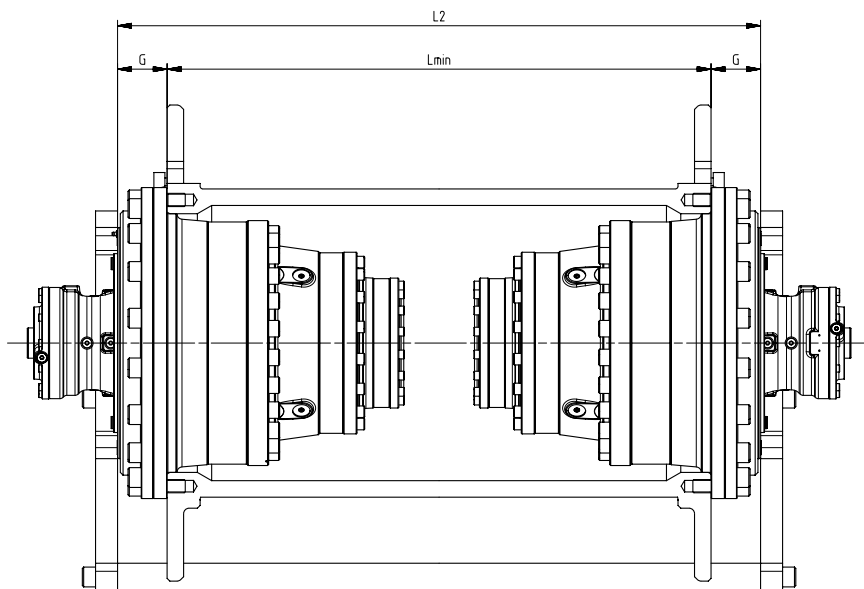


Important note.

The images in the catalog are for illustrative purposes only and may include elements of the winch designed by the customer, where necessary. These elements do not constitute design constraints, nor do they imply liability on the part of Rossi. The system designer is entirely responsible for the design of the winch, including compliance with applicable technical standards.

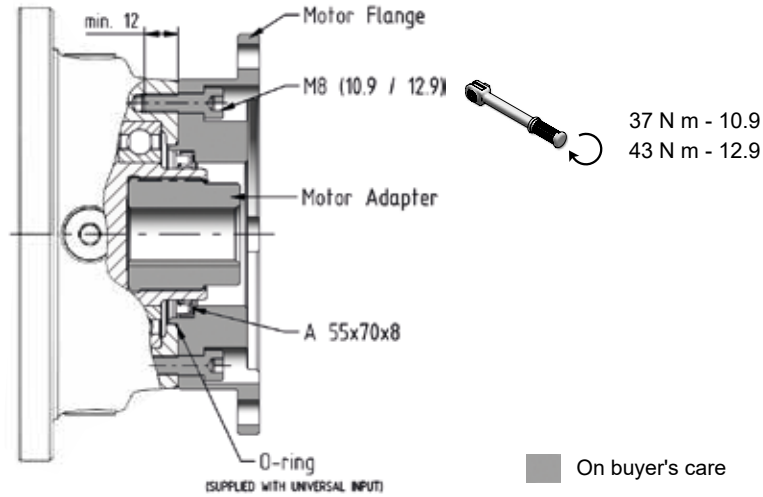


Size	A [°]	D ∅	F	d ∅	C ∅
030A	11° 15'	290	M16	17min	265
042A	15°	352	M24	25min	315
060A	15°	380	M24	25min	325
085A	13° 51'	430	M24	25min	370
125A	15°	470	M30	31min	420



Size	$L_{min} \pm 0,5$	G	$L_2 \pm 0,5$
030A		79	$L_{min} + (2 \times L_1)$
042A	Drum length	89	
060A	defined	89	
085A	by customer	88,5	
125A		88,5	

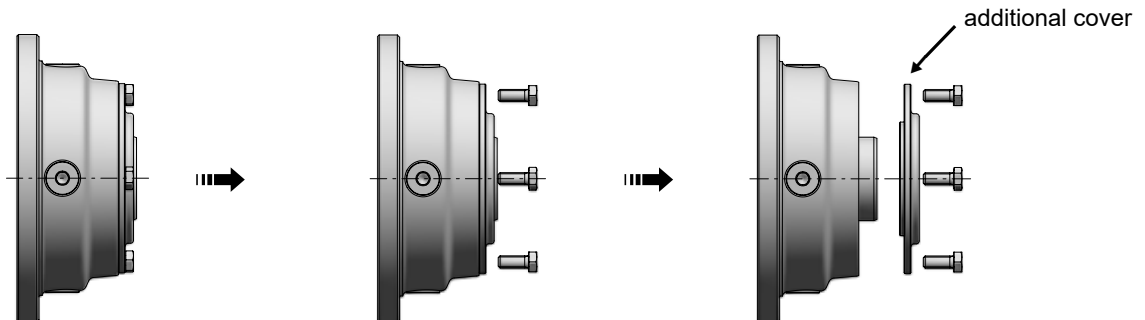
The universal input flange allows the customers to make their flanges and couplings suitable for the main motorization types. It's very important to observe the information shown in the drawing below to obtain a correct gear reducer oil sealing. The universal input flange can be used for motors up to 1 000 N m maximum torque and weight as per following chart.



Gearboxes with "U" input (not "UN" and "UH") are supplied with an additional cover as shown below. When a flange made by customer have to be used, please remove it.



Pay attention for gearboxes supplied with oil. Removing the cover oil may leak.

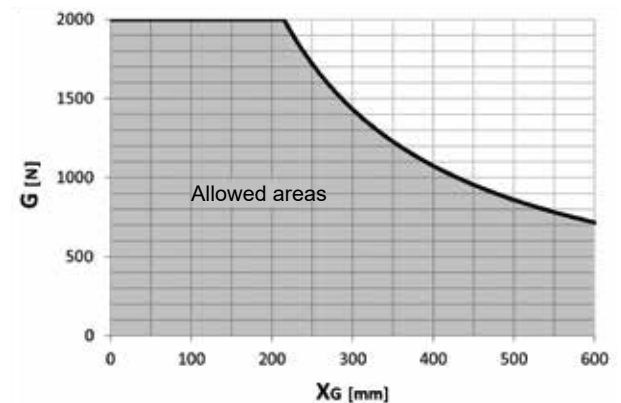
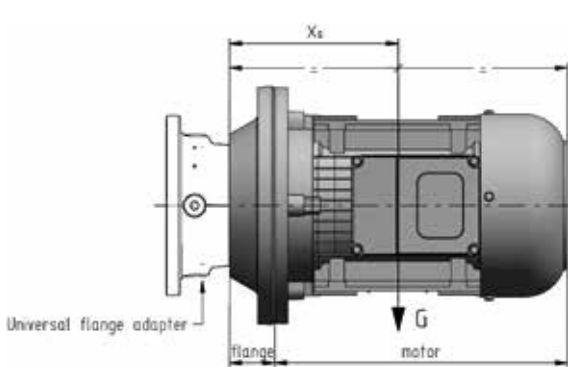


When a universal flange adapter is used, it must be checked if the total weight of the flange+motor and the distance of their center of gravity are compliant with the following diagram.

In case of high vibrations or dynamic stress, please contact Rossi S.p.A..



Severe or fatal injury and damage to property may occur.



Electric motors

Check the mating dimensions for standards IEC 72-1 be sure that the mating surfaces are machined under accuracy rating (IEC 60072-1, UNEL 13501-69; DIN 42955) – for NEMA standards please refer to NEMA C-FACE chart;

- clean surfaces to be fitted thoroughly;
- check and, if necessary, lower the parallel key so as to leave a clearance of $0,1 \pm 0,2$ mm between its top and the bottom of the keyway of the hole. If shaft keyway is without shoulder, lock the key with a pin.
- lubricate surfaces to be fitted against fretting corrosion (Klüberpaste 46 MR 401 is recommended).
- insert the motor down to shoulder on gear reducer flange; this operation can be facilitate vertically positioning the gear reducer with motor flange mounted upwards;



Do not force the motor shaft into the gear reducer coupling. A serious damage may occur!

- check that motor centering is in the relevant gear reducer flange seat
- check that the length of the screws is enough to have $2 \times$ pitch over the nut
- tighten the motor fastening screws to gear reducer flange in order to achieve the tightening torque as per following table:

Bolt	Tightening torque N m class 8.8
d ∅	
M8	25
M10	56
M12	85
M14	135
M16	205

Maximum allowed bending moment

In case of assembly of motors supplied by the customer, verify that the static bending moment M_b generated by motor weight on the counter flange of gear reducer is lower than the value allowed M_{bmax} , stated in the table:

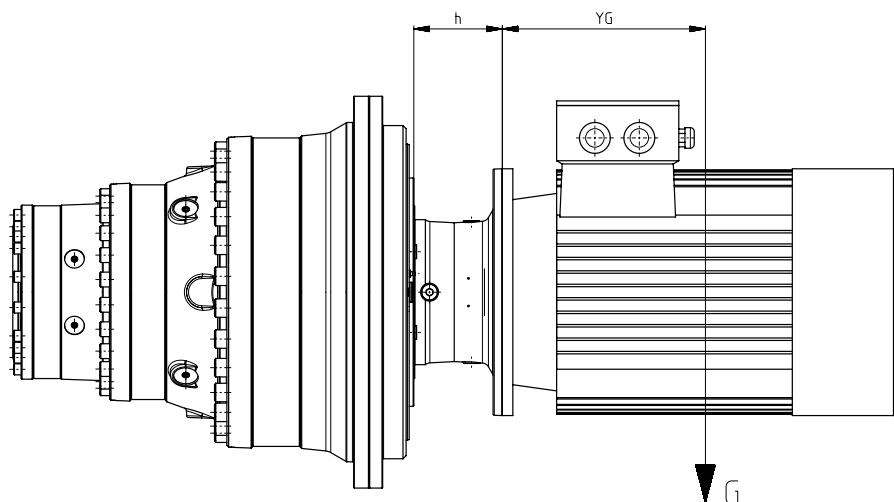
$$M_b < M_{bmax}$$

where:

$$M_b = G \cdot (Y_g + h) / 1\,000 \text{ [N m]}$$

- G [N] motor weight, nearly numerically equal to motor mass, expressed in kg, multiplied by 10
- Y_g [mm] distance from motor center of gravity from flange surface
- h [mm] supplied in the table, according to gear reducer size and IEC motor size

Too long and thin motors, though with bending moments lower than prescribed limits, may generate anomalous vibrations during the operation. In these cases it is necessary to foresee a proper additional motor support (see motor specific documentation). Loads higher than permissible loads may be present in dynamical applications where the gearmotor is subjected to translations, rotations or oscillations: consult us for the study of every specific case.



Bending moment M_{bmax} and dimension h

3WL	IEC	Code	h mm	M_{bmax} N m
030A ... 060A	100	I28×250	103	2800
	112	I28×250	103	
	132	I38×300	120	
	160	I42×350	153	
	180	I48×350	153	
	200	I55×400	153	
	225	I60×450	183	
085A ... 125A	132	I38×300	133,5	4500
	160	I42×350	159	
	180	I48×350	159	
	200	I55×400	159	
	225	I60×450	189	
	250	I65×550	189	
	280	I75×550	189	

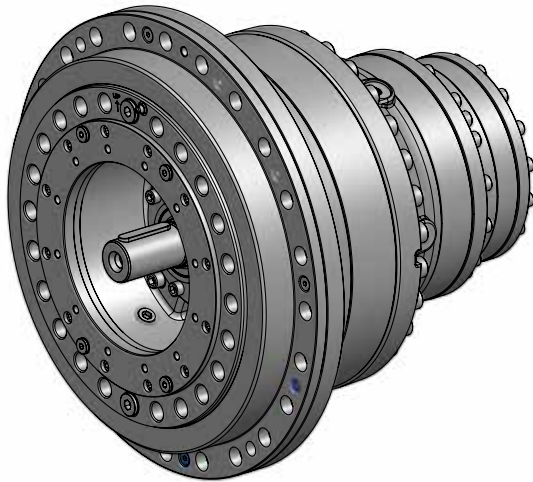
Hydraulic motors

- Check the mating dimensions
- Clean surfaces to be fitted thoroughly
- Ensure that any seal provided (O-ring) with hydraulic motor is correctly fitted in its seat
- Lubricate surfaces to be fitted against fretting corrosion using proper grease or paste
- Insert the motor down to shoulder on gear reducer flange; this operation can be facilitated by vertically positioning the gear reducer with motor flange mounted upwards



Do not force the motor shaft into the gear reducer coupling. A serious damage may occur!

- Check that motor centering is in the relevant gear reducer flange seat
- Tighten the motor fastening screws to gear reducer flange in order to achieve the appropriate tightening torque
- Use bolts 8.8 or higher

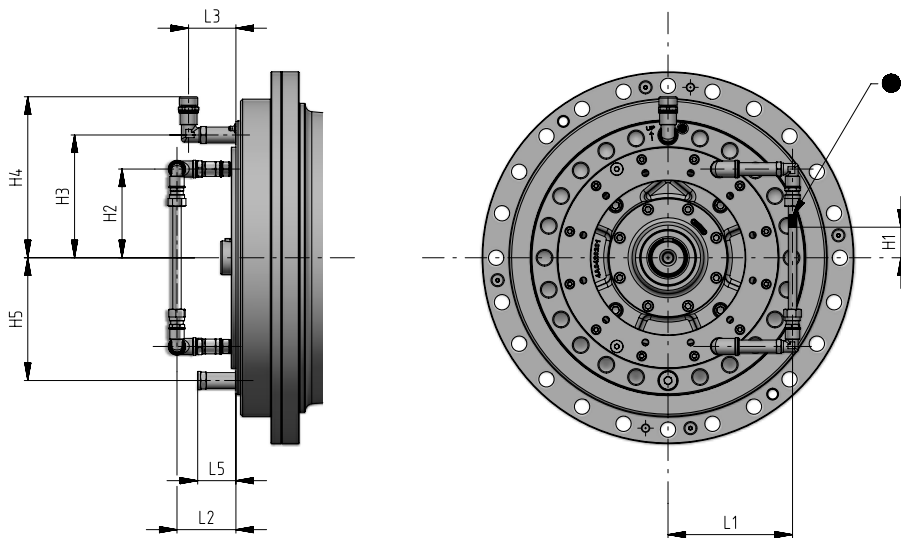


Size	H1 ¹⁾ [mm]	Oil volume [l] at H1 ²⁾	Oil volume [l] at H1 ²⁾ with input C
030A	50	5	8,7
042A	60	6,7	11,7
060A	70	9	13,9
085A	75	13,8	21
125A	80	18,3	26,9

- 1) Minimum level values. It is recommended to increase this level by a further 5 mm.
To be increased by 10% if output speed is lower than 1 min⁻¹.
- 2) Stated oil quantities are approximate for provisioning. The exact quantity the gear reducer is to be filled with is definitely given by the level.

- For filling and oil level control, use the external kit supplied with the gearbox.
- The filling, draining and level control points are shown in the figures below.

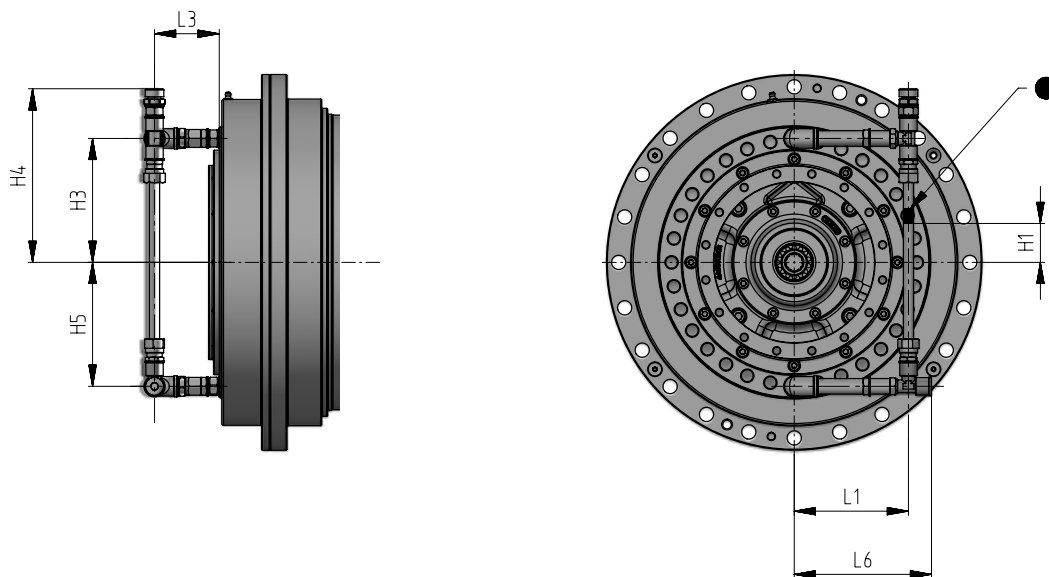
Oil level kit dimensions



Size	H2	H3/H5	H4	L1	L2	L3	L5	Greaser
030A *	118	146,5	194	135	90	77	65	M8
042A	126,5	175	232	180	90	70	55	M10x1
060A	144,5	190	246	174	57	100	87	M10x1
085A	158	220	284	205	95	103	87	M10x1
125A	181	239	303	212	110	103	87	M10x1

* For J input design, only.

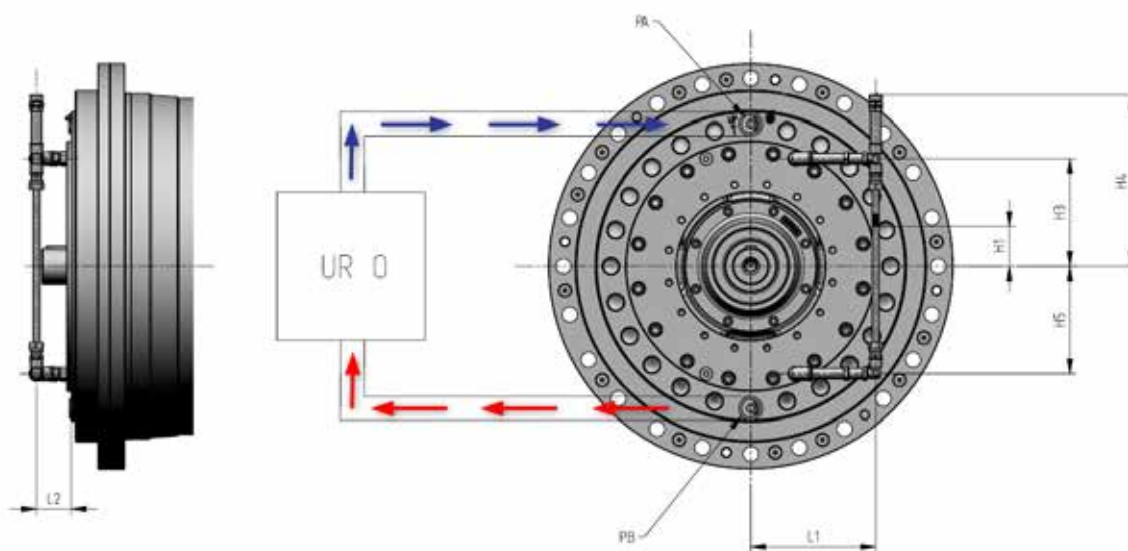
NOTE: for size 030 (except with J input), the oil level kit is mounted as indicated in the following figure



Size	H3/H5	H4	L1	L3	L6
030A *	146,5	207	140	85	170

* Standard.

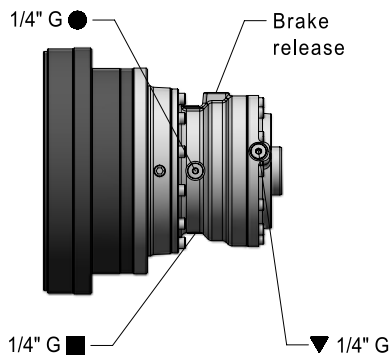
Oil level kit dimensions with forced lubrication system or auxiliary cooling system



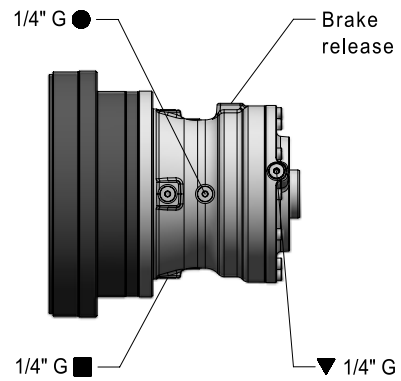
Size	H3/H5	H4	L1	L2
030A *	118	178	135	90
042A	126,5	205	180	90
060A	144,5	222	174	57
085A	158	267	205	95
125A	181	290	212	110

* Only for J input.

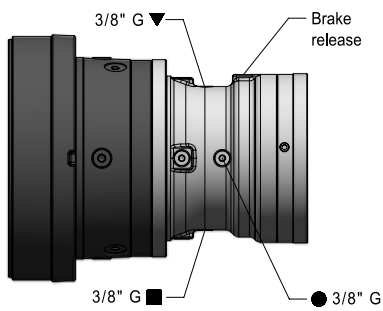
PB10 (030/042/060)



PB30 (030/042/060)



PB90 (085/125)



Brake	Oil quantity [l]
PB10	0,09
PB30	0,36
PB90	0,48

Oil quantity [l]

The exact quantity the brake is to be filled with is given by the level.

Gear pairs are oil-bath lubricated, bearings are either oil bathed or splashed or lubricated «for life» with grease.

Sizes 030A ... 125A: gear reducers are supplied **without oil**; before putting into service, fill to the specified level with synthetic or mineral oil (see table below).

Important:

Inappropriate lubricants can cause damage to the gear reducer. Polyalphaolefin (PAO) base synthetic lubricants must be preferred over Polyglycol (PAG) base synthetic lubricants.

Never mix different type or brand of synthetic oil; if the oil-change involves switching to a different type from the one used so far, then give the gear reducer a through clean-out.

In case of first filling of Polyglycol (PAG) base synthetic lubricant it is mandatory to clean the gear reducer thoroughly before the final filling through a preliminary internal washing to eliminate the residues of any lubricants.

Rossi S.p.A. declines any responsibility deriving from the use of other lubricants or from the use outside the expected ambient temperature range. The indications on lubricants do not bind Rossi S.p.A. on the quality of the lubricant supplied by each respective manufacturer.

Use only lubricants with **EP** (extreme pressure) **additives**.

In case of mineral lubricant choice, follow the instructions about the service factor (EP catalog).

Manufacturer	PAO synthetic oil ISO VG 320	mineral oil ISO VG 150 ... 460	Manufacturer	PAO synthetic oil ISO VG 320	mineral oil ISO VG 150 ... 460
ENI	Blasia SX	Blasia	KLÜBER	Klübersynth GEM4	Klübersynth GEM1
ARAL	Degol PAS	Degol BG	MOBIL	Mobil SHC Gear	Mobilgear 600 XP
BP	Enersyn EPX	Energol GR-XP	SHELL	Omala S4 GX	Omala S2 G
CASTROL	Alphasyn EP	Alpha SP	TEXACO	Pinnacle	Meropa
FUCHS	Renolin Unisys	Renolin CLP	TOTAL	Carter SH	Carter EP

For lubricant viscosity selection, refer to the table in the next page.

Bearings with independent lubrication

Usually the bearings are automatically and continuously lubricated (oil-bathed or splashed) with the same lubricant of gear reducer.

Lubrication of PB parking brakes

PB series brakes **require lubrication** and are supplied **without oil**, as specified by the relevant adhesive label.

Before putting the brakes into service fill them with mineral oil ISO VG 32, unless otherwise prescribed by specific documentation. Hydraulic oils are generally suitable.

The separate lubrication prevents premature lubricant contamination in the gear reducer, increasing gears and bearings life.



Lubricant

Lubricant type and viscosity selection according to output speed n_2 [min⁻¹] and ambient temperature T_{amb} [°C] range.

The following tables have been created starting from Shell lubricant characteristics, but are also valid for similar products (see table on the previous page).

For further verification, especially under extreme operating conditions, always refer to the technical data sheet of the specific lubricant.

Splash lubrication or with independent cooling units ¹⁾







	Oil viscosity [cSt @ 40°C]	Ambient temperature T_{amb} [°C]														
		-20	-15	-10	-5	0	+5	+10	+15	+20	+25	+30	+35	+40	+45	+50
Mineral oil	ISO VG 150	$n_2 > 140$														
	ISO VG 220	$2,0 \leq n_2 \leq 140$						$n_2 > 140$						⊘		
	ISO VG 320	⊘	$n_2 < 2,0$				$2,0 \leq n_2 \leq 140$						⊘			
	ISO VG 460	⊘				$n_2 < 2,0$										⊘
PAO synthetic oil (Polyalphaolefine)	ISO VG 150	$n_2 > 140$														
	ISO VG 220	$2,0 \leq n_2 \leq 140$						$n_2 > 140$						⊘		
	ISO VG 320	$n_2 < 2,0$				$2,0 \leq n_2 \leq 140$						⊘				
	ISO VG 460	⊘	$n_2 < 2,0$										⊘			

1) Provide starting of the independent cooling units only when the oil temperature T_{oil} is $> 25^\circ\text{C}$. During the starting, it may take a short period of time for the oil to circulate completely between the unit and the gearbox, depending on the viscosity level and the morphology of pipes and oil connections. During this transitional period, operation of the gear unit is permitted.

Forced lubrication with/without heat exchanger ²⁾

	Oil viscosity [cSt @ 40°C]	Ambient temperature T_{amb} [°C]															
		-20	-15	-10	-5	0	+5	+10	+15	+20	+25	+30	+35	+40	+45	+50	
Mineral oil	ISO VG 150	$n_2 > 140$															
	ISO VG 220	⊘						$2,0 \leq n_2 \leq 140$						$n_2 > 140$		⊘	
	ISO VG 320	⊘				$n_2 < 2,0$						$2,0 \leq n_2 \leq 140$					
	ISO VG 460	⊘				$2,0 \leq n_2 \leq 140$											
PAO synthetic oil (Polyalphaolefin)	ISO VG 150	$n_2 > 140$															
	ISO VG 220	⊘						$n_2 > 140$						⊘			
	ISO VG 320	⊘				$2,0 \leq n_2 \leq 140$						⊘					
	ISO VG 460	⊘				$2,0 \leq n_2 \leq 140$											

2) In the case of forced lubrication, the gear unit should only be operated when the oil temperature T_{oil} is higher than the temperature indicated in the table. During start-up of the lubrication unit, a short period of preheating may be necessary, to be carried out with the gear unit at standstill, before complete circulation of the oil and proper lubrication of the internal components is achieved.

-  Admitted application field, optimal range.
-  Admitted application field where higher absorption is expected due to higher viscosity; prefer gradual starts and partial load operation.
-  Non-optimal application range; in this case it is recommended to use oils with viscosity grade at least 30 cSt referred to max oil temperature (T_{oil}) during the operation.
-  Non-optimal application range; in this case it is necessary to foresee oil with Pour Point at least 10°C lower than the minimum temperature indicated by the field. Foresee a phase of rotation at no load (pre-heating) at least up to the attainment of a temperature T_{amb} equal or superior to the minimum indicated in the field of application admitted.
-  Application field not allowed. If necessary contact Rossi S.p.A.
-  $n_2 > 140$ Indicative output speed for selection of lubricant viscosity

PB series - Parking brakes

Features

The parking brakes of PB series are spring applied and hydraulic released multi-disc brakes, to be used in combination with planetary gear reducers of EP series.

They are not service brakes and they cannot be used in dynamic conditions.

They are used to hold the load from application or to stop the machine in case of emergency.

The values of static braking torque M_{Bstat} given in the following table should be considered as nominal values and are valid for a brand new brake with correct lubrication. Values of M_{Bstat} are given with a tolerance of $\pm 10\%$.

After some braking cycles, values of static braking torque could reduce by 5% and 10%, due to the adjustment of discs.

ATTENTION: always verify that the static braking torque M_{Bstat} referred to the gear reducer low speed shaft is lower than the value of M_{2MAX} allowed by the gear reducer itself.

Effects on the thermal power of the gear reducer

Generally, in the running conditions required by normal applications where an hydraulically released brake is present, the thermal power of the gear reducer is not exceeded.

Nevertheless, under some running conditions (high speed, continuous or frequent duty, it is possible that the normal brake operation generate a progressive overheating of the group, influencing the thermal power allowed by the gear reducer.

In these cases it is possible to adopt solutions to reduce overheating of the brake or increase the thermal power of the group by means of an integrated cooling system or an independent cooling unit.

Consult us for further information.

Speed limits

The presence of a SAHR brake does not limit the values of n_{1max} and n_{1peak} of the gear reducer stated in EP catalog.

ATTENTION: a continuous or frequent duty at high speed may generate an overheating of the group (previous paragraph).

Operating conditions

Brakes are designed for industrial applications, at ambient temperature $-20\text{ °C} \div +50\text{ °C}$, maximum altitude 1 000 m. For operation at temperatures from -20 °C to 0 °C limit p_{max} to 200 bar.

Selection

Selection of a braking torque M_{Bstat} higher than the maximum moment required by application by a factor of 1.6 to 1.8 is recommended.

Technical data of PB parking brakes

PB10-...			0075	0150	0225	0340	0420	0525	0650	0815
Static braking torque	M_{Bstat}	[N m]	72	156	224	345	421	531	660	818
Min release pressure	p_{min}	[bar]	4,4	9,5	10,2	15,7	15,4	19,4	20,1	24,9
Release pressure	p	[bar]	6,9	14,9	16,1	24,7	24,2	30,4	31,6	39,1
Max. release pressure	p_{max}	[bar]	300							
Maximum speed	n_{1max}	[min ⁻¹]	According to gear reducer n_{1max} and n_{1peak}							
Oil volume for brake release	V	[l]	0,10							

PB30-...			0250	0400	0500	0630	0800	1000	1250	1500	1700
Static braking torque	M_{Bstat}	[N m]	265	407	509	637	809	1 010	1 281	1 529	1 741
Min release pressure	p_{min}	[bar]	7,6	11,8	11,8	14,7	15,6	19,4	24,7	25,2	28,7
Release pressure	p	[bar]	12,0	18,5	18,5	23,1	24,5	30,5	38,7	39,6	45,1
Max. release pressure	p_{max}	[bar]	300								
Maximum speed	n_{1max}	[min ⁻¹]	According to gear reducer n_{1max} and n_{1peak}								
Oil volume for brake release	V	[l]	0,12								

PB90-...			0850	1250	1500	1800	2100	2600	3000	3550	4250
Static braking torque	M_{Bstat}	[N m]	869	1 304	1 552	1 811	2 173	2 680	3 063	3 560	4 305
Min release pressure	p_{min}	[bar]	10,2	15,3	18,2	18,2	21,9	27,0	27,0	31,4	37,9
Release pressure	p	[bar]	15,3	23,0	27,4	27,4	32,8	40,5	40,5	47,1	56,9
Max. release pressure	p_{max}	[bar]	300								
Maximum speed	n_{1max}	[min ⁻¹]	According to gear reducer n_{1max} and n_{1peak}								
Oil volume for brake release	V	[l]	0,25								

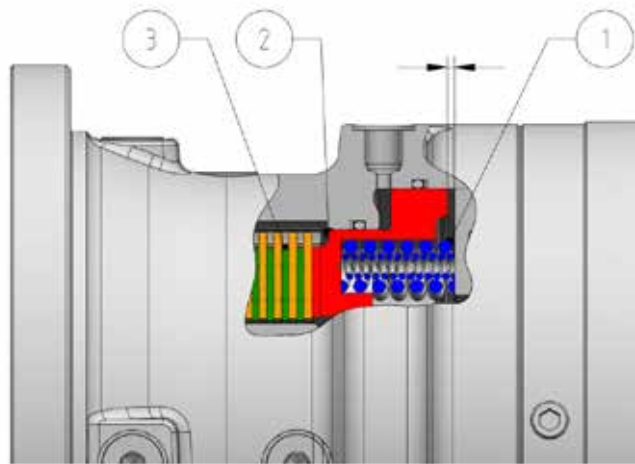
Different braking torques on request.

The above performances are provided with a back pressure equal to 0 bar, any counter pressures must be considered when sizing the system.

Functioning of PB parking brakes

Brake closed

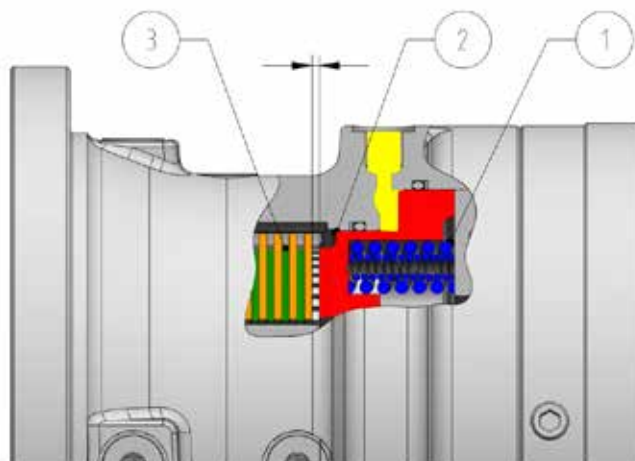
When no pressure is applied to the brake (0 bar) springs (1) apply a force to the piston (2) which lock the discs (3) and produce a nominal braking torque equivalent to M_{Bstat} .



Brake opened

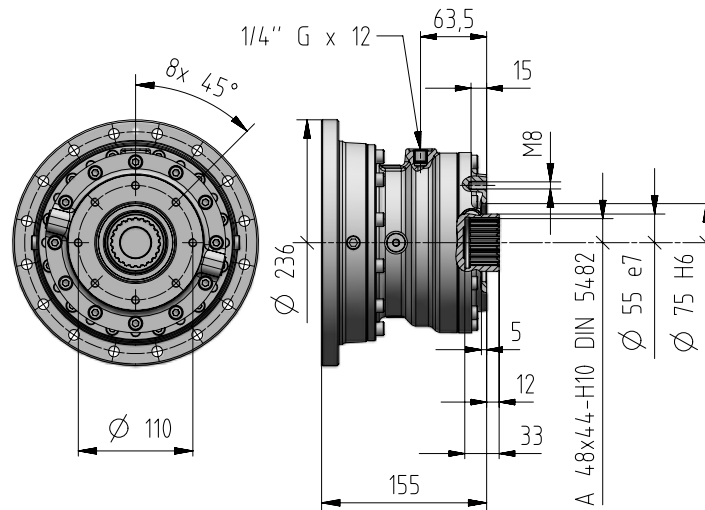
Above the pressure of 0 bar, the piston begins to compress the springs and the brake progressively reduces the braking torque. When the release pressure exceeds the value of p_{min} the brake begins to open; once reached the value p the brake is fully opened, the piston ends its displacement and the discs can rotate freely.

To ensure a long life of the brake, it is suggested to use a release pressure 50% above the value of p and in any case not higher than p_{max} .



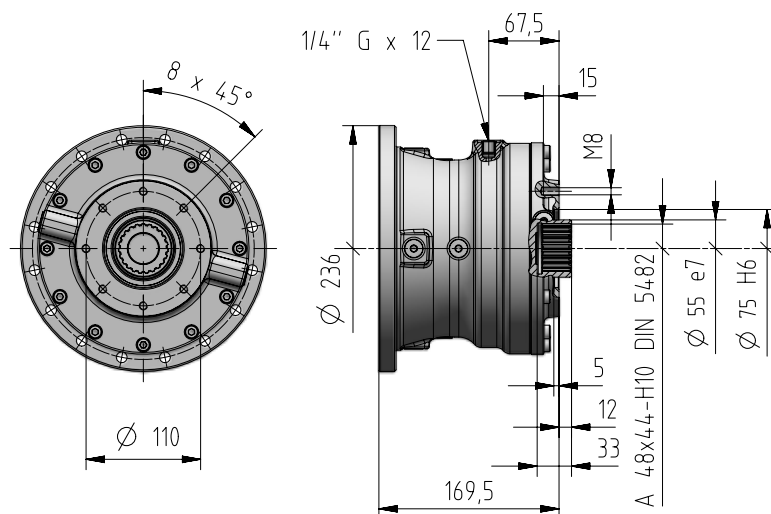
Input side details of PB parking brakes

PB10 (030/042/060)



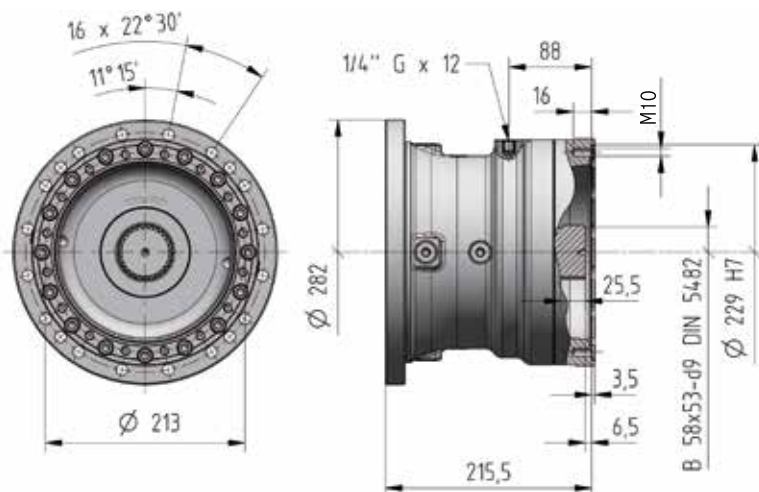
20

PB30 (030/042/060)



25

PB90 (085/125)



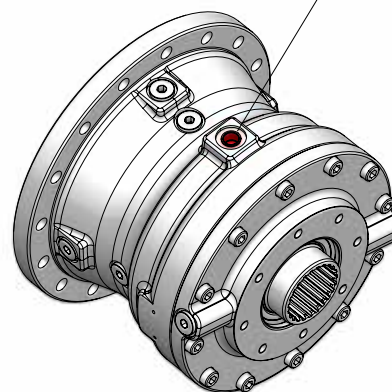
53

Brake release

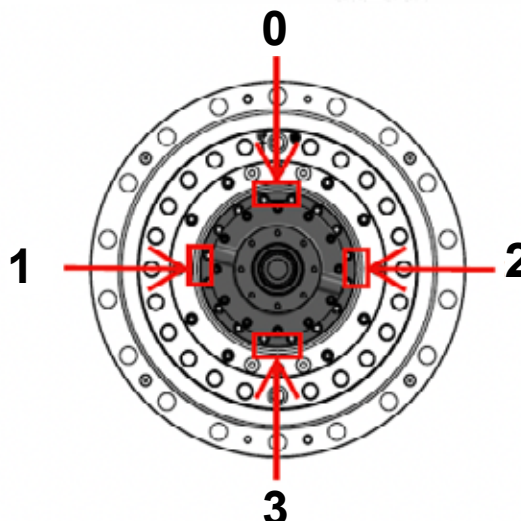
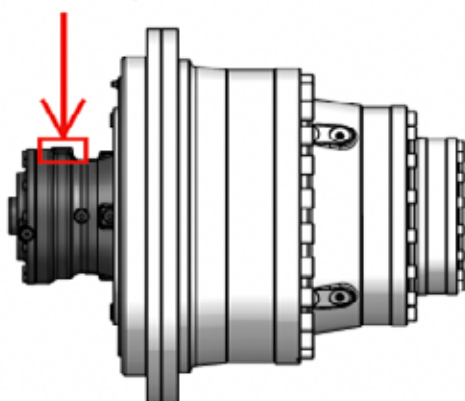
Unless otherwise stated, the brakes are mounted with the brake release hole in position 0 (see figure).
On request, positions 1, 2 and 3 are available.

Code for the designation: ,BR0 (standard) ,BR1 ,BR2 ,BR3.

Brake release hole

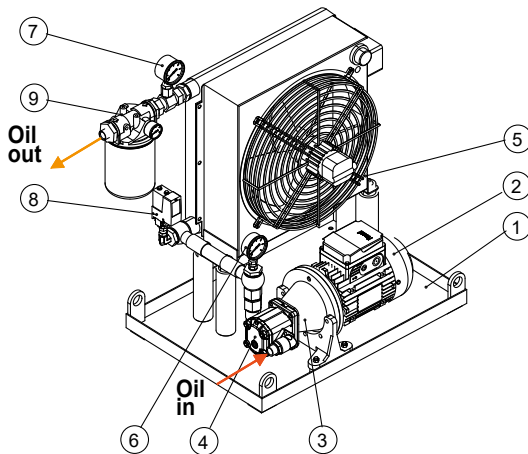


Brake release in position 0



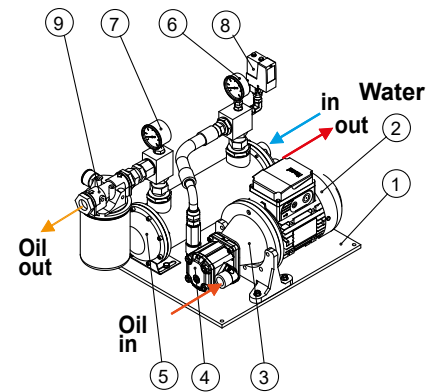
Independent cooling units

Independent cooling unit with oil-air heat exchanger **UR O/A ...**



Pos.	Description
1	Basament
2	Electric motor
3	Coupling
4	Gear Pump
5	Heat Exchanger
6	Pressure Gauge
7	Thermometer
8	Pressure Switch
9	Ouput Filter

Independent cooling unit with oil-water heat exchanger **UR O/W ...**



When natural cooling or integrated cooling units are not sufficient anymore (for thermal power verification see ch. 2), it is possible to install the independent cooling units described below.

Consisting of:


- **oil/air heat exchanger (O/A)**; with thermostat and adjustable control knob $0 \div 90 \text{ }^\circ\text{C}$) or **oil/water heat exchanger (O/W)**
 - **motor pump**: screw or gear pump with fluoro rubber seals; 4 pole motor B3/B5 (three-phase $\Delta 230 \text{ Y}400 \text{ V } 50 \text{ Hz}$); motor-pump connection with coupling
 - **motor fan (O/A)** (three-phase supply $\Delta 230 \text{ Y}400 \text{ V } 50 \text{ Hz}$ or single phase supply $230 \text{ V } 50, 60 \text{ Hz}$, see table)
 - **oil filter** (type Spin-On) with filtration degree $60\mu\text{m}$ (M60) and optical-electric blockage warning (BVR)
 - **analogic manometer** ($0 \div 16 \text{ bar}$) mounted between pump and exchanger
 - **analogic thermometer** ($0 \div 120 \text{ }^\circ\text{C}$) mounted at exchanger output
 - **low pressure switch** (with on-off switch) mounted between pump and exchanger
 - **supporting frame** with nameplate
- On request, several accessories are at disposal (supplied separately, assembled by Customer) in order to satisfy all functionality and safety needs:
- **oil temperature probe Pt100**
 - **2-threshold signalling device CT03** (necessary also the oil temperature probe Pt100) for the mounting on rail to DIN EN 50022
 - **3-threshold signalling device CT10** (necessary also the oil temperature probe Pt100) for the mounting on rail to DIN EN 50022
 - **bi-metal type thermostat**
 - **flow gauge**

Connections realized by flexible pipes (type SAE 100 R1, maximum length 2 m) between gear reducer and cooling unit and the assembly of accessories and signalling devices are Buyer's responsibility.

When choosing the independent cooling unit, it is good to make sure that the flow rate (liters / minute) does not exceed 50% of the volume of lubricant present inside the gear reducer, in the specific mounting position.


Excellent performance reachable with air temperature at max $25 \text{ }^\circ\text{C}$ for UR O/A and water temperature at max $20 \text{ }^\circ\text{C}$ for UR O/W.

Operational features - UR O/A ... - EP

Designation	P_s [kW]	Air Oil Heat Exchanger	Oil motor pump		Air Oil heat Exchanger features						Oil filter type		
			Motor Power [kW]	Capacity [dm³/min]	Electric fan side			Oil side			Size and filtering	Optical pressure gauge	
					Power and motor type			Oil suction fem. conn.	Oil delivery fem. conn.	Oil vol. [dm³]			
					kW [50Hz / 230V-400V]	kW [60 Hz / 265V-460V]	Phase number	n° and size	n° and size				
URO/A 5 - EP	5	AP 300 E	0,75	6	0,12 / 0,20	0,15 / 0,23	1~	1× G 3/4"	1× G 3/4"	2	MPS 050 M60	BVR	60
URO/A 7 - EP	7	AP 300 E	0,75	9	0,12 / 0,20	0,15 / 0,23	1~	1× G 3/4"	1× G 3/4"	2	MPS 050 M60	BVR	64
URO/A 9 - EP	9	AP 300/2 E	0,75	11	0,12 / 0,20	0,15 / 0,23	1~	1× G 3/4"	1× G 3/4"	4	MPS 050 M60	BVR	70
URO/A 13 - EP	13	AP 430 E	1,1	16	0,11 / 0,21	0,11 / 0,20	3~	1× G 3/4"	1× G 3/4"	4	MPS 100 M60	BVR	75
URO/A 20 - EP	20	AP 430/2 E	1,1	20	0,11 / 0,18	0,15 / 0,26	3~	1× G 3/4"	1× G 3/4"	6	MPS 100 M60	BVR	115
URO/A 28 - EP	28	AP 580 EB	1,5	46	0,11 / 0,18	0,15 / 0,26	3~	2× G 3/4"	2× G 3/4"	12	MPS 100 M60	BVR	125
URO/A 40 - EP	40	AP 680 EB	1,5	46	0,70	1,1	3~	2× G 1"	2× G 1"	15	MPS 150 M60	BVR	140
URO/A 48 - EP	48	AP 730 EB	2,2	56	0,70	1,1	3~	2× G 1"	2× G 1"	15	MPS 150 M60	BVR	150

1) P_s performance valid for altitude from 0 to 1 000 m a.s.l. Reduce performance value P_s x 0,85 (from 1 000 to 2 500 m a.s.l.) or P_s x 0,71 (from 2 500 to 5 000 m a.s.l.)

Operational features - UR O/W ... - EP

Designation	P_s [kW]	Oil Water Heat Exchanger	Oil motor pump		Water Oil Exchanger features						Oil filter type		
			Motor Power [kW]	Capacity [dm³/min]	Water side			Oil side			Size and filtering	Optical pressure gauge	
					Capacity [dm³/min]	Suction fem. conn. n° and size	Delivery fem. conn. n° and size	Oil suction fem. conn. n° and size	Oil delivery fem. conn. n° and size	Oil vol. [dm³]			
URO/W 4 - EP	4	T80 CB2	0,37	6	≥ 30 ≤ 60	1× Ø17 - 1/2"	1× Ø17 - G1/2"	1× G 3/4"	1× G 3/4"	1,0	MPS 050 M60	BVR	14
URO/W 6 - EP	6	T80 CB3	0,37	6	≥ 30 ≤ 80	1× Ø17 - 1/2"	1× Ø17 - G1/2"	1× G 3/4"	1× G 3/4"	1,6	MPS 050 M60	BVR	16
URO/W 9 - EP	9	T80 CB3	0,75	13	≥ 30 ≤ 80	1× Ø17 - 1/2"	1× Ø17 - G1/2"	1× G 3/4"	1× G 3/4"	1,6	MPS 050 M60	BVR	20
URO/W 13 - EP	13	MS 134P1	1,1	20	≥ 60 ≤ 110	1× G 1"	1× G 1"	1× G 3/4"	1× G 3/4"	2,8	MPS 100 M60	BVR	30
URO/W 20 - EP	20	MS 134P1	1,1	30	≥ 60 ≤ 110	1× G 1"	1× G 1"	2× G 3/4"	2× G 3/4"	2,8	MPS 100 M60	BVR	32
URO/W 32 - EP	32	MS 134P2	1,5	40	≥ 80 ≤ 110	1× G 1"	1× G 1"	2× G 1"	2× G 1"	4,6	MPS 150 M60	BVR	60
URO/W 48 - EP	48	MS 134P4	1,5	60	≥ 100 ≤ 120	1× G 1"	1× G 1"	2× G 1"	2× G 1"	6,8	MPS 150 M60	BVR	75

Starting mode and required accessories

Ref.	T_{amb} °C	Required accessories	Required oil type	Description and remarks
A1	0 ÷ 25	Pt100 + CT10	Polyalphaolefine based synthetic oil or Mineral oil	Gear reducer starting and subsequent motor-pump starting with warm oil. The motor-pump is managed by the three-threshold oil temperature control system (Pt100 + CT10). Set the three-threshold device CT10 with: <ul style="list-style-type: none"> operating temperature 60 °C (starting of motor-pump); restoring temperature 40 °C; warning temperature 90° C.
A2	> 25	-	Polyalphaolefine based synthetic oil	Simultaneous starting of gear reducer and motor-pump

Additional description when ordering by **designation**:

independent oil-air cooling unit UR O/A ... - EP or independent oil-water cooling unit UR O/W ... - EP.

For more details about reference starting mode A1 / A2, see specific literature.

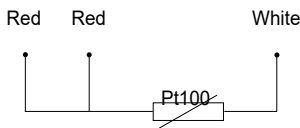
For dimensions, accessories and further technical details, see specific literature.

Oil temperature probe Pt100

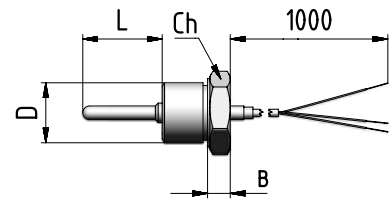
Remote oil temperature gauge; installation (at Buyer's responsibility) instead of an existing drain plug, or into a hole properly pre-arranged. The temperature gauge is realized with a thermo-resistor Pt100 having following features:

- platinum wire with 100 Ω at 0 °C according to EN 60751
- precision class B according to EN 60751
- operation temperature field -40 °C ÷ +200 °C
- max current 3 mA
- 3 wires connection according to IEC 751 (see fig. below)
- stainless steel probe AISI 316; diameter 6 mm
- cable 1 m long with free end

For the probe connection to relevant signalling device CT03 or CT10 (on request, consult us) use a protected section cable ≥ 1,5 mm² positioned separately from power cables.



B	Ch (key)	D	L
8	22	G 3/8"	tbd
8	22	G 1/2"	tbd
10	32	G 3/4"	tbd



Miscellaneous

Oil temperature probe with terminal box and amperometric transducer 4 ÷ 20 mA

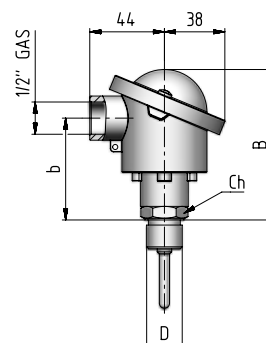
Remote oil temperature gauge, with terminal box and amperometric transducer; installation (at Buyer's responsibility) instead of drain plug. The temperature gauge is realized with a thermo-resistor Pt100 having following features:

- platinum wire with 100 Ω at 0 °C according to EN 60751
- precision class B according to EN 60751
- temperature range -40 °C ÷ +200 °C
- 3 wires connection according to IEC 751 (see fig. below)
- stainless steel probe AISI 316; diameter 6 mm
- amperometric transducer with output signal 4 ÷ 20 mA
- aluminium terminal block (supplied without cable gland)
- protection IP65
- input cables G 1/2"

For the probe connection to relevant signalling device use a protected section cable ≥ 1,5 mm² positioned separately from power cables.

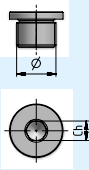
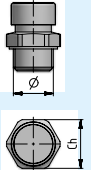
ATTENTION. Accessory available only for technical feasibility evaluation by Rossi S.p.A.: consult us.

B	Ch (key)	b	D
90	24	60	G 3/8"
90	24	60	G 1/2"
92	32	62	G 3/4"



Plugs

For EP series plugs are magnetic. Size of plugs and breather plugs and values of tightening torque are shown below.

	Filler plugs				Breather plugs		
	Ø	Ch	Tightening torque [N m]		Ø	Ch	Tightening torque ¹⁾ [N m]
	G 3/8 "	8	20		G 3/8 "	20	16
	G 1/2 "	10	30		G 1/2 "	24	23
	G 3/4 "	12	45		G 3/4 "	32	37

1) Values valid with washer in aluminium.

For the first commissioning, before starting with a normal running cycle, it is advisable to run the gear reducer without load in order to verify if it correctly runs.

In this circumstance, cause of the elimination of potential residual air, an oil filling up to level could be necessary.

During this first run, it is important to check:

- noise level
- vibrations
- sealings

If you notice any malfunctions, please consult Rossi.

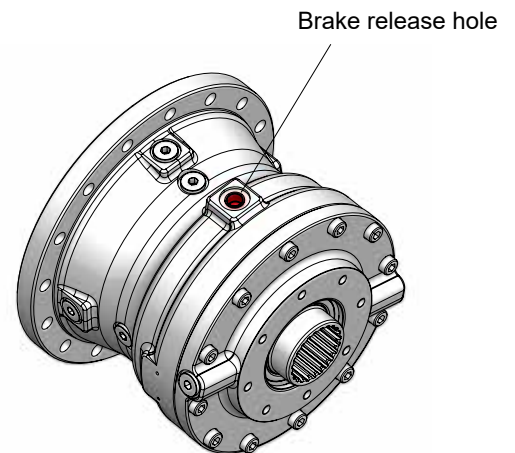
Brake release

To release the brake it is recommended the use of mineral-based hydraulic oil; synthetic oils may damage and cause malfunctions in the brake. Connect the brake to the hydraulic circuit of machine through the brake release hole. Before first use it is necessary to bleed off.

Follow the instructions below:

- Slightly loosen the release fitting
- Release the brake at low pressure and wait for the complete bleeding off
- Tighten the release fitting

See ch. 10 for further information.



Oil filling

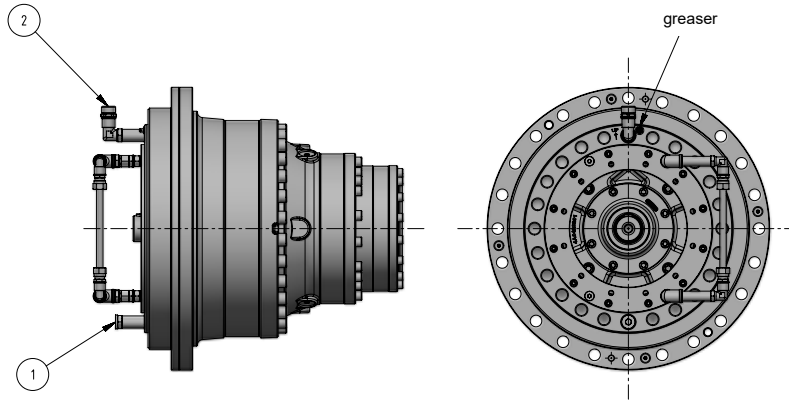


The oil level kit is always supplied unassembled.

All the gear reducers are supplied without lubricant, before filling them, the kit must be assembled.

In the same way, when parking brake is present, it is necessary to fill it with specific lubricant.

If a forced lubrication system or auxiliary cooling system are going to be used, this must be specified when ordering.

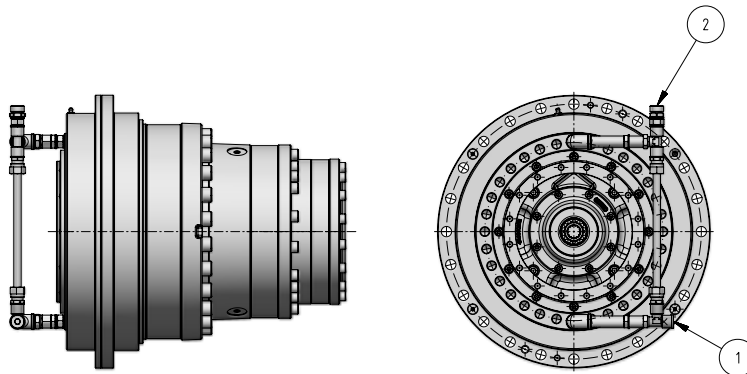


Size	Thread dimensions Plug 1 / Plug 2
030A	G 3/8"
042A	G 1/2"
060A	G 1/2"
085A	G 3/4"
125A	G 3/4"

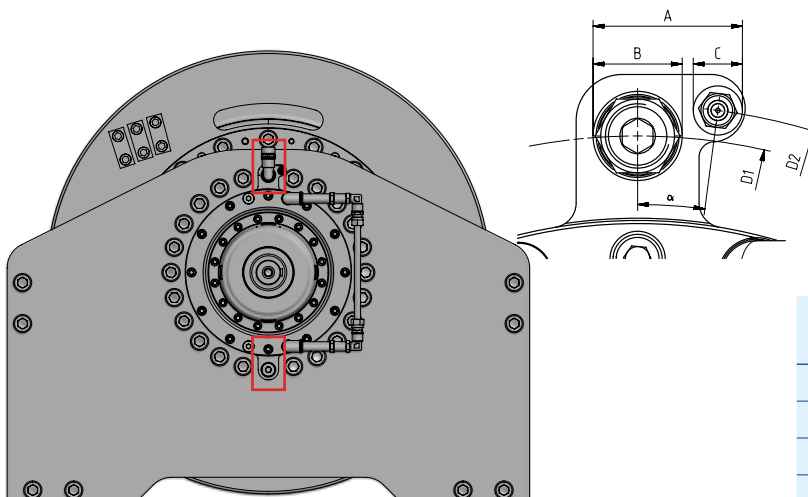
The oil filling must be done at room temperature:

- 1) Open the plugs 1 and 2 (plug 1 = filler plug; plug 2 = breather plug);
- 2) Fill with oil through hole 1, by using a pump, until the correct level is reached. Air is drained by the hole 2;
- 3) Close both plugs.

NOTE: for size 030 (except with J input), the oil level kit must be mounted as indicated in the following figure. The oil filling is made in the same way, but using the holes in the kit.



IMPORTANT: To allow the gearbox to be mounted on the frame, the shoulder frame must be machined to create two slots at 180° in correspondence with the holes for the drain plug and the breather plug (or intake and outtake holes in case of auxiliary cooling system). In one of the two, space must also be left for the greaser. The figure shows the dimensions in detail.

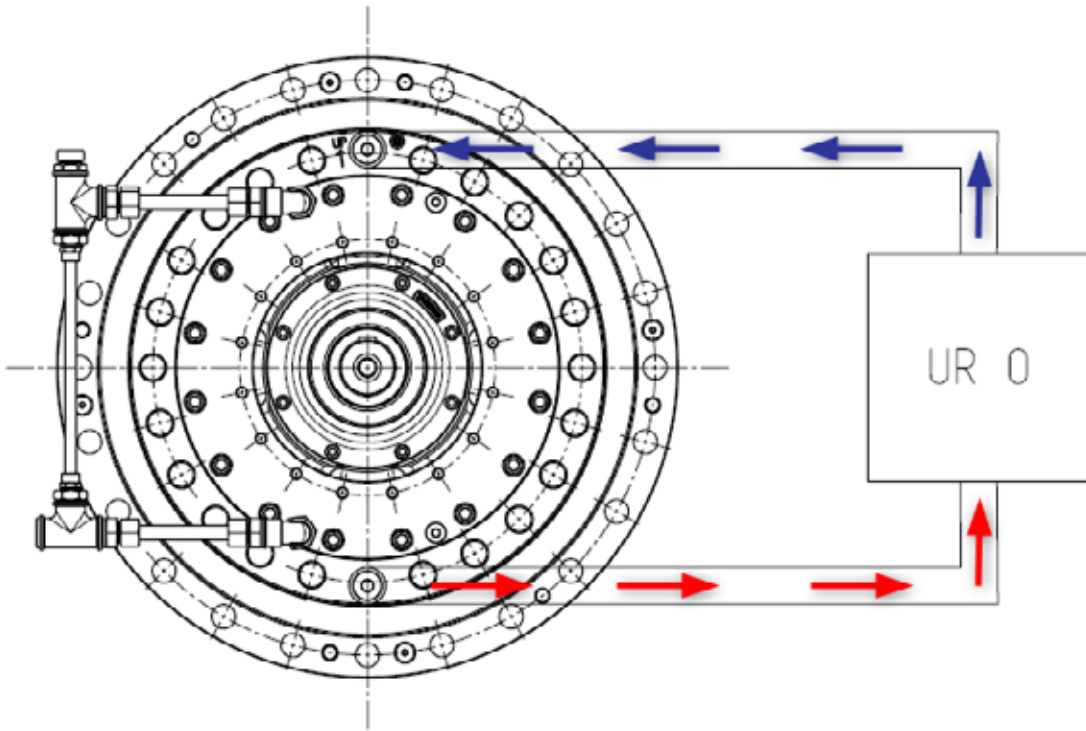


Size	A	B	C	α	D1 Ø	D2 Ø
030A	17	17	-	-	273	-
042A	43,5	29	16	6° 30'	350	371
060A	49	29	16	7° 30'	390	400
085A	58	40	16	7° 30'	440	460
125A	61	40	16	7° 30'	478	500

Auxiliary cooling system

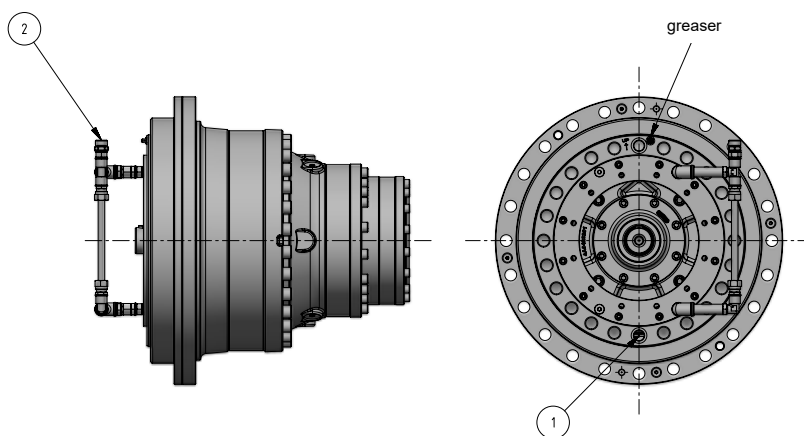
The power transmitted could be higher than the thermal power dissipated by the gear reducer. In this case, Rossi proposes an auxiliary cooling system able to:

- Dissipate the thermal power in excess;
- Maintain a good level of cleaning of the lubricating oil by using constant filtering.



When choosing the auxiliary cooling system, it is good to make sure that the flow rate (liters / minute) does not exceed 50% of the volume of lubricant present inside the gear reducer.

If a forced lubrication system or auxiliary cooling system are going to be used, the oil level kit is mounted as indicated in the following figure (plug 2 thread is G 3/8" for all sizes):

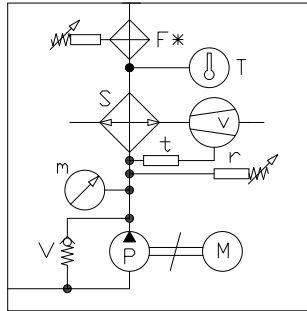


NOTE: for size 030 (except with J input), the oil level kit cannot be mounted, and oil filling must be done in accordance with the oil volume indicated in the catalog.

Design advice for independent cooling units

For the design of the cooling system, see the following instructions and sample diagrams.

It is recommended for suction to be in the lowest point and that suction and delivery points are adequately distant from each other. For the design of independent units, see ch. 10.



Legend:

- Pt 100** oil temperature probe (supplied separately)
- F** filter with electric clogging signaller (with UR O/W... it is supplied separately)
- m** manometer 0 ÷ 16 bar
- M** motor pump
- P** pump
- CT 03*, CT10*** signalling device (supplied separately)
- S** oil/air or oil/water heat exchanger
- v** motor fan (UR O/A ...)
- t** fan thermostat 0 ÷ 90 °C (UR O/A...)
- T** thermometer 0 ÷ 120 °C
- V** safety valve 6 bar (screw pump)
- r** low pressure switch

* On request.

Oil flow capacity of holes

Plugs size	d	q_s (max) [l/min]	q_d (max) [l/min]
G 1/4"	7	3	5
G 3/8"	10	6	10
G 1/2"	12	9	15
G 3/4"	16	16	27
G 1"	22	30	51
G 1 1/4"	30	56	95

Stated values are valid with a kinematic oil viscosity of about 60 Cst.

For exact oil levels, plug positions and size, expansions tanks, see ch. 8.

It is very important to design the hydraulic circuit according to the following indications:

$$q_s \leq Q_R$$

q_s max delivery in suction for 1 hole.

q_d max delivery sending for 1 hole.

Q_R is the gear reducer oil quantity at correct level, see ch. 8.

d internal diameter of fitting and pipes.

Where the use of only one hole is not enough to dispose all the oil flow, 2 or more holes can be connected at the main pipe-lines (suction and delivery).

Obviously, being a closed circuit, the total oil flow in suction and delivery must be equivalent.

Maintenance

At machine rest, verify at regular intervals (more or less frequently according to environment and use):

- all external surfaces are clean and air passages to the gear reducer are free, in order that cooling remains fully effective. An accumulation of dust impedes efficient heat exchange from the gear reducer housing and must be removed;
- oil level, oil leakage and deterioration degree (check with cold gear reducer at rest);
- correct fastening screws tightening.

During operation, check periodically

- noise level;
- vibrations;
- sealings



Attention! After a running period, gear reducer is subject to a light internal overpressure which may cause burning liquid discharge. Therefore, before loosening whichever plug (filler plug included) wait until gear reducer has become cold and open it carefully; if not possible, take the necessary protection measures against burning due to warm oil contact. In all cases, always proceed with great care.

Maximum oil temperatures indicated on lubrication table do not represent a hindrance to the gear reducer regular running.

Consider the lubrication interval stated in the table for all re-lubrication operations.

Use only lubricants of the same type stated on lubrication nameplate.

Oil temperature [°C]	Oil-change interval [h]	
	synthetic oil	mineral oil
≤ 65	12 500	5 600
65 ÷ 80	10 000	2 800
80 ÷ 95	6 300	1 400

Oil-change intervals assume pollution-free environment. When heavy overloads are present, halve the values.

Independently from running times, change the oil:

every 2 ÷ 4 years, for synthetic oil;

every 1 ÷ 2 years, for mineral oil;

During oil change operation, after unscrewing also the filler plug in order to facilitate oil draining (for plug position see ch. 8):

- wash the inside part of gear reducer housing using the same oil type suitable for the running (stated on lubrication nameplate); the oil used for this wash can be applied for further washings after proper filtering by 25 µm of filtration standard;
- clean, using a compressed air stream, all magnetic plugs, taking care to assemble them again in their original position;
- fill in the gear reducer with new oil up to level, using only oil of the same type and viscosity as per lubrication nameplate.

Seal rings

Replace the seal rings in case of dismantling or of periodical check; in this case, the new ring must be positioned so that it does not work on the same sliding race of previous ring.

Duration depends on several factors such as dragging speed, temperature, ambient conditions, etc.; as a rough guide it can vary from 1 600 ÷ 12 500 h.

Refill output seals with grease every 3 000 operating hours or at least every 6 months.

Troubles: causes and corrective actions

Trouble	Possible causes	Corrective actions
Excessive temperature (in continuous duty or of bearings)	Inadequate lubrication: — excessive of insufficient oil quantity — exhaust lubricant — too tightened taper roller bearings — excessive ambient temperature	Check: — oil level (gear reducer standstill) — lubricant type Consult Rossi Increase the cooling or correct the ambient temperature
	Bearing failure, defect or bad lubrication	Consult Rossi
	Inefficient or out of service oil cooling system: obstructed filter, insufficient oil (exchanger) or water (coil) flow rate, pump out of service, etc.	Check the pump, the pipes, the oil filter and safety devices efficiency (manostats, thermostats, etc.)
Anomalous noise	One or more teeth with — dents or spillings — excessive flanks roughness	Consult Rossi
	Bearings failure, defect or bad lubrication	Consult Rossi
Lubricant leaking from seal rings	Taper roller bearings with excessive clearance	Consult Rossi
	Vibrations	Check the fastening
	Seal ring with worm, bakelized, damaged or false mounted seal lip	Replace the seal ring
	Damaged rotating seating (scoring, rust, dent, etc.)	Restore the seating
	Mounting position differs from the one stated on the name plate	Correctly position the gear reducer

NOTE

When consulting Rossi state:

- all data on gear reducer or gearmotor name plate;
- failure nature and duration;
- when and under what conditions the failure happened;
- during the warranty period, in order not to lose its validity, do not disassemble nor open the gear reducer without the approval of Rossi.



Rossi

Solutions for
an evolving
industry

Rossi S.p.A.

Via Emilia Ovest 915/A
41123 Modena - Italy

info@rossi.com
www.rossi.com

UTD.216.04.2026.00_EN

© Rossi S.p.A. Rossi reserves the right to make any modification whenever to this publication contents. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described.

The Customer is responsible for the correct selection and application of product in view of its industrial and/or commercial needs, unless the use has been recommended by technical qualified personnel of Rossi, who were duly informed about Customer's application purposes. In this case all the necessary data required for the selection shall be communicated exactly and in writing by the Customer, stated in the order and confirmed by Rossi. The Customer is always responsible for the safety of product applications. Every care has been taken in the drawing up of the catalog to ensure the accuracy of the information contained in this publication, however Rossi can accept no responsibility for any errors, omissions or outdated data. Due to the constant evolution of the state of the art, Rossi reserves the right to make any modification whenever to this publication contents. The responsibility for the product selection is of the Customer, excluding different agreements duly legalized in writing and undersigned by the Parties.