alcon

specialist brakes & clutches

2017 catalogue

About Us

Star-studded history

Alcon was established in 1983 by engineer and sports car racer John Moore in order to make brakes for Audi Sport's Group B Quattro rally cars. Today the company provides braking solutions for the top echelons of motorsport, all from our factory and HQ in Tamworth. Our distributor network stretches across the globe, making Alcon accessible wherever you are.

Motorsport pedigree

Alcon's range of brake and clutch products is huge. It has been honed over 30 years of working at the top level of motorsport, from Audi Quattro Group B cars to the futuristic Formula E. We use our specialist knowledge to create the best solution for every customer's need. That's why we're the best at what we do.

OEM giants

Alcon supplies braking solutions to some of the world's most prestigious marques, including Audi, Bentley, Brabus and Jaguar Land Rover. Not only that, our products are found in some of the most extreme applications such as the 900bhp/tonne Ariel Atom 500 and the 225mph Noble M600.

On the road

Our racing and OEM expertise is also available to owners upgrading their street cars for enhanced performance on road or track. Alcon Advantage Extreme brake kits and upgraded clutches give those wanting top performance the edge, with race options available for the serious petrol head. Providing ultimate braking performance in a direct replacement package, these kits make use of the technology behind Alcon's involvement in top level motorsport, including F1, World Rally Championship, NASCAR and Japanese GT racing.

Special vehicles

Armoured protection for VIPs, military vehicles, hybrid supercars, zero emission municipal trucks, low carbon taxis are just some of the applications for which Alcon has engineered bespoke brake and clutch solutions. With a wealth of experience in brake and clutch design, backed by our well equipped development facility, Alcon thrives on the challenge of devising innovative and unusual solutions for every application.

Innovative. Future-proof

It's not just a case of what we do, but what we have the capability to do. Our research and development team is constantly working on finding the latest cutting-edge technology to give our brakes the winning advantage. As a result of our research, we're proud to be the sole supplier of brakes for the FIA Formula E Championship this year – just one example of the market-leading research and development we do.

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Our Team

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Contents

calipers introduction

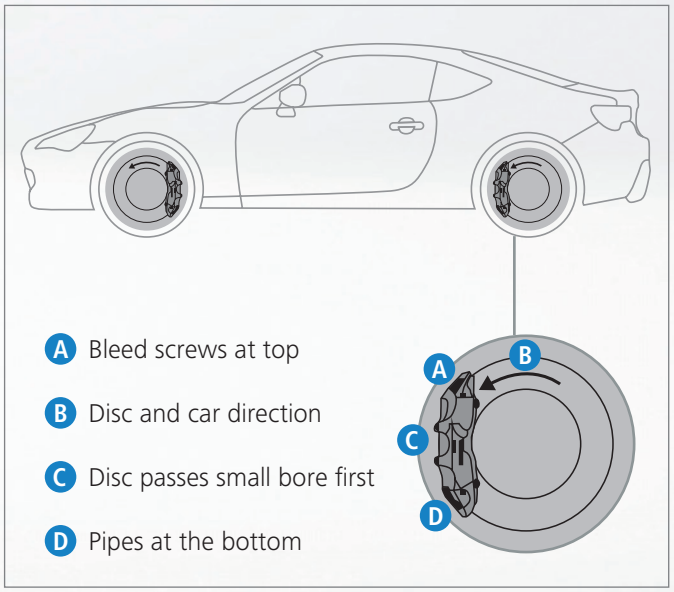
Key features

- Differential piston diameters are used in all Alcon calipers in order to minimise pad taper wear.
- We use high temperature seals as standard on all of our calipers.
- Alcon uses top-quality materials throughout the range including billet aerospace grade aluminium alloy and a hard anodised surface treatment where possible.
- Hard stainless steel wear plates protect the pad and caliper body in most of our racing calipers.

Caliper seals

It's important to examine and replace racing caliper seals on a regular basis as they are subjected to very high operating temperatures. The life of the seal depends on the time it has spent at these temperatures, so it's important to keep the seals as cool as possible. We recommend the following:

- Calipers that regularly run up to 200°C – Re-seal after every other event.
- Calipers that regularly run between 200°C and 220°C – Re-seal as soon as possible
- Do not let the caliper 'soak' temperatures after the car has come to a standstill – for example, ensure the foot is lifted off the pedal.



Caliper handing

Both leading and trailing calipers are available, and are identifiable using the following abbreviations:

- LL – Left hand leading
- RL – Right hand leading
- LT – Left hand trailing
- RT – Right hand trailing

Bleed screws must always be positioned at the top and discs must always pass the small piston first on differential bore calipers. Crossover pipes must always be positioned at the bottom.

Servicing and reconditioning

- Regular inspection and maintenance of calipers is vital in order to maintain brake efficiency and safety.
- Calipers should be cleaned with soapy water only to maintain seal life.
- Alcon offers a full reconditioning service, just get in touch.
- Spare parts including pistons, bleed screws etc. are available for all calipers – part numbers are listed on each product page.
- Replacement seals should be soaked in brake fluid for at least 30 minutes.

caliper technical information

Caliper installation

- Refer to the relevant caliper installation drawing for tightening torque and use of sealants and adhesives.
- Check that the caliper is of the correct hand before fitting it to the upright.
- Assemble the pads into the caliper. When inserted, the pads must be free to move with minimum clearances of: (0.016") end to end, between each pad and the caliper housing 0.4mm (0.016") top to bottom, between each pad and the caliper cross tube.
- Assemble the caliper to the upright, with bleed screws uppermost. Tighten the caliper retaining nuts to the specified torque. Connect the hose to the caliper and tighten to the specified torque using a new copper crush washer every time. Do not overtighten the fitting. Check that under all combinations of suspension and steering movement, the braided hose does not become taut or twisted and that it does not touch any adjacent components. If necessary, realign the hose.
- Check that the disc will rotate freely without any drag. With the caliper pistons pushed fully back into the bores and the bell clamped against the hub, there should be a minimum of 0.25mm (0.01") clearance between pad and pistons on each side of the caliper.
- To prevent overheating, clearance between the disc and caliper must not be less than 2mm (0.08") in all directions.

Brake bleed procedure

Use a high performance ethylene glycol based fluid such as Castrol Racing Fluid or, for higher temperature use, Castrol SRF. Do not use silicone brake fluid. Brake fluid is hygroscopic and the boiling point will reduce if it contains any moisture. For optimum performance, fluid should be changed regularly.

Each Alcon brake caliper has an optimum mounting angle, normally within plus or minus 5° of vertical, to prevent air from being trapped in the piston bores. Check with Alcon's technical department if the angular position is greater than 5° from vertical.

Ensure that the master cylinders are firmly fixed to a rigid bulkhead or cross member.

To avoid trapping air in the master cylinders, ensure that the fluid outlet port is uppermost. Preferably mount the cylinders level or with the push rod end slightly lower.

Avoid vertical loops in brake lines, which will trap air, particularly in the feed from the reservoir to the master cylinders.

To prevent a vacuum forming in the reservoir, there must be a breather hole in the cap.

Bleeding procedure

1. Connect a bleed bottle and tube to each caliper bleed screw and fill the reservoir, leaving the reservoir cap off. Open the bleed screws of each caliper in turn to allow the system to gravity fill, until clean fluid can be seen in each bleed tube. Check that the fluid level in the reservoir does not fall below the outlet opening. Close all bleed screws.

2. Where dual master cylinders are used, bleed one front and one rear caliper together. For calipers with two bleed screws, bleed the outer side of the caliper first, followed by the inner side.

3. Never bleed the system by pumping the pedal until it is firm followed by opening the bleed screws. If there is air in the system, this procedure will aerate the fluid, making removal more difficult.

4. Air in the master cylinder primary and secondary chambers should escape to the reservoir via the feed line when the brake is off. If there are any restrictions in the feed line or reservoir connection that prevents air from escaping, air that remains in the feed line will be drawn back into the cylinder on the recuperation stroke. To minimise the restriction, dash 4 hose and fittings should be used for the feed line, particularly if the reservoir outlet is close to the cylinder inlet.

5. Open the outer bleed screw of a front and rear caliper and slowly depress the pedal to avoid fluid aeration, using the full master cylinder stroke. Close the bleed screws and let the pedal return fully to its original position to allow the master cylinder to recuperate fresh fluid from the reservoir. Do not allow the pedal to snap back, use a controlled rate of return. Rest for 5 seconds to allow the master cylinder to re-fill. Top up the reservoir as required. Repeat until no air is visible in the bleed tube. Depending on brake hose runs, a clear tube should be achieved within 3-5 strokes.

6. Repeat section 5 for the inner bleed screws of the front and rear caliper until no air is visible in the bleed tube.

7. Repeat sections 5 & 6 on the other side of the car.

8. Repeat sections 5, 6 & 7 if pedal travel is not satisfactory.

9. If the pedal is not firm after repeating the procedure, there must still be air in the system and an alternative procedure, backbleeding, is recommended. Using this method, a large volume of fluid and any air that is trapped in the system is returned to the reservoir via the master cylinder inlet port.

10. Fit thin pads, or preferably just pad backplates, to each caliper and slowly pump the pedal so that caliper pistons move forward to contact the pads. Working on one caliper at a time, squeeze the pistons back into the caliper, displacing fluid to the reservoir. The reservoir will fill with displaced fluid so it must be emptied to prevent it from overflowing. Repeat the procedure for each caliper and re-fit the original pads before pressurising the system with the brake pedal.

11. After bleeding, check the complete system for leaks before driving the car.

12. Recommended bleed screw torque (do not over-tighten bleed screws):

13. The aim when bleeding is to achieve a firm pedal that holds its position under a sustained pedal load. Re-bleeding the brakes after some running can further improve the pedal.

14. IMPORTANT - When the system is fully bled, the threaded rod of the balance bar should be at right angles to the master cylinder push rods when the normal maximum pedal load is applied.

Temperature effects

- Calipers must be regularly inspected for leaks and damage. Temperatures must be monitored at all times to prevent overheating.

- Ideally, on-track caliper temperatures, using thermocouples that measure fluid temperature, should be kept below 180°C (356°F) by effective use of ducted air. Surface temperature of the caliper housing recorded with thermal stickers is the result of heat soak from the discs and pads after the car has stopped and is typically 30-40°C (86-104°F) higher than on-track temperature. To minimise heat soak, the driver should be encouraged to back off on the in-lap to allow the brakes to cool.

- Excessive temperature will also affect other components used in the caliper. If caliper temperature exceeds 210°C (410°F), the hardness of the caliper housing should be checked to ascertain if the temperature has permanently affected the tensile properties of the material. The recommended method is Rockwell B Scale using 1/16" Ball and load of 100 Kg (see figure 1).

- Recommended time at temperature before seals must be changed and hardness of caliper housing is checked is shown below (figure 2).

- The elastomers used for brake caliper seals begin to deteriorate when exposed to temperatures above 150°C (300°F). However, the degree of deterioration is time dependent and seals can withstand exposure to temperatures up to 240°C (464°F) for a short time. Whilst seals will withstand such high temperatures for a short time without leaking, deterioration of the seal will affect caliper performance: Compression set causes a reduction in squeeze force and hence friction between the seal and bore, leading to an increase in pedal travel due to knock-off, a condition that is not recoverable without changing seals. Seal extrusion occurs after prolonged use at elevated temperature. Brake line pressure causes the seal to be extruded between the piston and bore. Under close examination, the seal edge will appear 'nibbled, at the inside diameter. Severe degradation of the seals will eventually occur if calipers are continually used at extreme temperature. The combination of high temperature and brake line pressure causes tearing at the inner diameter of the seal and detachment of material. This can lead to fluid leakage and loss of brakes.

Limits of use	Hardness (Rockwell B)
Hardness above, acceptable for re-use.	59
Hardness between, acceptable, use with caution.	54 & 59
Hardness below, not acceptable for re-use, caliper to be scrapped off.	53

Figure 1.

On track caliper temperature measured with brake fluid thermocouple	In pit caliper temperature measured with thermal stickers (heat soak)	Duration	Action
<150°C (302°F)	<180°C (356°F)	48hrs	Change seals
150-180°C (302-356°F)	180-210°C (356-410°F)	8hrs	Change seals
180-210°C (356-410°F)	210-240°C (410-464°F)	3hrs	Change seals, check hardness of housing
210-240°C (410-464°F)	240-270°C (464-518°F)	Immediate	Change seals, check hardness of housing

Figure 2.

Pad changing

- Thoroughly clean the protruding pistons with brake cleaner before pushing the pistons back to fit new pads. Scotchbrite or similar abrasives should not be used to clean pistons as the coating may be removed from the piston.

- The pistons in Alcon calipers are ground to achieve close dimensional tolerance, roundness and surface finish. Friction between the piston and seal is lower with lubricated seals than with dry seals. Pistons and seals in Alcon calipers are assembled with a lubricant that evaporates at around 100°C (212°F), therefore piston retraction will increase as caliper temperature rises during normal use.

- The level of friction also helps to resist piston displacement due to disc run-out or suspension/ hub deflection (knock-back). Typically, pistons will recover from displacement into the caliper by up to 0.5mm (0.02”), preventing increased lost travel at the pedal and maintaining a constant pedal position under all conditions. This feature means that a higher than normal force may be required to push pistons back into the caliper during a pad change.

- Note the importance of cleaning pistons during a pad change, to prevent debris being deposited in the seal/ piston interface as pistons are pushed back. Debris will reduce seal to piston friction, and have an adverse effect on piston retraction.

Caliper seal and seal groove function in Alcon seal in bore calipers

As well as retaining hydraulic pressure, the rubber seal performs several other key functions. The seal must retract the piston when hydraulic pressure has decayed after braking, to prevent residual drag, which causes excessive temperature, pad wear and loss of speed. However retraction must be minimal to prevent excessive volume displacement and thus lost travel at the pedal and slower response at the caliper. The seal also helps to resist piston displacement due to disc run-out, suspension deflection or severe vibrations, commonly referred to as knock-back. This is controlled by the seal squeeze force, which provides friction between the piston and seal. The resulting friction level must not adversely affect piston sliding force. Seal performance is affected by the following:

- Seal groove geometry.

- Seal and seal groove diameter.

- Friction between the piston and seal.

- Seal material properties within the operating temperature range.

When the caliper is fitted to the car and bleeding has been completed, the pistons must be re-set by pushing each piston back into the bore by a small amount. When the brakes are next applied, the pistons will move forward to contact the pads, which will energise the seals. When the brakes are released and pressure has decayed to zero, the seals will retract the pistons. Failure to create forward movement of the pistons may lead to off-brake drag.

Advanced Seal Lubricant (ASL)

After new seals have been fitted in Alcon racing calipers using the standard assembly grease, it is normal to find that brake pedal travel is longer than usual during the first run, and it reduces with more running until it is short and firm. This is due to the fact that piston retraction is excessive and friction between the seals and pistons is low. The seals need to bed-in to the grooves before piston retraction reduces to a normal level and friction between the seals and pistons increases to give the optimum piston control characteristics. The combination of line pressure and the temperature generated during installation runs is normally enough to bed-in the seals. Alcon has developed an advanced fluid for conditioning new seals prior to assembly. Using this fluid, the seals will require no further bedding-in and pedal travel will be similar to a caliper that has been through a heat cycle. Instructions for use:

- Always shake the bottle before use.

- Soak new seals in the fluid for 24 hours before use.

- Remove the pistons and used seals from the caliper and thoroughly clean and de-grease the housing, removing all traces of any previously used grease or lubricant from the bores, seal grooves and pistons.

- Insert the seals into the seal grooves, smear a small amount of fluid on the outside of each piston and insert the pistons, pushing them fully into the bore.

- Part number 250ml bottle: MOB3430X886.

advantage range

The basics

Alcon's Advantage Range calipers form the core of our product stable. They are designed to fit the majority of applications, from 13" Single Seater wheels to 18" GT, and everything in between.

Advantage Range products are kept in stock here at Alcon and therefore are available as and when our customers need them and, if we are out of stock, we can quickly fulfil your order. This range is aimed at clubman and national level racers. If there is anything you'd like to enquire about, or if you'd like to order a product, please get in touch with one of our sales representatives.

Applications

Advantage Range calipers are available for a number of applications including, but not limited to:

- Single seater
- Rally
- Hill Climb
- GT
- Touring car
- One Make series
- Group N+
- General race use
- Saloon car

If you're looking for a product not listed above, chances are we have something to suit - just get in touch.

advantage range part numbering **GUIDE**

				38/41		
				or		
C	R	H	304/28	-	44	LL
1	2	3	4		5	6

1. Part

C: Caliper

2. Mounting

L: Lug type
R: Radial type

3. Caliper family

E.G: H, B, R

4. Maximum permitted disc Ø & thickness

E.G: 304/28 (Ø / thickness)

5. Piston size (4 or 2)

E.G: 38/41 (4)
E.G: 44 (2)

6. Handling

LL: Left leading
LT: Left trailing
RL: Right leading
RT: Right trailing

Please note: to avoid the risk of piston pop ensure disc thickness is not less than the minimum thickness specified on caliper installation details.

All measurements are given in metric (mm) unless otherwise stated in imperial (").

advantage range **CRR280**

2-piston radial mount R-type caliper

Part numbers and handing

Disc Thickness	Position	Ø44.45 pistons
22.9-25.4mm	LH trailing	CRR280/25-44LT
	RH trailing	CRR280/25-44RT
	LH leading	CRR280/25-44LL
	RH leading	CRR280/25-44RL

Replacement parts

Item	Ø44.45 pistons
Seal Kit, axle set	CSK45E900
Pistons, ALUMINIUM (each)	PAS4448X553
Pistons, STAINLESS STEEL (each)	PSS4426X600
AKB Springs (each)	SSC3435X609
Bridge Pipe (each)	PSC3451X652
Bleed Screw (each)	FSB0080X008
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015

Applications

Rally Rear, Single Seater, Saloon Car Rear, Hill Climb.

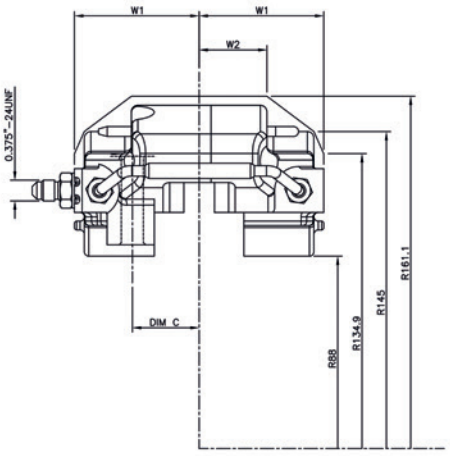
Key features and benefits

- Radial mounting for maximum rigidity and firm, consistent pedal.
- Aluminium pistons as standard, stainless steel pistons available as an option to reduce heat transfer to brake fluid.
- 2Kg Anti-knock back springs.
- Pad retaining wire for fast pad change.
- Stainless steel fluid transfer pipe.

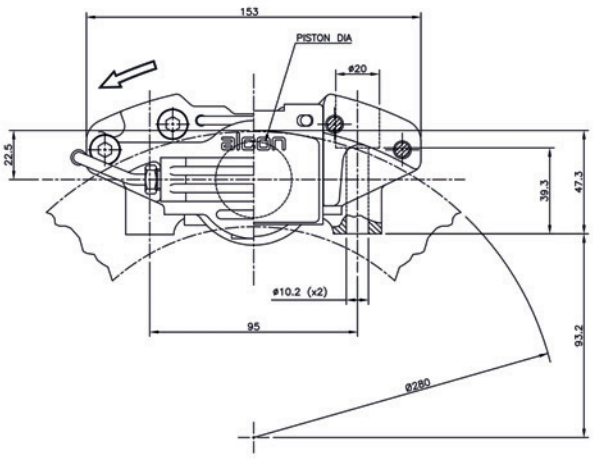
Specifications

- Disc diameter range: ø250 - 280mm.
- Disc thickness range: 22.9 - 25.4mm.
- Fluid inlet 3/8-24 UNF (-3) female.
- Dry weight 1.35kg excluding pads.
- Alcon pad reference: 3451/42 area 49.2cm² per caliper, 3451/47 area 56.0cm² per caliper, 14mm thick, 63.4mm long.

Installation dimensions



CALIPER PART No.	PISTON DIA	DISC THICK	DIM C	DIM W1	DIM W2
CRR280/11-35LL&RL CRR280/11-35LT&RT	Ø34.9	11.1	30.5	57	31
CRR280/25-44LL&RL CRR280/25-44LT&RT	Ø44.5	25.4	38.5	65	39



2-piston radial mount R-type caliper

Part numbers and handing

Disc Thickness	Position	Ø28.6 pistons	Ø34.9 pistons
9.6 -10.0 mm	LH leading /trailing	CRR300/10-29L	CRR300/10-35L
	RH leading /trailing	CRR300/10-29R	CRR300/10-35R

Replacement parts

Item	Ø28.6 pistons	Ø34.9 pistons
Seal Kit, axle set	CSK29E602	CSK35E900
Pistons, ALUMINIUM (each)	PAS4471X732	PAS3435X556
Pistons, STAINLESS STEEL (each)	PSS4426X600	PSS3526X600
AKB Springs (each)	SSC3435X623	SSC3435X609
Wear Plates, caliper set	ASK4406X100.2	
Bleed Screw (each)	FSB0080X008	
Inlet Adapter, 3/8 UNF male to male	FSA3435X630	
Copper gasket	FCG0080X015	

Applications

Rally Rear, Single Seater, Saloon Car Rear, Hill Climb.

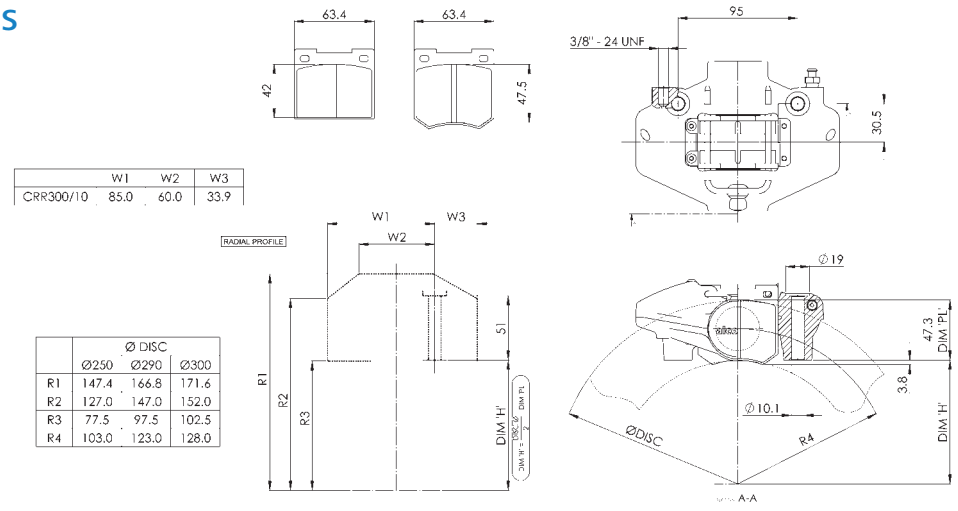
Key features and benefits

- Radial mounting for maximum rigidity and firm, consistent pedal.
- Aluminium pistons as standard, stainless steel pistons available as an option to reduce heat transfer to brake fluid.
- 2Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Pad retaining wire for fast pad change.
- Common leading/trailing installation by switching bleed screw and inlet.
- Internally ported, no external fluid transfer pipe.

Specifications

- Disc diameter range: ø250 - 300mm.
- Disc thickness range: 8 - 10mm.
- Fluid inlet 3/8-24 UNF (-3) female.
- Dry weight 0.97kg excluding pads.
- Alcon pad reference: 3451/42 area 49.2cm² per caliper, 3451/47 area 56.0cm² per caliper,14mm thick, 63.4mm long.

Installation dimensions



	W1	W2	W3
CRR300/10	85.0	60.0	33.9

	Ø DISC		
	Ø250	Ø290	Ø300
R1	147.4	166.8	171.6
R2	127.0	147.0	152.0
R3	77.5	97.5	102.5
R4	103.0	123.0	128.0

advantage range **CRH304**

4-piston radial mount caliper

Part numbers and handing

Disc Thickness	Position	Ø38.1 / 41.3 pistons	Ø31.8 / 31.8 pistons
25.4 -28mm	LH trailing	CRH304/28-38/41LT	CRH304/28-32/32LT
	RH trailing	CRH304/28-38/41RT	CRH304/28-32/32RT
	LH leading	CRH304/28-38/41LL	CRH304/28-32/32LL
	RH leading	CRH304/28-38/41RL	CRH304/28-32/32RL

Applications

Rally Rear, Single Seater, Saloon Car Rear, Hill Climb.

Replacement parts

Item	Ø38.1 / 41.3 pistons	Ø31.8 / 31.8 pistons
Seal Kit, axle set	CSK3841E900	CSK3232E900
Pistons, ALUMINIUM (each)	PAS4438X551 PAS4441X551	PAS4471X741
Pistons, STAINLESS STEEL (each)	PSS3828X600 PSS4128X600	PSS3228X600
AKB Springs (each)	SSC3435X608	
Bridge Pipe (each)	PSC4463X653	
Bleed Screw (each)	FSB0080X008	
Inlet Adapter, 3/8 UNF male to male	FSA3435X630	
Copper gasket	FCG0080X015	

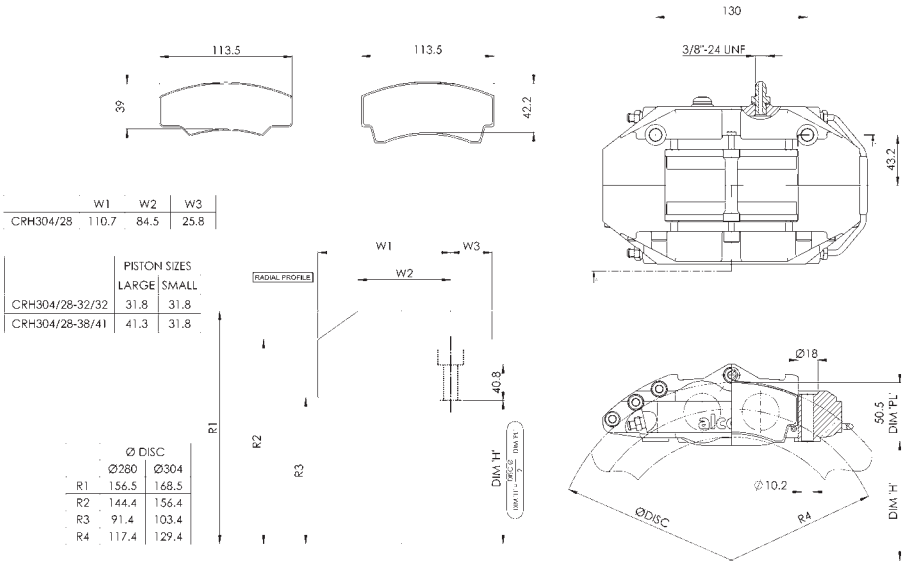
Key features and benefits

- Radial mount for maximum rigidity and firm, consistent pedal.
- Aluminium pistons as standard, stainless steel pistons available as an option to reduce heat transfer to brake fluid.
- 2Kg Anti-knock back springs.
- Remove pad retainer bolt and sleeve to change pads.
- Stainless steel fluid transfer pipe.

Specifications

- Disc diameter range: ø250 - 304mm.
- Disc thickness range: 25.4 - 28mm.
- Fluid inlet 3/8-24 UNF (-3) male.
- Dry weight 1.9kg excluding pads.
- Alcon pad reference: 4463/39 area 80cm² per caliper, 4463/42 area 92cm² per caliper, 16mm thick, 113.5mm long.

Installation dimensions



4-piston radial mount B-type caliper

Part numbers and handing

Disc Thickness	Position	Ø38.1 / 41.3 pistons	Ø31.8 / 31.8 pistons
26 - 30 mm	LH trailing	CRB332/30-38/41LT	CRB332/30-32/32LT
	RH trailing	CRB332/30-38/41RT	CRB332/30-32/32RT
	LH leading	CRB332/30-38/41LL	CRB332/30-32/32LL
	RH leading	CRB332/30-38/41RL	CRB332/30-32/32RL
28 - 32 mm	LH trailing	CRB332/32-38/41LT	CRB332/32-32/32LT
	RH trailing	CRB332/32-38/41RT	CRB332/32-32/32RT
	LH leading	CRB332/32-38/41LL	CRB332/32-32/32LL
	RH leading	CRB332/32-38/41RL	CRB332/32-32/32RL

Applications

Rally Rear, Group N+, Touring Car, General Race use.

Replacement parts

Item	Ø38.1 / 41.3 pistons	Ø31.8 / 31.8 pistons
Seal Kit, axle set	CSK3841E900	CSK3232E900
Pistons, ALUMINIUM (each)	PAS4438X551 PAS4441X551	PAS4471X741
Pistons, STAINLESS STEEL (each)	PSS3828X600 PSS4128X600	PSS3228X600
AKB Springs (each)	SSC3435X609	SSC3435X623
Bridge Pipe, CRB332/30	PSC3468X672	
Bridge Pipe, CRB332/32	PSC3468X673	
Bleed Screw (each)	FSB0080X008	
Inlet Adapter, 3/8 UNF male to male	FSA3435X630	
Copper gasket	FCG0080X015	

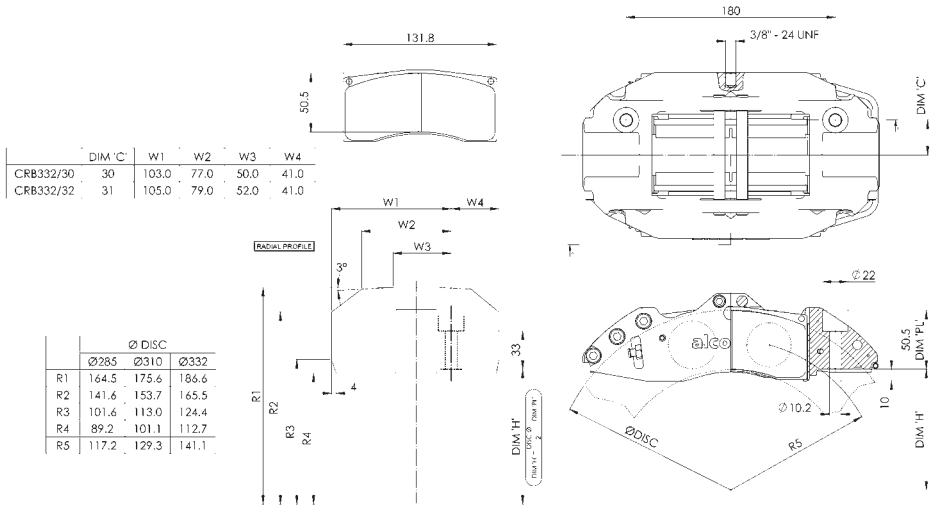
Key features and benefits

- Radial mounting for maximum rigidity and firm, consistent pedal.
- Differential piston diameters that minimise pad taper wear.
- Aluminium pistons as standard, stainless steel pistons available as an option to reduce heat transfer to brake fluid.
- 2Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Fixed pad retainer.

Specifications

- Disc diameter range: ø285 - 332mm.
- Disc thickness: CRB332/30; 26 - 30mm,
  CRB332/32; 28 - 32mm.
- Fluid inlet 3/8-24 UNF (-3) female.
- Dry weight 2.40kg excluding pads.
- Alcon pad reference: 4441 or 4423, 16mm thick, 132mm long, 50mm deep, area 133cm² per caliper.

Installation dimensions



	DIM 'C'	W1	W2	W3	W4
CRB332/30	30	103.0	77.0	50.0	41.0
CRB332/32	31	105.0	79.0	52.0	41.0

	Ø DISC		
	Ø285	Ø310	Ø332
R1	164.5	175.6	186.6
R2	141.6	153.7	165.5
R3	101.6	113.0	124.4
R4	89.2	101.1	112.7
R5	117.2	129.3	141.1

advantage range **CRB343**

4-piston radial mount B-type caliper

Part numbers and handing

Disc Thickness	Position	Ø38.1 / 41.3 pistons	Ø31.8 / 31.8 pistons
28 - 32 mm	LH trailing	CRB343/32-38/41LT	CRB343/32-32/32LT
	RH trailing	CRB343/32-38/41RT	CRB343/32-32/32RT
	LH leading	CRB343/32-38/41LL	CRB343/32-32/32LL
	RH leading	CRB343/32-38/41RL	CRB343/32-32/32RL

Replacement parts

Item	Ø38.1 / 41.3 pistons	Ø31.8 / 31.8 pistons
Seal Kit, axle set	CSK3841E900	CSK3232E900
Pistons, ALUMINIUM (each)	PAS4438X551 PAS4441X551	PAS4471X741
Pistons, STAINLESS STEEL (each)	PSS3828X600 PSS4128X600	PSS3228X600
AKB Springs (each)	SSC3435X609	SSC3435X623
Wear Plates, caliper set	ASK4489X549.4	
Bridge Pipe	PSC3468X673	
Bleed Screw (each)	FSB0080X008	
Inlet Adapter, 3/8 UNF male to male	FSA3435X630	
Copper gasket	FCG0080X015	

Applications

Rally, Group N+, Touring Car and General Race use.

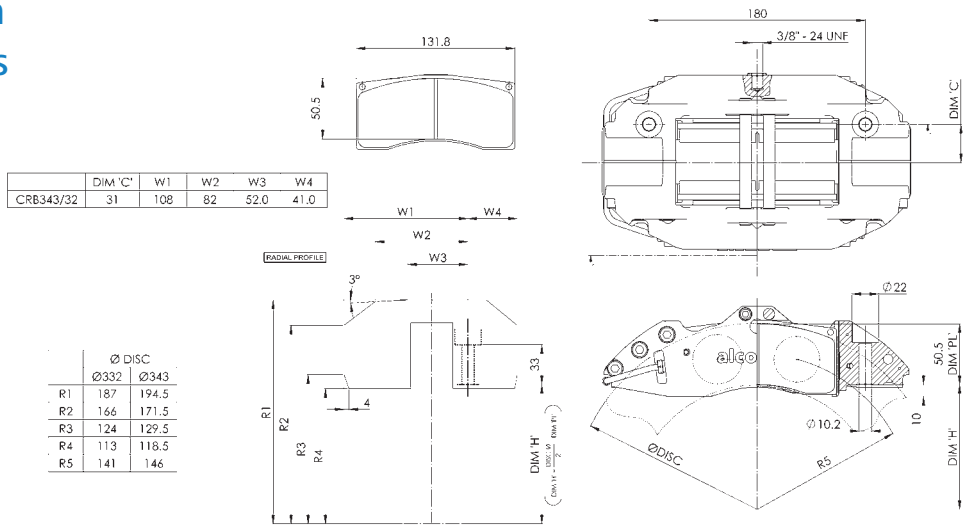
Key features and benefits

- Radial mounting for maximum rigidity and firm, consistent pedal.
- Differential piston diameters that minimise pad taper wear.
- Aluminium pistons as standard, stainless steel pistons available as an option to reduce heat transfer to brake fluid.
- 2Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Fixed pad retainer bars to increase stiffness, remove caliper to change pads.

Specifications

- Disc diameter range: ø280 - 343mm.
- Disc thickness range: 28 - 32mm.
- Fluid inlet 3/8-24 UNF (-3) female.
- Dry weight 2.40kg excluding pads.
- Alcon pad reference: 4441 or 4423, 16mm thick, 132mm long, 50mm deep, area 133cm² per caliper.

Installation dimensions



	DIM 'C'	W1	W2	W3	W4
CRB343/32	31	108	82	52.0	41.0

	Ø DISC	
	Ø332	Ø343
R1	187	194.5
R2	166	171.5
R3	124	129.5
R4	113	118.5
R5	141	146

4-piston radial mount B-type caliper

Part numbers and handing

Disc Thickness	Position	Ø38.1 / 41.3 pistons	Ø31.8 / 31.8 pistons
28 - 32 mm	LH trailing	CRB356/32-38/41LT	CRB356/32-32/32LT
	RH trailing	CRB356/32-38/41RT	CRB356/32-32/32RT
	LH leading	CRB356/32-38/41LL	CRB356/32-32/32LL
	RH leading	CRB356/32-38/41RL	CRB356/32-32/32RL

Replacement parts

Item	Ø38.1 / 41.3 pistons	Ø31.8 / 31.8 pistons
Seal Kit, axle set	CSK3841E900	CSK3232E900
Pistons, ALUMINIUM (each)	PAS4438X551 PAS4441X551	PAS4471X741
Pistons, STAINLESS STEEL (each)	PSS3828X600 PSS4128X600	PSS3228X600
AKB Springs (each)	SSC3435X609	SSC3435X623
Wear Plates, caliper set	ASK4468X722.4	
Bridge Pipe (each)	PSC4423X657	
Bleed Screw (each)	FSB0080X008	
Inlet Adapter, 3/8 UNF male to male	FSA3435X630	
Copper gasket	FCG0080X015	

Applications

Rally, Group N+, Rally Cross and General Race use.

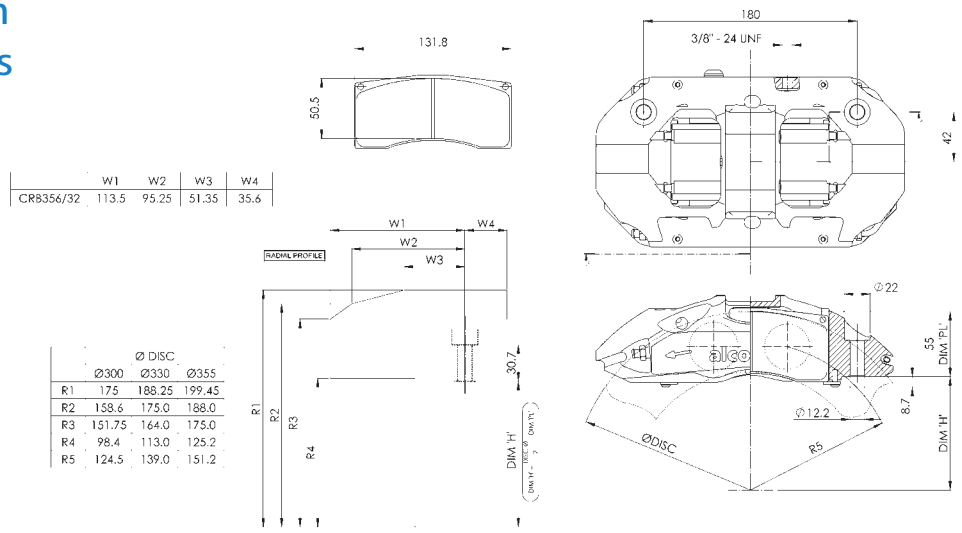
Key features and benefits

- Radial mount for maximum rigidity and firm, consistent pedal.
- Differential piston diameters that minimise pad taper wear.
- Aluminium pistons as standard, stainless steel pistons available as an option to reduce heat transfer to brake fluid.
- 2Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Central bridge with facility for cooling duct to direct air across the caliper to cool the outer half.

Specifications

- Disc diameter range: ø300 - 355mm.
- Disc thickness range: 28 - 32mm.
- Fluid inlet 3/8-24 UNF (-3) female.
- Dry weight 2.40kg excluding pads.
- Alcon pad reference: 4441 or 4423, 16mm thick, 132mm long, 50mm deep, area 133cm² per caliper.

Installation dimensions



advantage range **CR6380**

6-piston radial mount caliper

Part numbers and handing

Disc Thickness	Position	Ø30.2 / 34.9 / 38.1 pistons
30 - 32 mm	LH trailing	CR6380/32-30/35/38BLT
	RH trailing	CR6380/32-30/35/38BRT
	LH leading	CR6380/32-30/35/38BLL
	RH leading	CR6380/32-30/35/38BRL

Replacement parts

Item	Ø30.2 / 34.9 / 38.1 pistons
Seal Kit, axle set	CSK303538E900
Pistons, ALUMINIUM (each)	PAS4471X721 PAS4471X750 PAS4471X760
Pistons, STAINLESS STEEL (each)	PSS2730X600 PSS3530X600 PSS3830X600
AKB Springs (each)	SSC3435X608 (×2) SSC3435X602 (×4)
Bridge Pipe (each)	PSC4497X661
Bleed Screw (each)	FSB0080X008
Inlet Adapter, 3/8 UNF male to male	FSA3435X625
Copper gasket	FCG0080X015

Applications

Touring car, One Make Series and General Race use.

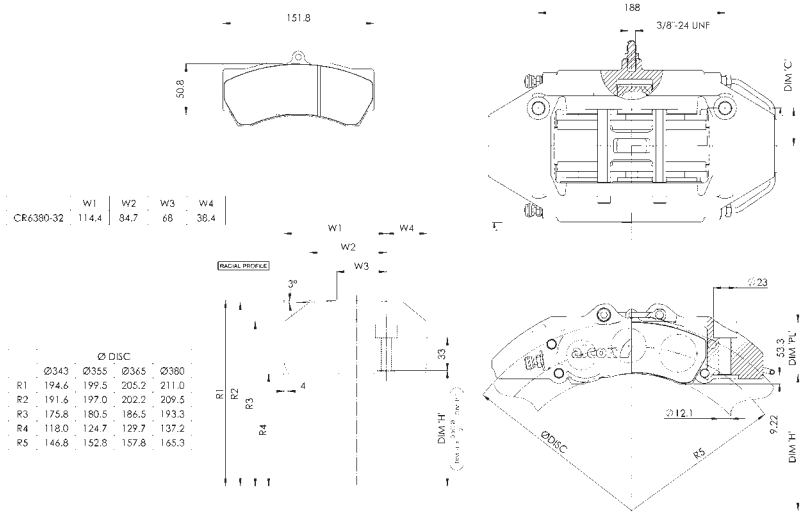
Key features and benefits

- Radial mounting for maximum rigidity and firm, consistent pedal.
- Differential piston diameters that minimise pad taper wear.
- Aluminium pistons as standard, stainless steel pistons available as an option to reduce heat transfer to brake fluid.
- 2Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Hard stainless steel pad support and abutment pins.
- Bolted pad retainer to increase stiffness, remove retainer to change pads.

Specifications

- Disc diameter range: ø343 - 380mm.
- Disc thickness range: 30 - 32mm.
- Fluid inlet 3/8-24 UNF (-3) male.
- Dry weight 3.50kg excluding pads.
- Alcon pad reference: 4497, 18mm thick, 152mm long, 50.8mm deep, area 148cm² per caliper.

Installation dimensions



advantage range **CR6420**

6-piston radial mount caliper

Part numbers and handing

Disc Thickness	Position	Ø27.0 / 31.8 / 38.1 pistons
34-35.6 mm	LH trailing	CR6420/36-27/32/38LT
	RH trailing	CR6420/36-27/32/38RT
	LH leading	CR6420/36-27/32/38LL
	RH leading	CR6420/36-27/32/38RL

Replacement parts

Item	Ø27.0 / 31.8 / 38.1 pistons
Seal Kit, axle set	CSK273238E751
Pistons, STAINLESS STEEL (each)	PSS2733X650 PSS3233X650 PSS3833X650
AKB Springs (each)	SSC3435X623 (×2) SSC3435X616 (×2) SSC3435X609 (×2)
Bridge Pipe (each)	PSC4489X553L/R
Bleed Screw (each)	FSB3430X689
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG3430X015

Applications

GT, Touring Car.

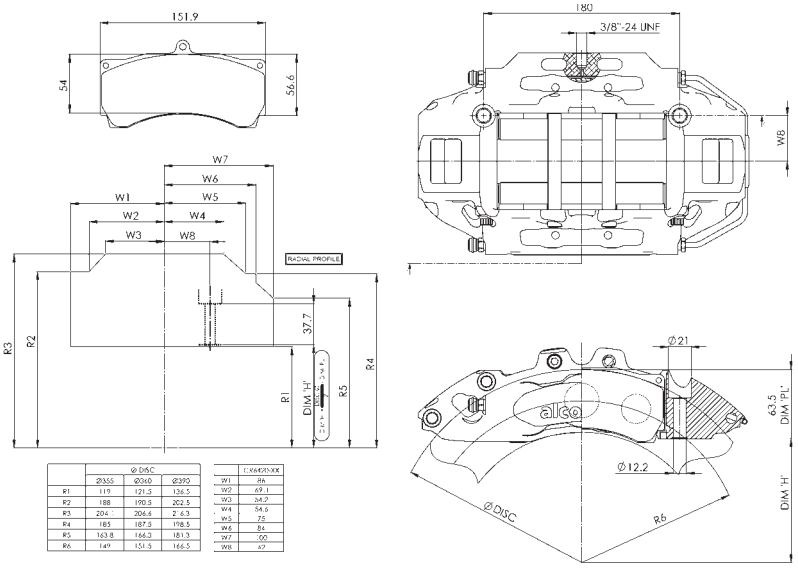
Key features and benefits

- Billet aerospace grade aluminium alloy provides high strength and light weight.
- Differential piston diameters that minimise pad taper wear.
- Stainless steel pistons as standard.
- 2kg anti-knock back springs.
- Hard stainless steel wear plates.
- Hard stainless steel wear plates.
- Bolted pad retainer to increase stiffness, remove retainer to change pads.

Specifications

- Disc diameter range ø355 - 390mm.
- Disc thickness range: 34 - 36mm.
- Fluid inlet 3/8-24 UNF (-3) female.
- Dry weight 3.35kg excluding pads.
- Alcon pad reference: 4489, 25mm thick, 152mm long, 50.8mm deep, area 152cm² per caliper or 54.0mm deep, area 155cm² per caliper.

Installation dimensions



advantage range **MO/MS SERIES**

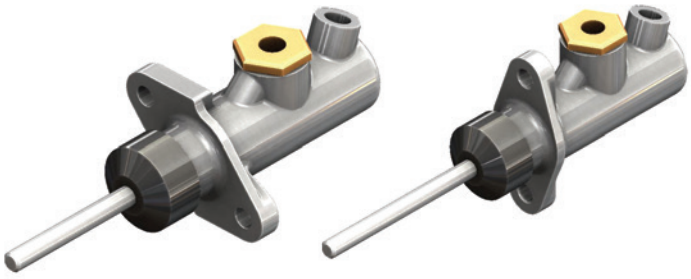
Flange mounted master cylinders

Part numbers and handing

Ø Bore	Vertical flange	60° offset flange
15.90 (0.625”)	MS/625	MO/625
17.78 (0.700”)	MS/700	MO/700
19.05 (0.750”)	MS/750	MO/750
20.62 (0.812”)	MS/812	MO/812
22.22 (0.875”)	MS/875	MO/875

Replacement parts

Item	Master cylinder	Ø Bore	Seal kit
Seal kit, comprises: Primary Seal, Secondary Seal, Primary Seal Washer, Piston, Gasket, Spring and Rubber Boot	MS/625-MO/625	15.90 (0.625”)	MSK1200RK
	MS/700-MO/700	17.78 (0.700”)	MSK1210RK
	MS/750-MO/750	19.05 (0.750”)	MSK1220RK
	MS/812-MO/812	20.62 (0.812”)	MSK1230RK
	MS/875-MO/875	22.22 (0.875”)	MSK1240RK
Copper gasket 0.437 UNF		FCG0080X104	
Copper gasket 0.375 UNF		FCG0080X015	



Applications

General Race and Rally use.

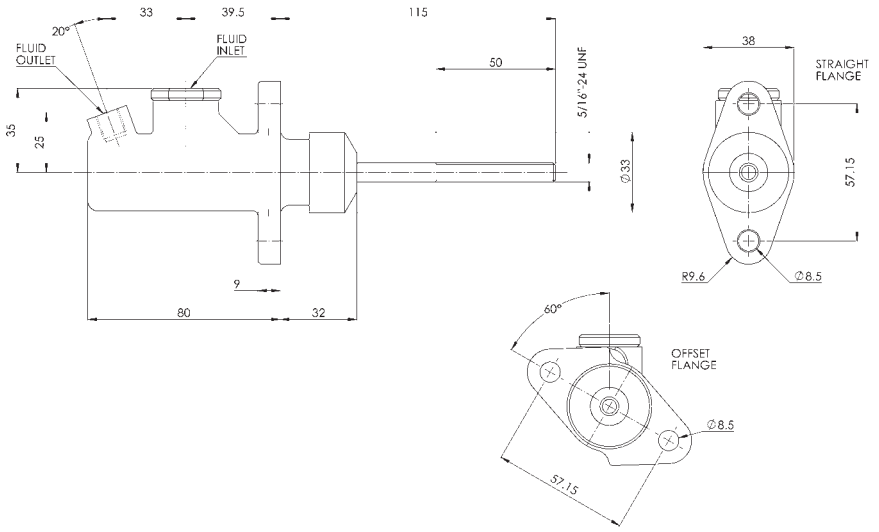
Key features and benefits

- Suitable for brake and clutch applications.
- Standard 57.2 (2.25”) mounting centres, interchangeable with other manufacturers’ master cylinders.
- Breather port clearance (cut-off travel) calibrated during assembly to provide controlled lost travel.
- Rubber dust excluder boot.
- Non-standard push rods available on request.
- Versions with non-captive push rods available on request.

Specifications

- Push rod length from flange is 115mm with 50mm thread length. Shorten push rod as required.
- Fluid inlet port 0.437-20 UNF (-4) Tightening torque 18-22Nm with a copper washer.
- Fluid outlet port 0.375-24 UNF (-3) Tightening torque 17-20Nm with a copper washer.
- To avoid trapping air, install it with the ports uppermost. The fluid outlet port must not be below the horizontal axis.
- Push rod angularity must not exceed 5° throughout the full travel.
- Weight 0.31Kg.

Installation dimensions



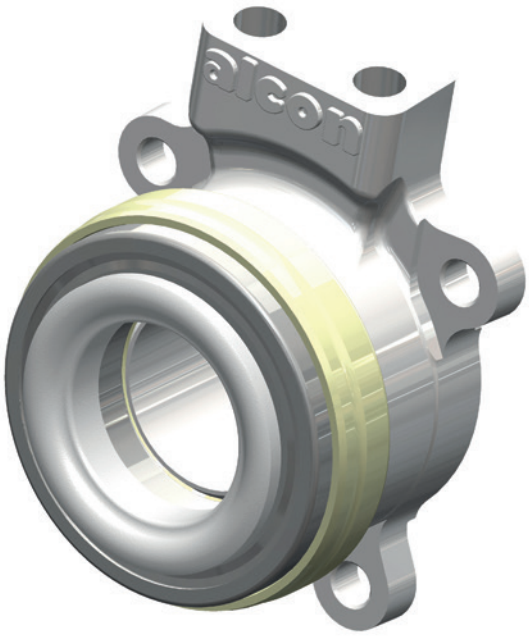
Clutch concentric slave cylinders

Part numbers and handing

Part Number	Bearing Fulcrum Ø
KSA3813FX001	38mm
KSA4413FX010	44mm
KSA5213FX001	52mm

Replacement parts

Part Number	Seal Kit	Bearing	Bearing Kit
KSA3813FX001	SSK5035E601	KRB3835X001	KRB3835X001K
KSA4413FX010	SSK5035E601	KRB6244X001	KRB4435X010A
KSA5213FX001	SSK5035E601	KRB5240X001	N/A



Applications

General Race and Rally use.

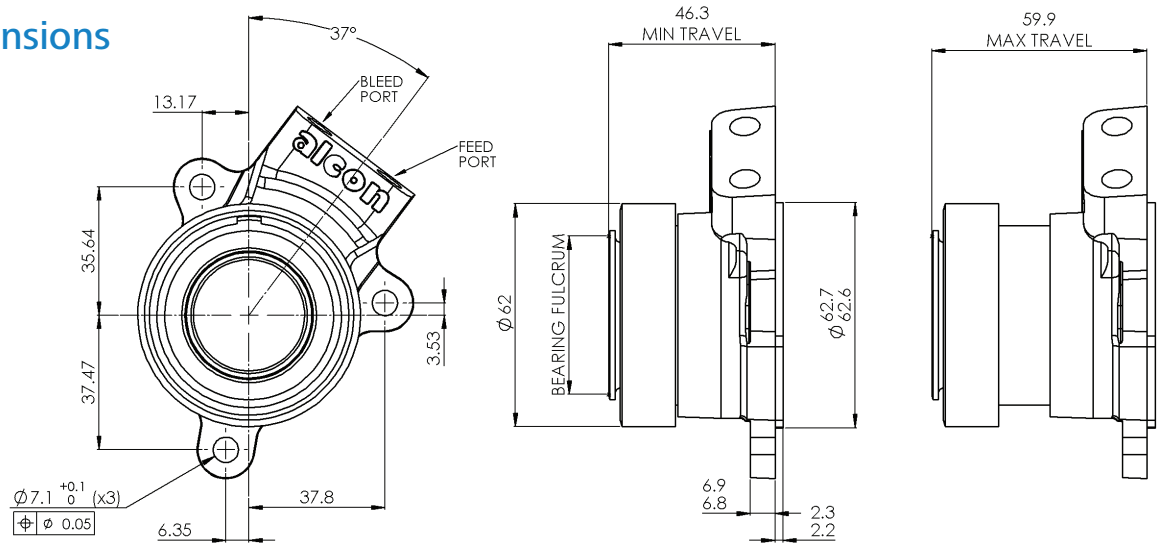
Specifications

- Light weight compact design
- High speed replaceable bearing included. (Self centering on KSA38 and KSA44 variants)
- Durable hard anodised finish.
- Low friction coated seal surfaces to reduce seal wear
- Replaces existing Saab type units.

Key features and benefits

- Light weight compact design
- High speed replaceable bearing included. (Self centering on KSA38 and KSA44 variants)
- Durable hard anodised finish.
- Low friction coated seal surfaces to reduce seal wear
- Replaces existing Saab type units.

Installation dimensions



motorsport range

The basics

Alcon's Motorsport Range calipers are aimed at motorsport professionals and teams competing on a global level. They represent the pinnacle of our technical expertise and are revered throughout the motorsport world. This range has lead to an incredible number of wins across the motorsport disciplines, and serves as the flagship to our range. We work with team engineers to provide the perfect solution for their individual needs and, where this can't be done with our existing product base, can develop new designs to fulfil the brief.

For more information about any of our products, or to order, please contact us.

Applications

Motorsport Range calipers are available for a number of applications including, but not limited to:

- WRC
- R5 Rally
- Rally Raid
- World, Global and European Rallycross
- WTCC and CTCC
- GT
- Japanese Championship Super Formula

motorsport range part numbering **GUIDE**

C	A	R	2349	H	24	XE	R	LL
1	2	3	4	5	6	7	8	9

1. Part

C: Caliper

2. Material

A: Aluminium
I: Iron

3. Fixing type

R: Radial fixing
L: Lug fixing

4. Caliper series

EG: 2349

5. Piston diameters (mm)

A: 28.6 / 28.6	**K:** 41.3 / 41.3	**V:** 22.2 / 25.4	**AC:** 25.4 (×4) / 22.2 (×2)	**AM:** 31.8 / 34.9 / 41.3
B: 31.8 / 31.8	**L:** 41.3 / 44.5	**W:** 33.3 / 31.8 / 44.5	**AD:** 30.2 (×6)	**AN:** 28.6 / 31.8 / 41.3
C: 31.8 / 34.9	**M:** 41.3 / 46.8	**X:** Other	**AE:** 28.6 (×2) / 34.9 (×2)	**AP:** 28.6 / 31.8
D: 34.9 / 34.9	**N:** 41.3 / 47.6	**Y:** 27 / 31.8 / 38.1	**AF:** 26 / 31.8 / 36	**AR:** 28.6 / 34.9
E: 34.9 / 38.1	**P:** 44.5 / 44.5	**Z:** 30.2 / 34.9 / 41.3	**AG:** 28.6 / 33.3 / 36	**AS:** 30.2 (×8)
F: 34.9 / 41.3	**R:** 44.5 / 46.8	**ZG:** 30.2 / 34.9 / 38.1	**AH:** 40.0 (×4)	**AT:** 27 / 28.6
G: 38.1 / 38.1	**S:** 44.5 / 47.8	**YD:** 27 / 31.8 / 34.9	**AJ:** 30.2 / 34.9	**AU:** 33.3 / 38.1
H: 38.1 / 41.3	**T:** 22 / 25.4 / 30.2	**AA:** 25.4 (×12)	**AK:** 27.0 / 30.2	**AV:** 48.0 / 48.0
J: 38.1 / 44.5	**U:** 36 / 38	**AB:** 25.4 (×6)	**AL:** 28.6 (×8)	**AW:** 30.2 / 33.3

6. Serial number

00 - 99

7. Piston specification

Aluminium	**A:** Aluminium	Anodised (no designation)
	D: Clip in insert	
Titanium	**T:** Titanium	**E:** Low friction 1
	V: Titanium ventilated	**V:** Low friction 2
	X: Clip in insert ventilated	-
Stainless steel	**S:** Stainless	**E:** Low friction 1

8. Abutment material

A: Aluminium
R: Roll Pins
S: Steel
T: Titanium
Z: No abutments

9. Handling

LL: Left leading
LT: Left trailing
RL: Right leading
RT: Right trailing

Please note: All measurements are given in metric (mm) unless otherwise stated in imperial (").

motorsport range **CAR2349H43/B43**

4-piston radial mount monobloc caliper

Part numbers and handing

Disc Thickness	Position	Ø38.1 / 41.3 pistons	Ø31.8 / 31.8 pistons
22 - 26mm	LH trailing	CAR2349H43VESLT	CAR2349B43VESLT
	RH trailing	CAR2349H43VESRT	CAR2349B43VESRT
	LH leading	CAR2349H43VESLL	CAR2349B43VESLL
	RH leading	CAR2349H43VESRL	CAR2349B43VESRL

Replacement parts

Item	Ø38.1 / 41.3 pistons	Ø31.8 / 31.8 pistons
Seal Kit, axle set	CSK3841E751	CSK3232E751
Pistons, TITANIUM (each)	PTV3828X251E PTV4128X255E	PTV322BX250E
AKB springs (each)	SSC3435X609 (×2) SSC3435X616 (×2)	SSC3435X616 (×4)
Wear plates	PSC4423X340L PSC4423X340R	PSC4423X340L PSC4423X340R
Bleed Screw (each)	FSB3430X689	FSB3430X689
Inlet Adapter, 3/8 UNF male to male	FSA3435X630	FSA3435X630
Copper gasket	FCG0080X015	FCG0080X015

Applications

World RX.

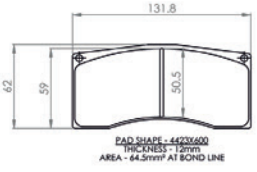
Key features and benefits

- Billet aluminium monobloc.
- Hard anodised.
- Front pistons – 38.1 / 41.3.
- Rear pistons – 31.8 / 31.8.
- Titanium low friction coated pistons.
- Internally drilled caliper.
- Recessed bleed screws.

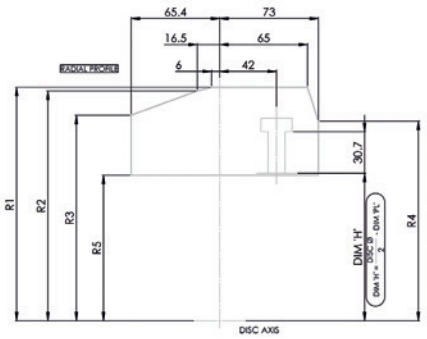
Specifications

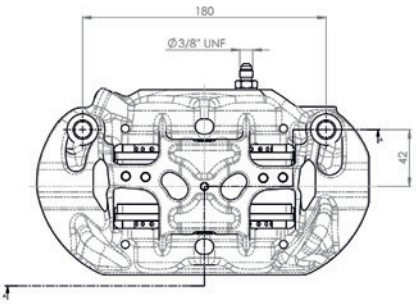
- Disc diameter range: ø300 - 355mm.
- Disc thickness: 22 - 26mm.
- Fluid inlet 3/8-24 UNF.
- Dry weight 1.7kg excluding pads.
- Alcon pad reference: 4423, 12mm thick, 132mm long, 48mm radial depth front and 46mm radial.

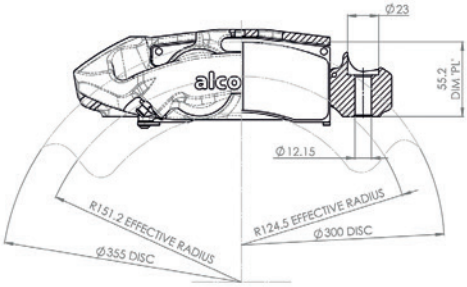
Installation dimensions



	R1	R2	R3	R4	R5
Ø300 DISC	172.5	169.8	151.5	147.5	95.3
Ø355 DISC	200	197.3	179	175	122.8







motorsport range **CAR2349AE08**

4-piston radial mount caliper

Part numbers and handing

Disc Thickness	Position	Ø28.6/34.9 pistons
28 -32 mm	LH trailing	CAR2349AE08VESLT
	RH trailing	CAR2349AE08VESRT
	LH leading	CAR2349AE08VESLL
	RH leading	CAR2349AE08VESRL

Replacement parts

Item	Ø28.6/34.9 pistons
Seal Kit, axle set	CSK2935E751
Pistons, TITANIUM (each)	PTH2934X150E PTH3534X150E
AKB Springs (each)	SSC3435X616 (×2) SSC3435X623 (×2)
Wear Plates, caliper set	PSC4423X100
Bridge Pipe, each	PSC4423X655
Bleed Screw (each)	FSB3430X689
O Seal	SER0080X176
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015

Applications

GT Rear.

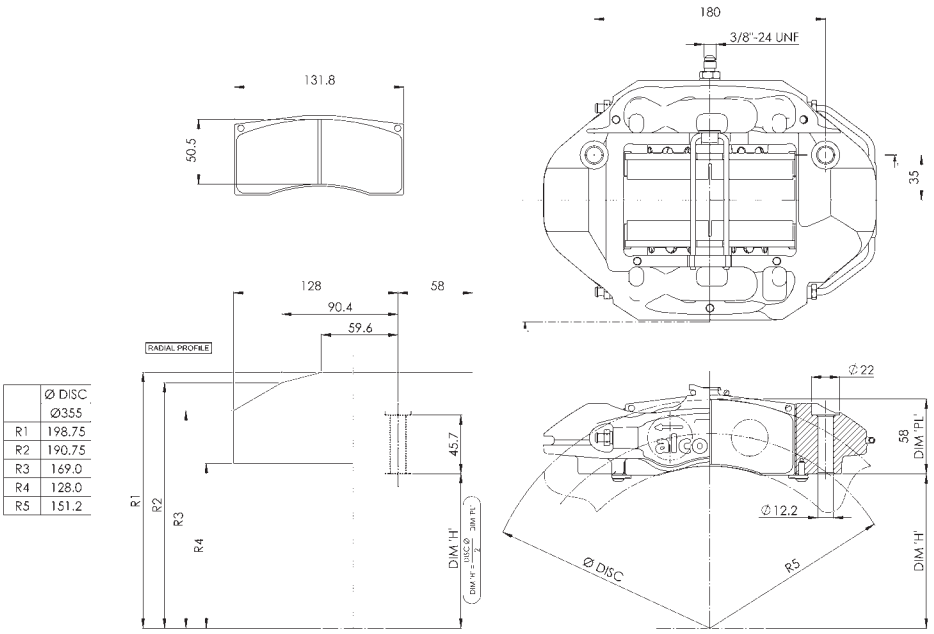
Key features and benefits

- Radial mounting for maximum rigidity and firm, consistent pedal.
- Slotted titanium pistons with wear resistant coating.
- 2Kg Anti-knock back springs.
- Pad retaining wire for fast pad change.

Specifications

- Disc diameter range: ø330 - 355mm.
- Disc thickness range: 28 - 32mm.
- Fluid inlet 3/8-24 UNF (-3) male.
- Dry weight 2.15kg excluding pads.
- Alcon pad reference: 4441 or 4423, 20.5mm thick, 132mm long, 50mm deep, area 133cm² per caliper.

Installation dimensions



	Ø DISC Ø355
R1	198.75
R2	190.75
R3	169.0
R4	128.0
R5	151.2

motorsport range **CAR2349H19**

4-piston radial mount caliper

Part numbers and handing

Disc Thickness	Position	Ø38.1 / 41.3 pistons
30-34 mm	LH trailing	CAR2349H19XESLT
	RH trailing	CAR2349H19XESRT
	LH leading	N/A
	RH leading	

Replacement parts

Item	Ø38.1 / 41.3 pistons
Seal Kit, axle set	CSK3841E751
Pistons, TITANIUM (each)	PTH3826X150E PTH4126X151E
AKB Springs (each)	SSC3435X609 (×2) SSC3435X616 (×2)
Wear Plates (each)	PSC4423X300L (×2) PSC4423X300R (×2)
Bleed Screw (each)	FSB3430X371
O Seal	SER0080X445
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015

Applications

WRC Front Gravel.

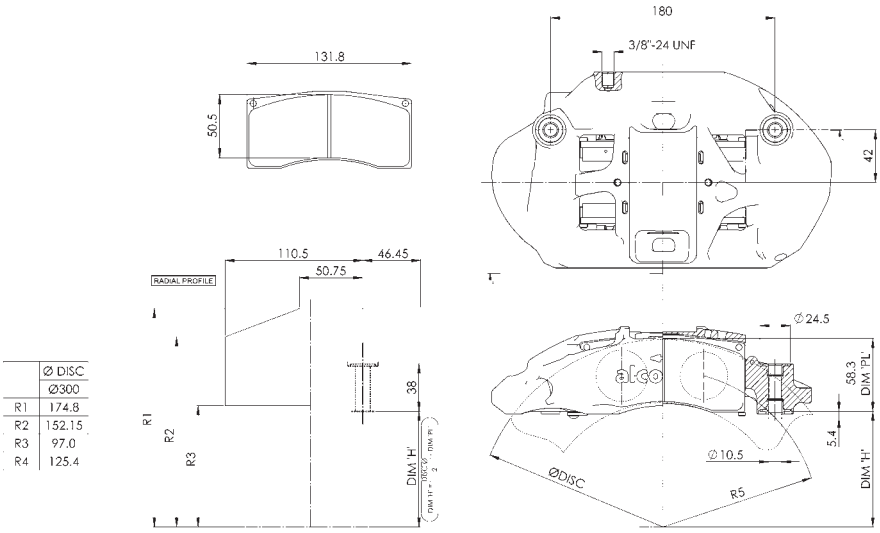
Key features and benefits

- Slotted titanium pistons with wear resistant coating.
- Titanium inserts in piston ends provide thermal break to reduce heat transfer to fluid.
- Internally ported, no external fluid transfer pipe.
- 2Kg Anti-knock back springs.
- Precision titanium bushes in both ends of the mounting holes.
- Central bridge with facility for cooling duct to direct air across the caliper to cool the outer side.

Specifications

- Disc diameter range: ø300 max.
- Disc thickness range: 30 - 34mm.
- Fluid inlet 3/8-24 UNF (-3) female.
- Dry weight 2.1kg excluding pads.
- Alcon pad reference: 4441 or 4423, 16mm thick, 132mm long, 50.5mm deep, area 129cm² per caliper.

Installation dimensions



	Ø DISC
	Ø300
R1	174.8
R2	152.15
R3	97.0
R4	125.4

motorsport range **CAR2349AW20**

4-piston radial mount caliper

Part numbers and handing

Disc Thickness	Position	Ø30.2 / 33.3 pistons
28 -32 mm	LH trailing	N/A
	RH trailing	
	LH leading	CAR2349AW20XESLL
	RH leading	CAR2349AW20XESRL

Replacement parts

Item	Ø30.2 / 33.3 pistons
Seal Kit, axle set	CSK3033E751
Pistons, TITANIUM (each)	PTH3027X150E PTH3327X150E
AKB Springs (each)	SSC3435X623
Wear Plates (each)	PSC4423X300L (×2) PSC4423X300R (×2)
Bleed Screw (each)	FSB3430X371
O Seal	SER0080X445
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015

Applications

WRC Rear.

Key features and benefits

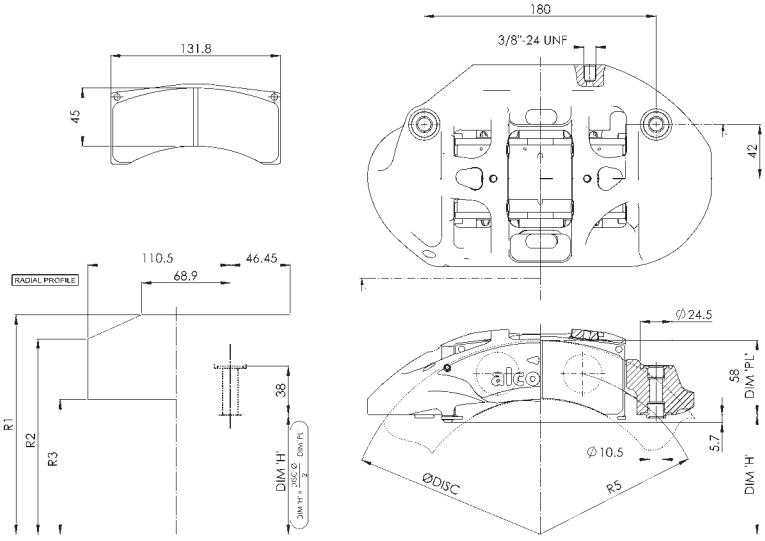
- Slotted titanium pistons with wear resistant coating.
- Titanium inserts in piston ends provide thermal break to reduce heat transfer to fluid.
- Internally ported, no external fluid transfer pipe.
- 2Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Precision titanium bushes in both ends of the mounting holes.

Specifications

- Disc diameter range: ø300 - 315mm.
- Disc thickness range: 28 - 32mm.
- Fluid inlet 3/8-24 UNF (-3) female.
- Dry weight 1.93kg excluding pads.
- Alcon pad reference: 4441 or 4423, 15mm thick, 132mm long, 45mm deep, area 120cm² per caliper.

Installation dimensions

	Ø DISC	
	Ø300	Ø315
R1	170.2	175.0
R2	151.5	160
R3	104.4	111.9
R4	128.8	136.1



motorsport range **CAR2349H/B35**

4-piston radial mount B-type caliper

Part numbers and handing

Disc Thickness	Position	Ø38.1 / 41.3 pistons	Ø31.8 / 31.8 pistons
29 - 33mm	LH leading	CAR2349H35SSLL	CAR2349B35SSLL
	RH leading	CAR2349H35SSRL	CAR2349B35SSRL

Replacement parts

Item	Ø38.1 / 41.3 pistons	Ø31.8 / 31.8 pistons
Seal Kit, axle set	CSK3841E751	CSK3232E751
Pistons, STAINLESS STEEL (each)	PSS3827X600 PSS4127X600	PSS3227X600
AKB Springs (each)	SSC3435X609 SSC4423X616	SSC3435X623
Wear Plates, caliper set	ASK4468X722.4	
Bridge Pipe (each)	PSC4423X656	
Bleed Screw (each)	FSB3430X371	
Inlet Adapter, 3/8 UNF male to male	FSA3435X630	
Copper gasket	FCG3430X015	

Applications

RS, Rally, Rally X.

Key features and benefits

- Stainless steel pistons to reduce heat transfer to brake fluid.
- High temperature seals.
- 2Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Central bridge with facility for cooling duct to direct air across the caliper to cool the outer half.

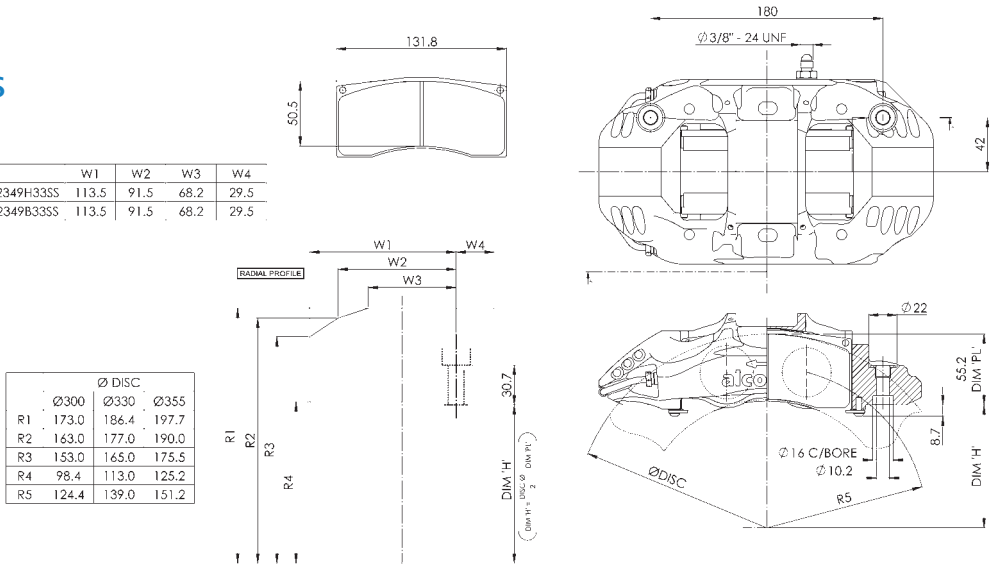
Specifications

- Disc diameter range: ø300 - 355mm.
- Disc thickness range: 29 - 33mm.
- Fluid inlet 3/8-24 UNF (-3) male.
- Dry weight 2kg excluding pads.
- Alcon pad reference: 4441 or 4423,16mm thick, 132mm long, 50mm deep, area 129cm² per caliper.

Installation dimensions

	W1	W2	W3	W4
CAR2349H33SS	113.5	91.5	68.2	29.5
CAR2349B33SS	113.5	91.5	68.2	29.5

	Ø DISC Ø300	Ø330	Ø355
R1	173.0	186.4	197.7
R2	163.0	177.0	190.0
R3	153.0	165.0	175.5
R4	98.4	113.0	125.2
R5	124.4	139.0	151.2



motorsport range **CAR2349H26**

4-piston radial mount monobloc caliper

Part numbers and handing

Disc Thickness	Position	Ø38.1 / 41.3 pistons
32 -36 mm	LH	CAR2349H26XESL
	RH	CAR2349H26XESR

Replacement parts

Item	Ø38.1 / 41.3 pistons
Seal Kit, axle set	CSK3841E751
Pistons, TITANIUM (each)	PTH3826X150E PTH4126X151E
AKB Springs (each)	SSC3435X609 (×2) SSC3435X616 (×2)
Wear Plates (each)	PSC4423X300L (×2) PSC4423X300R (×2)
Bleed Screw (each)	FSB3430X371
O Seal	SER0080X445
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015
Cooling Adapter, 3/8 male to 7/16 male	FAA3430X539

Applications

WRC Front Tarmac, GRX.

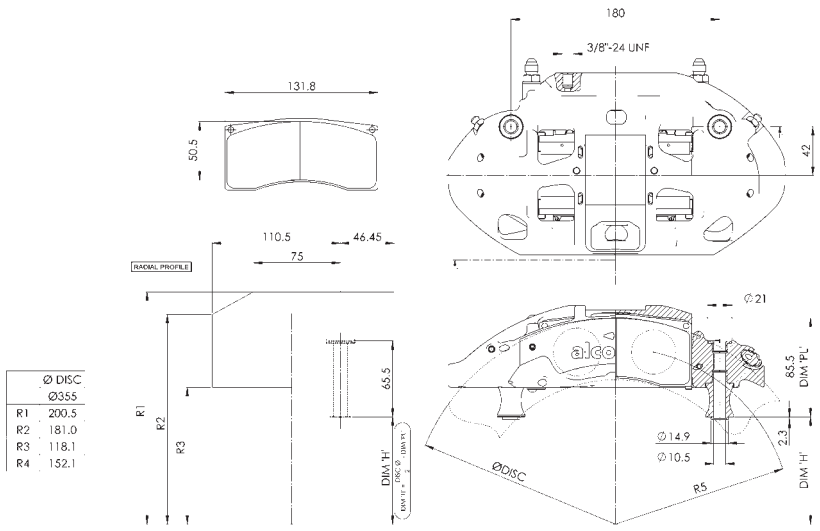
Key features and benefits

- Integrated water cooling circuit that reduces caliper temperature by as much as 50°C.
- Slotted titanium pistons with wear resistant coating.
- Titanium inserts in piston ends provide thermal break to reduce heat transfer to fluid.
- Internally ported, no external fluid transfer pipe.
- 2Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Precision titanium bushes in both ends of the mounting holes.
- Central bridge with facility for cooling duct to direct air across the caliper to cool the outer side.

Specifications

- Disc diameter range: ø355 max.
- Disc thickness range: 32 - 36mm.
- Fluid inlet 3/8-24 UNF (-3) female.
- Dry weight 2.1kg excluding pads.
- Alcon pad reference: 4441 or 4423, 16mm thick, 132mm long, 50mm deep, area 129cm² per caliper.

Installation dimensions



motorsport range **CAR2349L41**

4-piston radial mount monobloc B-type caliper

Part numbers and handing

Disc Thickness	Position	Ø41.3 / 44.5 pistons
28 -32 mm	LH trailing	CAR2349L41ASLT
	RH trailing	CAR2349L41ASRT
	LH leading	CAR2349L41ASLL
	RH leading	CAR2349L41ASRL

Replacement parts

Item	Ø41.3 / 44.5 pistons
Seal Kit, axle set	CSK4145E900
Pistons, ALUMINIUM (each)	PAS4441X551 PAS4448X554
AKB Springs (each)	SSC3435X609
Wear Plates, caliper set	ASK4468X722.4
Bridge Pipe (each)	PSC4423X657
Bleed Screw (each)	FSB0080X008
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015

Applications

Off-road Race.

Key features and benefits

- Radial mounting for maximum rigidity and firm, consistent pedal.
- Forged aerospace grade aluminium alloy provides high strength and light weight.
- Stainless steel pistons.
- 2Kg Anti-knock back springs.
- Central bridge with facility for cooling duct to direct air across the caliper to cool the outer half.
- Internally drilled for increased protection.

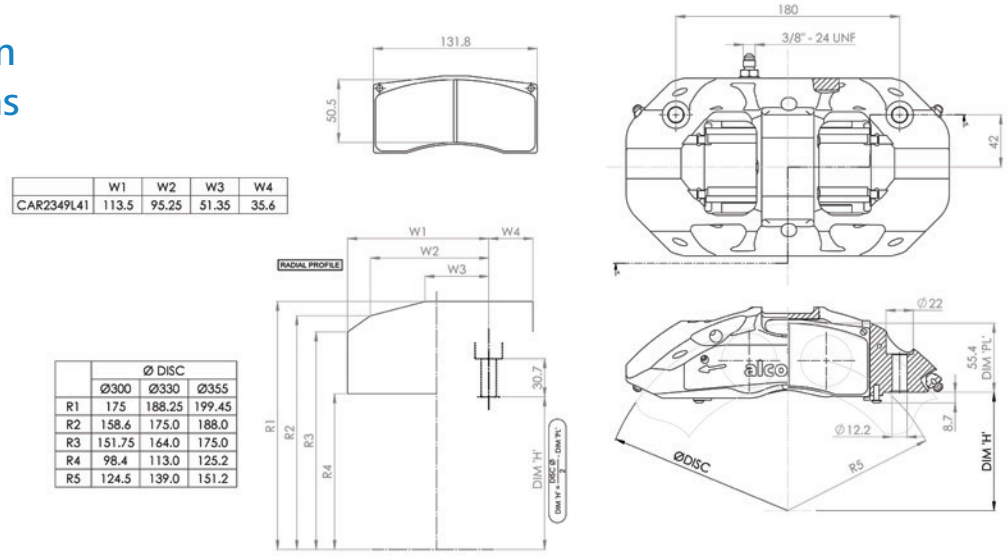
Specifications

- Disc diameter range: ø300 - 355mm.
- Disc thickness range: 28 - 32mm.
- Fluid inlet 3/8-24 UNF (-3) male.
- Dry weight 2.40kg excluding pads.
- Alcon pad reference: 4441 or 4423, 16mm thick, 132mm long, 50mm deep, area 133cm² per caliper.

Installation dimensions

	W1	W2	W3	W4
CAR2349L41	113.5	95.25	51.35	35.6

	Ø DISC		
	Ø300	Ø330	Ø355
R1	175	188.25	199.45
R2	158.6	175.0	188.0
R3	151.75	164.0	175.0
R4	98.4	113.0	125.2
R5	124.5	139.0	151.2



motorsport range **CAR3249J05**

4-piston radial mount caliper

Part numbers and handing

Disc Thickness	Position	Ø38.1 / 44.5 pistons
34 -36 mm	LH trailing	CAR3249J05PSLT
	RH trailing	CAR3249J05PSRT
	LH leading	CAR3249J05PSLL
	RH leading	CAR3249J05PSRL

Replacement parts

Item	Ø38.1 / 44.5 pistons
Seal Kit, axle set	CSK3845E751
Pistons, TITANIUM (each)	PSV3833X250E PSV4533X255E
AKB Springs (each)	SSC3435X609 (×2) SSC3435X616 (×2)
Wear Plates (each)	PSC4432X106
Bleed Screw (each)	FSB3430X689
O Seal	SER0080X176
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015

Applications

WTCC, CTCC.

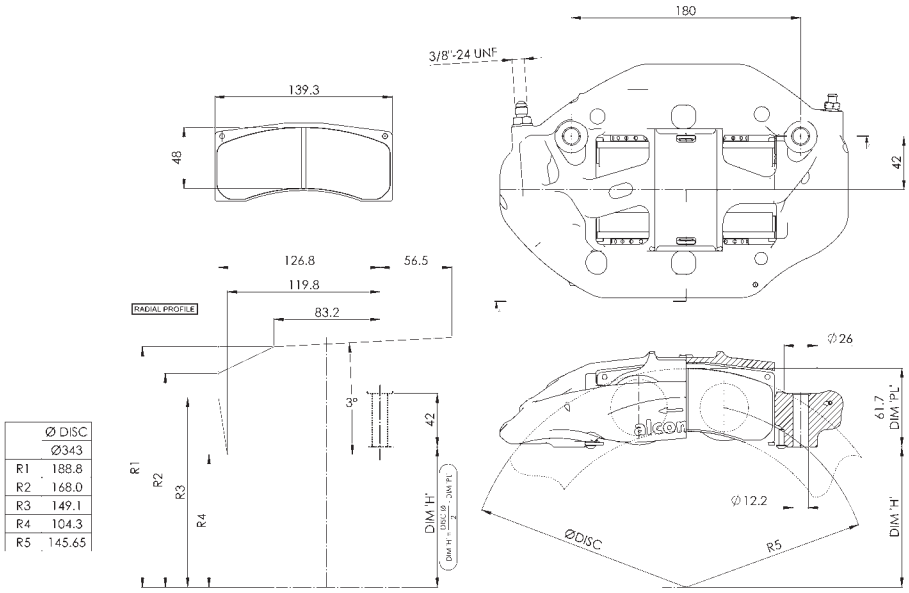
Key features and benefits

- Ventilated stainless steel pistons with wear resistant coating.
- Internally ported, no external fluid transfer pipe.
- Common leading/trailing installation by switching bleed screw and inlet.
- 2Kg Anti-knock back springs.
- Central bridge with facility for cooling duct to direct air across the caliper to cool the outer side.

Specifications

- Disc diameter range: ø343 max.
- Disc thickness range: 34 - 36mm.
- Fluid inlet 3/8-24 UNF (-3) male.
- Dry weight 2.1kg excluding pads.
- Alcon pad reference: 4432, 20mm thick, 139mm long, 48mm deep, area 126cm² per caliper.

Installation dimensions



Ø DISC	Ø343
R1	188.8
R2	168.0
R3	149.1
R4	104.3
R5	145.65

motorsport range **CAR3249J08**

4-piston radial mount monobloc caliper

Part numbers and handing

Disc Thickness	Position	Ø38.1 / 44.5 pistons
32 -36 mm	LH trailing	CAR3249J08XESLT
	RH trailing	CAR3249J08XESRT

Replacement parts

Item	Ø38.1 / 41.3 pistons
Seal Kit, axle set	CSK3845E751
Pistons, TITANIUM (each)	PTH3833X151E PTH4533X151E
AKB Springs (each)	SSC3435X609 (×2) SSC3435X616 (×2)
Wear Plates (each)	PSC4432X106
Bleed Screw (each)	FSB3430X689
O Seal	SER0080X176
Bridge Pipe	PSC4432X119L (LH) PSC4432X119R (RH)
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015

Applications

WTCC, CTCC.

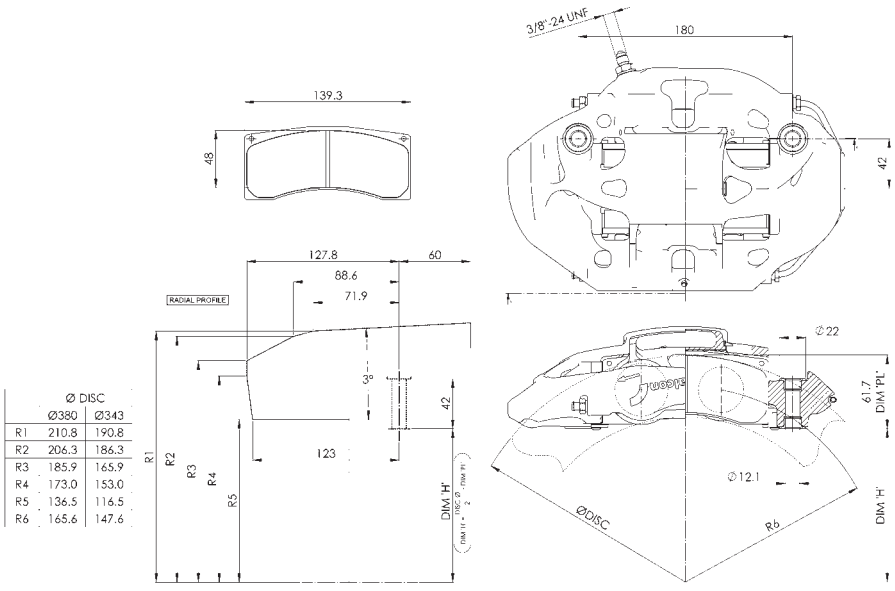
Key features and benefits

- Radial mounting for maximum rigidity and firm, consistent pedal.
- Ventilated titanium pistons with wear resistant coating.
- High temperature seals.
- 2Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Precision titanium bushes in both ends of the mounting holes.
- Central bridge with integral cooling.

Specifications

- Piston diameters: ø38.1and ø44.5.
- Disc diameter range: ø380 max.
- Disc thickness range: 32 - 36mm.
- Fluid inlet 3/8-24 UNF (-3) female.
- Dry weight 1.95kg excluding pads.
- Alcon pad reference: 4432, 20mm thick, 139mm long, 48mm deep, area 126cm² per caliper.

Installation dimensions



motorsport range **CAR6849H24**

4-piston radial mount B-type caliper

Part numbers and handing

Disc Thickness	Position	Ø38.1 / 41.3 pistons
32 -36mm	LH trailing	CAR6849H24SSLT
	RH trailing	CAR6849H24SSRT
	LH leading	CAR6849H24SSLL
	RH leading	CAR6849H24SSRL

Replacement parts

Item	Ø38.1 / 41.3 pistons
Seal Kit, axle set	CSK3841E900
Pistons, ALUMINIUM (each)	PAS4438X551 PAS4441X551
Pistons, STAINLESS STEEL (each)	PSS3828X600 PSS4128X600
AKB Springs (each)	SSC3435X609
Wear plates, caliper set	ASK4489X549
Bridge Pipe (each)	PSC3468X733
Bleed Screw (each)	FSB0090X008
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015

Applications

Rally, R3 MAX.

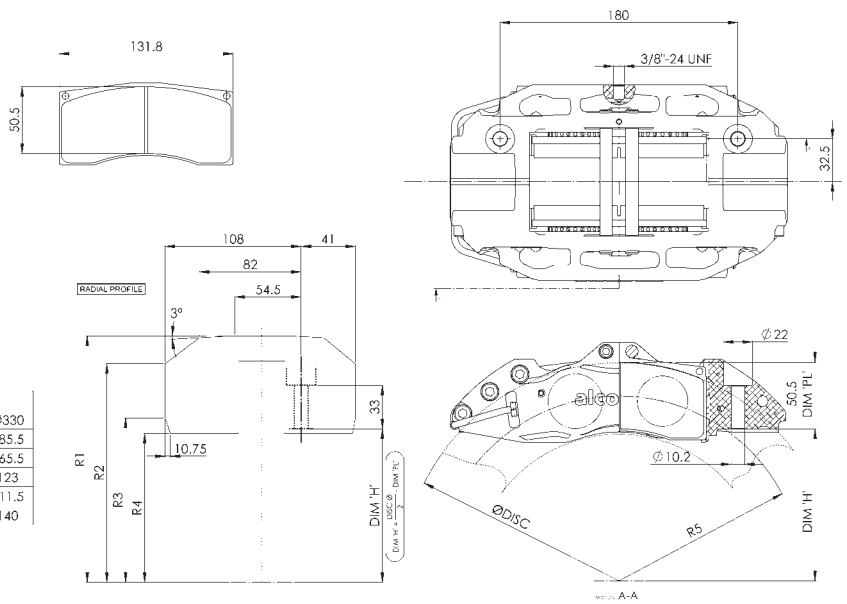
Key features and benefits

- Aluminium pistons as standard, stainless steel pistons available as an option to reduce heat transfer to brake fluid.
- High temperature seals.
- 2Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Fixed pad retainer bars to increase stiffness, remove caliper to change pads.

Specifications

- Disc diameter range: ø285 - 330mm.
- Disc thickness range: 32 - 36mm.
- Fluid inlet 3/8-24 UNF (-3) female.
- Dry weight 2.50kg excluding pads.
- Alcon pad reference: 4441 or 4423, 16mm thick, 132mm long, 50mm deep, area 133cm² per caliper.

Installation dimensions



	Ø DISC		
	Ø285	Ø310	Ø330
R1	168	175.5	185.5
R2	148	155.5	165.5
R3	105.5	113	123
R4	94	101.5	111.5
R5	122.5	130	140

motorsport range **CAR8049AE07**

4-piston radial mount caliper

Part numbers and handing

Disc Thickness	Position	Ø28.6 / 34.9 pistons
28 -32 mm	LH trailing	CAR8049AE07TESLT
	RH trailing	CAR8049AE07TESRT
	LH leading	CAR8049AE07TESLL
	RH leading	CAR8049AE07TESRL

Replacement parts

Item	Ø28.6 / 34.9 pistons
Seal Kit, axle set	CSK2935E751
Pistons, TITANIUM (each)	PTH2936X150E PTH3536X150E
AKB Springs (each)	SSC3435X616 (×2) SSC3435X623 (×2)
Wear Plates (each)	ASC4480X537
Bleed Screw (each)	FSB3430X689
O Seal	SER0080X176
Bridge Pipe (each)	PSC4480X658
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015

Applications

GT Rear.

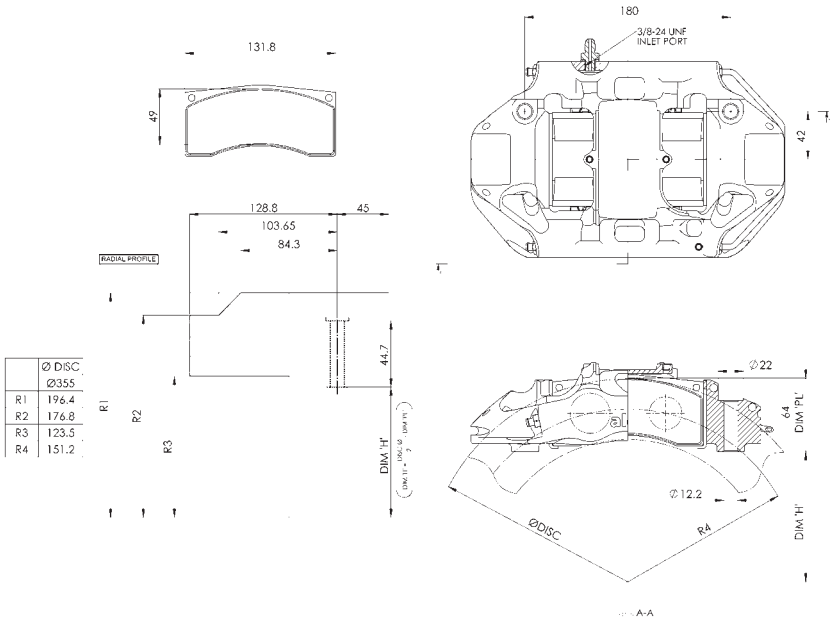
Key features and benefits

- Differential piston diameters that minimise pad taper wear.
- Slotted titanium pistons with wear resistant coating.
- 2Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Central bridge with facility for cooling duct to direct air across the caliper to cool the outer side.

Specifications

- Disc diameter range: ø285 - 355mm.
- Disc thickness range: 28 - 32mm.
- Fluid inlet 3/8-24 UNF (-3) male.
- Dry weight 2.20kg excluding pads.
- Alcon pad reference: 4441 or 4423, 25mm thick, 132mm long, 49mm deep, area 133cm² per caliper.

Installation dimensions



motorsport range **CAR1249ZG10**

6-piston radial mount caliper

Part numbers and handing

Disc Thickness	Position	Ø30.2 / 34.9 / 38.1 pistons
30-32 mm	LH trailing	CAR1249ZG10PESLT
	RH trailing	CAR1249ZG10PESRT
	LH leading	CAR1249ZG10PESLL
	RH leading	CAR1249ZG10PESRL

Replacement parts

Item	Ø30.2 / 34.9 / 38.1 pistons
Seal Kit, axle set	CSK303538E751
Pistons, STAINLESS STEEL (each)	PSV3027X250E PSV3527X250E PSV3827X250E
AKB Springs (each)	SSC3435X609 (×4) SSC3435X623 (×2)
Wear Plates (each)	PSC4423X300L (×2) PSC4423X300R (×2)
Bleed Screw (each)	FSB3430X371
O Seal	SER0080X445
Copper gasket	FCG0080X015

Applications

Trophy Truck, Rally Raid.

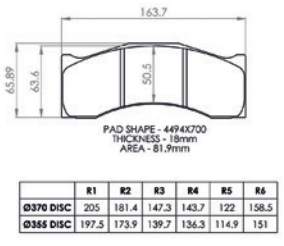
Key features and benefits

- Cross drilled stainless steel pistons with wear resistant coating.
- Internally ported, no external fluid transfer pipe.
- Bleed screws recessed for protection and fitted with sealed caps to keep them clean.
- Fluid inlet positioned in the underside of the housing for protection.
- Central bridge with facility for cooling duct to direct air across the caliper to cool the outer half.

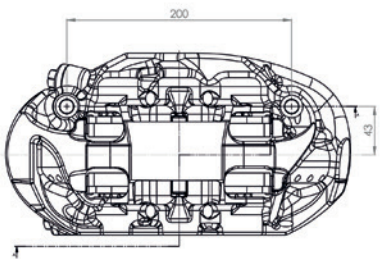
Specifications

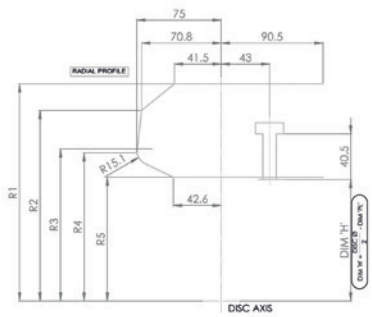
- Disc diameter range: ø355 - 370mm.
- Disc thickness range: 30 - 32mm.
- Fluid inlet M10×1 female.
- Dry weight 2.53kg excluding pads.
- Alcon pad reference: 4494,18mm thick, 164mm long, 50.5mm deep, area 164cm² per caliper.

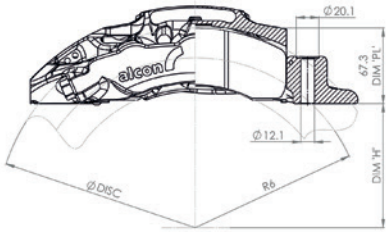
Installation dimensions



	R1	R2	R3	R4	R5	R6
Ø370 DISC	205	181.4	147.3	143.7	122	158.5
Ø355 DISC	197.5	173.9	139.7	136.3	114.9	151







motorsport range **CAR3249BC03**

6-piston radial mount monobloc caliper

Part numbers and handing

Disc Thickness	Position	Ø27 / 31.8 / 36 pistons
28 -29 mm	LH trailing	CAR3249BC03TESLT
	RH trailing	CAR3249BC03TESRT

Replacement parts

Item	Ø27 / 31.8 / 36 pistons
Seal Kit, axle set	CSK273236E751
Pistons, TITANIUM (each)	PTH2732X150E PTH3231X150E PTH3631X150E
AKB Springs (each)	SSC3435X623 (×4) SSC3435X616 (×2)
Wear Plates (each)	PSC4432X109L PSC4432X109R
Bleed Screw (each)	FSB3430X689
O Seal	SER0080X176
Bridge Pipe (each)	PSC4432X111L (LH) PSC4432X111R (RH)
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015

Applications

Japanese Championship Super Formula.

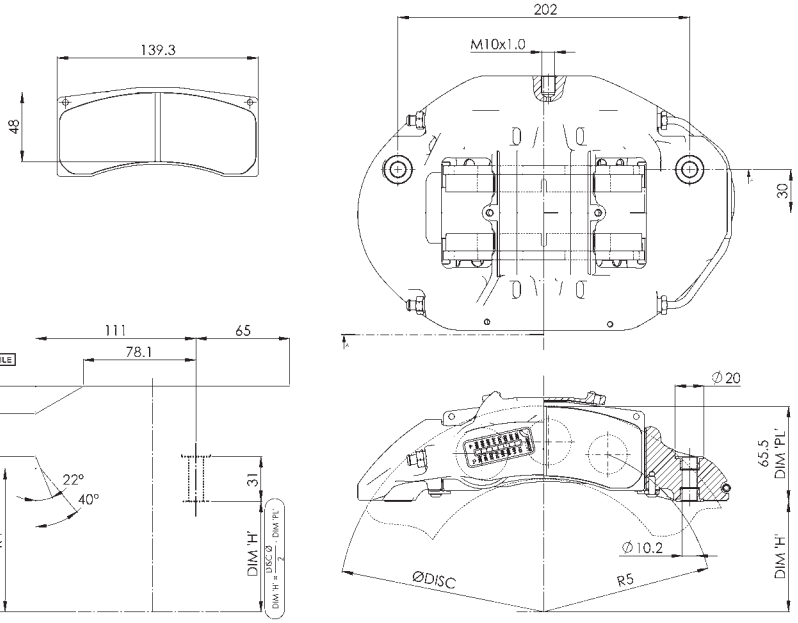
Key features and benefits

- Radial mounting for maximum rigidity and firm, consistent pedal.
- Ventilated titanium pistons with wear resistant coating.
- Internally ported, no external fluid transfer pipe.
- 2Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Central bridge with facility for cooling duct to direct air across the caliper to cool the outer side.

Specifications

- Disc diameter range: ø285 max.
- Disc thickness range: 28 - 30mm.
- Fluid inlet M10×1.0 female.
- Dry weight 1.9kg excluding pads.
- Alcon pad reference: 4432, 18mm thick, 139mm long, 48mm deep, area 126cm² per caliper.

Installation dimensions



	Ø DISC
	Ø285
R1	156.2
R2	137.2
R3	107.5
R4	99.3
R5	117.5

motorsport range **CAR8949W52**

6-piston radial mount monobloc caliper

Part numbers and handing

Disc Thickness	Position	Ø33.3 / 38.1 / 44.5 pistons
32 -36 mm	LH trailing	CAR8949W52SESLT
	RH trailing	CAR8949W52SESRT

Replacement parts

Item	Ø33.3 / 38.1 / 44.5 pistons
Seal Kit, axle set	CSK333845E751
Pistons, STAINLESS STEEL (each)	PSS3325X200E PSS3825X210E PSS4425X205E
AKB Springs (each)	SSC3435X606 (×4) SSC3435X608 (×2)
Wear Plates (each)	PSC4489X546L PSC4489X546R
Bleed Screw (each)	FSB3430X371
O Seal	SER0080X176
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015

Applications

Off-road.

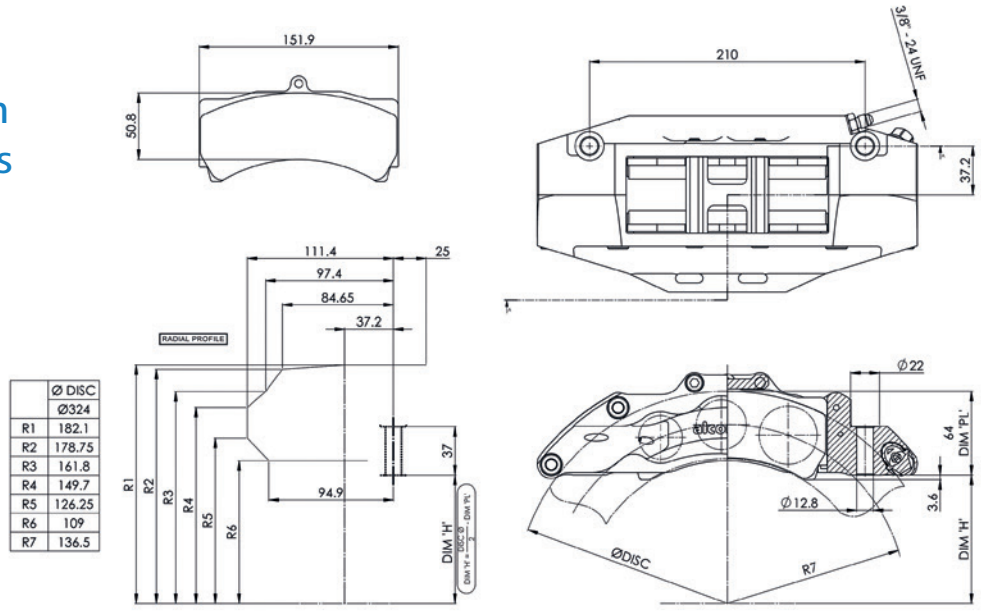
Key features and benefits

- Differential piston diameters that minimise pad taper wear.
- Stainless steel pistons with wear resistant coating.
- High temperature seals.
- 3Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Removable central bridge for ease of pad change.
- Internally ported, no external fluid transfer pipe.

Specifications

- Disc diameter range: ø324 max.
- Disc thickness range: 22 - 24mm.
- Fluid inlet 3/8-24 UNF (-3) male.
- Dry weight 2.74kg excluding pads.
- Alcon pad reference: 4489, 16mm thick, 152mm long, 51mm deep, area 152cm² per caliper.

Installation dimensions



	Ø DISC
	Ø324
R1	182.1
R2	178.75
R3	161.8
R4	149.7
R5	126.25
R6	109
R7	136.5

motorsport range **CAR8947Z06**

6-piston radial mount monobloc caliper

Part numbers and handing

Disc Thickness	Position	Ø30.2 / 34.9 / 41.3 pistons
31 -33 mm	LH trailing	CAR8947Z06DSLT
	RH trailing	CAR8947Z06DSRT
	LH leading	CAR8947Z06DSLL
	RH leading	CAR8947Z06DSRL

Replacement parts

Item	Ø28.6 / 34.9 / 41.3 pistons
Seal Kit, axle set	CSK303541E751
Pistons, ALUMINIUM (each)	PAH3029X400 PAH3529X400 PAH4129X400
AKB Springs (each)	SSC3435X609 (×4) SSC3435X623 (×2)
Wear Plates (each)	ASC4489X537
Bleed Screw (each)	FSB0080X008
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015

Applications

Sports Car, GT.

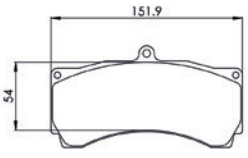
Key features and benefits

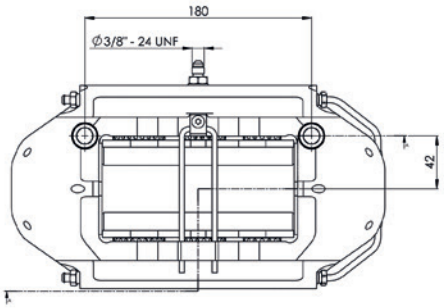
- Billet aerospace grade aluminium alloy provides high strength and light weight.
- Differential piston diameters that minimise pad taper wear.
- Aluminium pistons with ventilated stainless steel inserts.
- 2Kg Anti-knock back springs.
- Stainless steel wear plates.
- Quick release pad retainer wire for ease of pad change.

Specifications

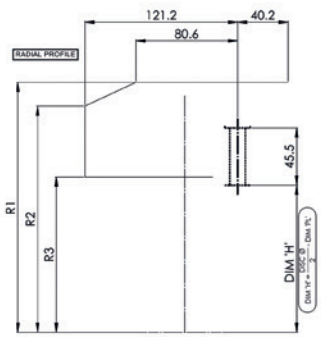
- Disc diameter range: ø355.6 max.
- Disc thickness range: 31 - 33mm.
- Fluid inlet 3/8-24 UNF (-3) male.
- Dry weight 2.9kg excluding pads.
- Alcon pad reference: 4489, 16mm thick, 152mm long, 54mm deep, area 156cm² per caliper.

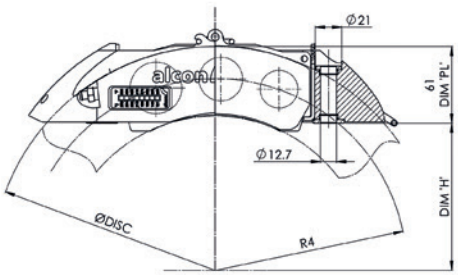
Installation dimensions





	Ø DISC
	Ø355.6
R1	198.5
R2	179.6
R3	123.3
R4	152.2



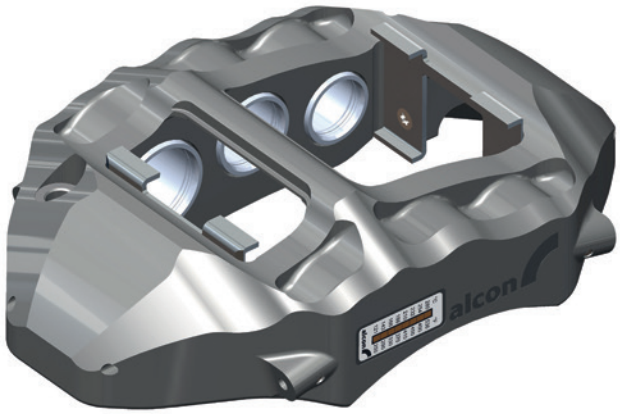


motorsport range **CAR8959W10**

6-piston radial mount monobloc caliper

Part numbers and handing

Disc Thickness	Position	Ø33.3 / 38.1 / 44.5 pistons
35.5 mm	LH trailing	CAR8959W10SESL
	RH trailing	CAR8959W10SESR



Replacement parts

Item	Ø33.3 / 38.1 / 44.5 pistons
Seal Kit, axle set	CSK333845EW751-610
Pistons, STAINLESS STEEL (each)	PSH3340X400E PSH3840X400E PSH4540X400E
AKB Springs (each)	SSC3435X602 (×6)
Wear Plates (each)	ASC4489X767 (×2)
Bleed Screw (each)	FSB3430X371 (×2)
O Seal	SER0080X445
Inlet Adapter, 3/8 UNF male to male	FSA3435X630
Copper gasket	FCG0080X015

Applications

Off-road.

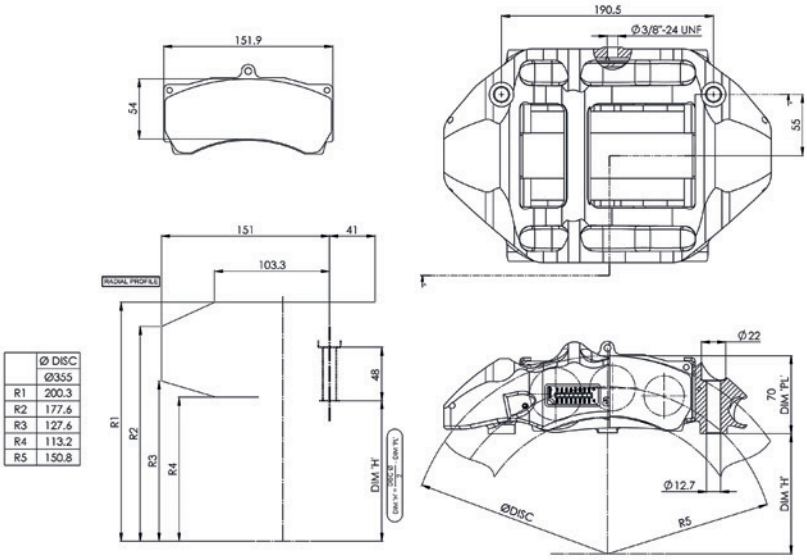
Key features and benefits

- Aluminium pistons as standard, stainless steel pistons available as an option to reduce heat transfer to brake fluid.
- High temperature seals.
- 2Kg Anti-knock back springs.
- Hard stainless steel wear plates.
- Fixed pad retainer bars to increase stiffness, remove caliper to change pads.

Specifications

- Disc diameter range: ø285 - 355mm.
- Disc thickness range: 32 - 36mm.
- Fluid inlet 3/8-24 UNF (-3) female.
- Dry weight 2.50kg excluding pads.
- Alcon pad reference: 4489, 29mm thick, 152mm long, 54mm deep, area 156cm^2 per caliper.

Installation dimensions



motorsport range **CAR8949Y/ZG**

6-piston radial mount caliper

Part numbers and handing

Disc Thickness	Position	Ø27 / 31.8 / 38.1 pistons
32-36 mm	LH trailing	CAR8949Y27SSLT
	RH trailing	CAR8949Y27SSRT
	LH leading	CAR8949Y27SSLL
	RH leading	CAR8949Y27SSRL

Replacement parts

Item	Ø27 / 31.8 / 38.1 pistons
Seal Kit, axle set	CSK273238E751
Pistons, STAINLESS STEEL (each)	PSS2733X650 PSS3233X650 PSS3833X650
AKB Springs (each)	SSC3435X609 (×2) SSC3435X616 (×2) SSC3435X623 (×2)
Wear Plates (each)	ASC4489X556L ASC4489X556R
Bridge Pipe	PSC4489X558L PSC4489X558R
Bleed Screw (each)	FSB0080X008

Applications

General Race use, GT, Endurance.

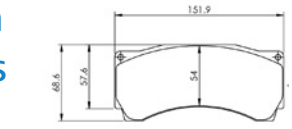
Key features and benefits

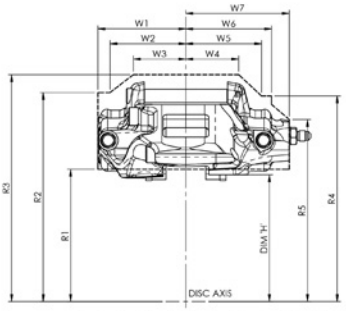
- Billet aerospace grade aluminium alloy provides high strength and light weight.
- Differential piston diameters that minimise pad taper wear.
- Stainless steel pistons as standard.
- 2kg anti-knock back springs.
- Hard stainless steel wear plates.
- Hard stainless steel wear plates.
- Bolted pad retainer to increase stiffness, remove retainer to change pads.

Specifications

- Disc diameter range ø355 - 390mm.
- Disc thickness range 34 - 36mm.
- Dry weight 3.1kg excluding pads.
- Alcon pad reference: 4489, 18mm thick, 152mm long, 54mm deep, area 156cm² per caliper.

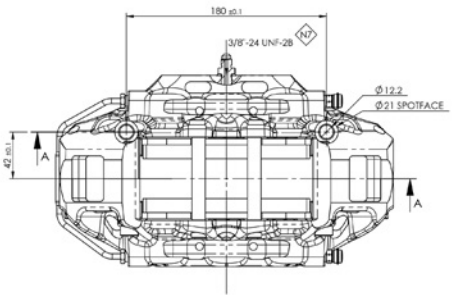
Installation dimensions

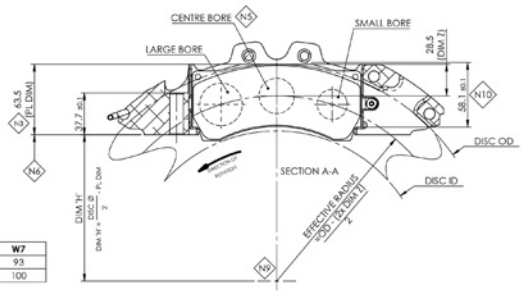




	R1	R2	R3	R4	R5	DIM 'H'
Ø390 DISC	136.5	202.5	216.3	198.5	181.3	131.5
Ø360 DISC	121.5	190.5	206.6	187.5	166.3	116.5
Ø355 DISC	119	188	204.1	185	163.8	114

	W1	W2	W3	W4	W5	W6	W7
CAR8949Y27SSLL / LT / RL / RT	79	68.1	47.2	47.6	68	77	93
CAR8949Y28SSLL / LT / RL / RT	86	69.1	54.2	54.6	75	84	100





motorsport range **CAR8949AM20**

6-piston radial mount monobloc caliper

Part numbers and handing

Rotor Thickness	Position	Ø31.8 / 34.9 / 41.3 pistons
28 mm	LH trailing	CAR8949AM20SSL
	RH trailing	CAR8949AM20SSR

Replacement parts

Item	Ø31.8 / 34.9 / 41.3 pistons
Seal Kit, axle set	CSK323541E751
Pistons, STAINLESS STEEL (each)	PSS3233X600 PSS3533X600 PSS4133X600
AKB Springs (each)	SSC3435X609 (×4) SSC3435X623 (×2)
Pad abutment	PSC4489X554L PSC4489X554R PSC4489X555
Bleed screw	FSB3430X994
O seal	SER0080X841

Applications

Off-road, Trophy Truck.

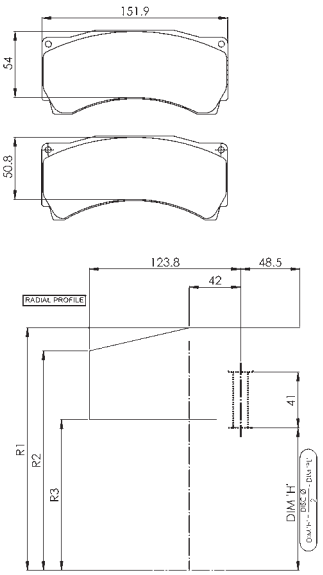
Key features and benefits

- Differential piston diameters that minimise pad taper wear.
- Stainless steel pistons with wear resistant coating.
- High temperature seals.
- 2kg (4.4lbs) anti knock-back springs.
- Hard stainless steel wear plates.
- Fully optimised monobloc design for maximum stiffness.
- Internally drilled for increased protection.

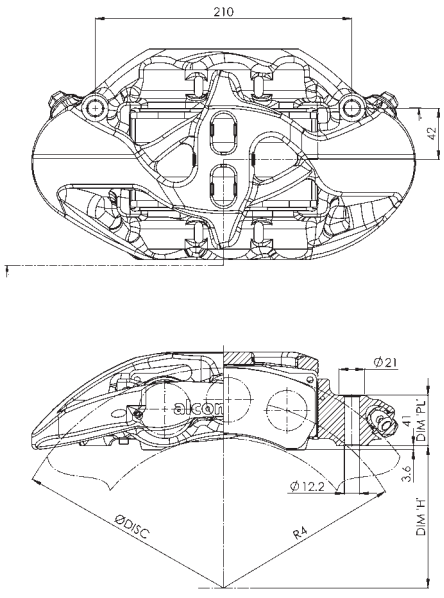
Specifications

- Disc diameter range: ø360mm (14.17”) max.
- Disc thickness range: 28mm (1.10”) max.
- Alcon pad reference: 4489, 25mm thick, 152mm long, 54mm deep, area 156cm² per caliper.

Installation dimensions



	Ø DISC	
	Ø355	Ø360
R1	199.3	201.8
R2	187.8	190.3
R3	107.4	109.9
R4	151.5	154



motorsport range **CAR9549Y76**

6-piston radial mount caliper

Part numbers and handing

Disc Thickness	Position	Ø27 / 31.8 / 38.1 pistons
34-35.6 mm	LH trailing	CAR9549Y76PESLT
	RH trailing	CAR9549Y76PESRT
	LH leading	CAR9549Y76PESLL
	RH leading	CAR9549Y76PESRL

Replacement parts

Item	Ø27 / 31.8 / 38.1 pistons
Seal Kit, axle set	CSK273238E751
Pistons, STAINLESS STEEL (each)	PSV2739X250E PSV3239X250E PSV3839X250E
AKB Springs (each)	SSC3435X609 SSC3435X616 SSC3435X623
Wear Plates (each)	ASC4495X578
Bleed Screw (each)	FSB3430X689
O Seal	SER0080X176
Copper gasket	FCG0080X015

Applications

GT Front, LMP.

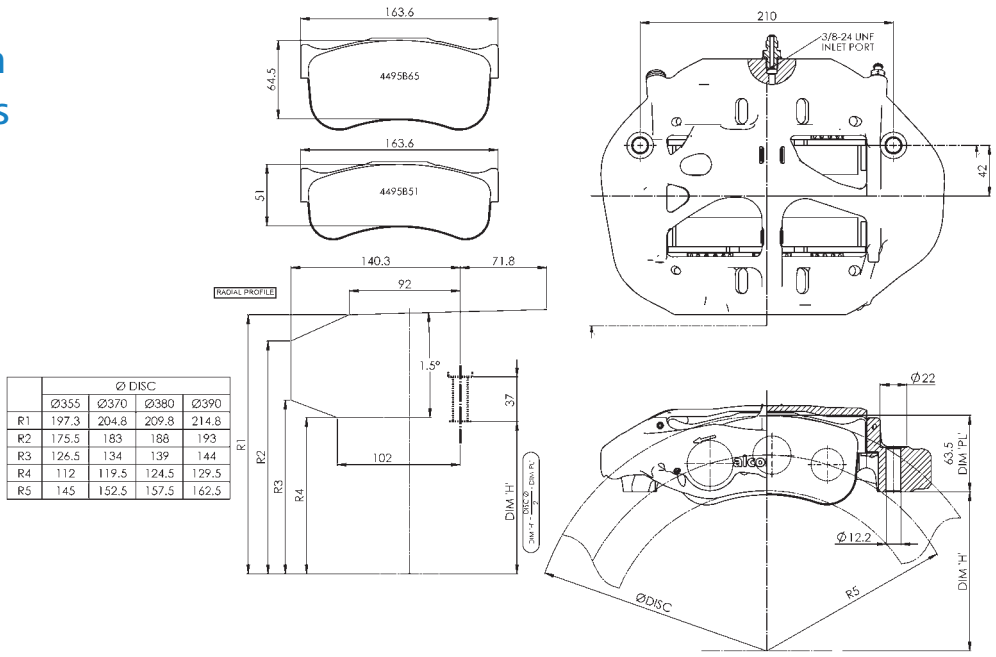
Key features and benefits

- Ventilated stainless steel pistons with wear resistant coating.
- Internally ported, no external fluid transfer pipe.
- Common leading/trailing installation by switching bleed screw and blanking plug.
- Hard stainless steel wear plates.
- 2Kg Anti-knock back springs.

Specifications

- Disc diameter range: ø355 - 390mm.
- Disc thickness range: 34 - 35.6mm.
- Fluid inlet 3/8-24 UNF (-3) male.
- Dry weight 2.79kg excluding pads.
- Alcon pad 165mm long, 29mm thick, references: 4495B64, 64mm deep, area 186cm² per caliper, 4495B51, 51mm deep, area 151cm² per caliper.

Installation dimensions



	Ø DISC			
	Ø355	Ø370	Ø380	Ø390
R1	197.3	204.8	209.8	214.8
R2	175.5	183	188	193
R3	126.5	134	139	144
R4	112	119.5	124.5	129.5
R5	145	152.5	157.5	162.5

brake discs introduction

Disc choice

The following disc listings contain options available for virtually every application that we currently cater for. The list is based on our most popular models, but it's important to remember that many more size options are available – just get in contact with your sales representative for more information. We have provided all of the basic information that you should require, but if you'd like more information then please do get in touch.

The choice of a particular disc depends on the vehicle characteristics and the type of racing being done. If in doubt, our experienced staff will be more than capable of advising as to which discs may fulfil your requirements. In certain classes of racing, brake equipment is homologated by the manufacturer with the FIA. In these classes, only equipment which has undergone this homologation process may be used, including disc specifications.

Diameter and thickness

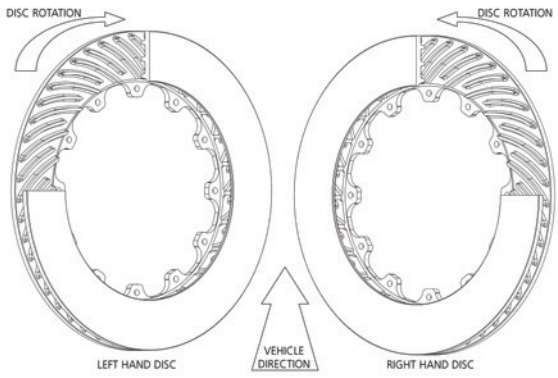
The diameter and thickness of a disc plays a major role in the stopping power of that disc. As a result, the largest diameter disc that can be installed in a particular wheel profile is used to maximise braking power. However low weight, poor tyre adhesion or required brake balance may sometimes limit the extent to which this rule applies.

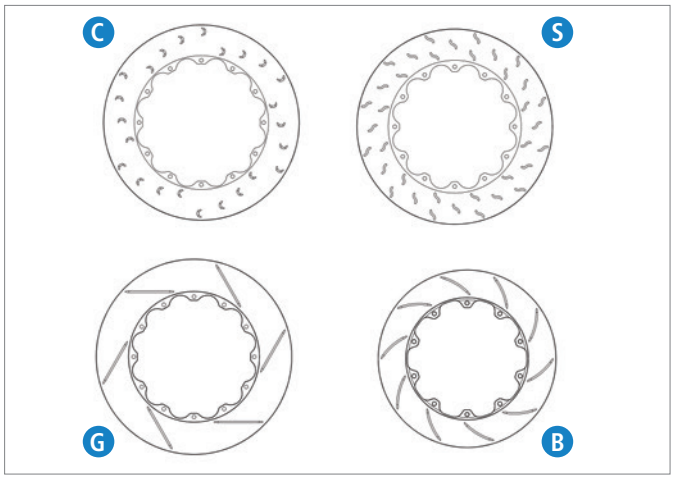
Disc handing

The majority of our brake discs are handed in their installation. To install your disc with the correct handing, ensure that the cooling vanes run back from the inside to outside diameters in the direction that the disc is rotating. The illustration below should explain this in more detail.

Disc listings

Our product stable includes solutions for virtually every motorsport application we may come across. The listings below include a cross section of our discs, though many more are available – just speak to one of our sales representatives if the product you require is not listed.





Disc groove types

Grooves in the surface of a brake disc perform three basic functions:

- To continuously refresh the brake pad surface by removing debris from the pad.
- To increase initial friction between the disc and pads, producing more 'bite'.
- To prevent a build-up of gas produced by the pad constituents and break the boundary layer of hot air that adheres to the surfaces of the disc.

More grooves generally mean that initial bite is higher, with a corresponding increase in pad wear. Noise also increases with the number of grooves.

Straight (G) and Curved (B)

These are the traditional types of surface groove used for motorsport discs. Note that the direction of the grooves is opposite to the vanes to minimise distortion and to eliminate thin sections that would assist crack propagation.

Crescent (C)

The groove is divided into short segments so that a continuous disc surface area is maintained, helping to reduce thermal distortion. The curved form of each groove produces a longer edge than would otherwise be achieved if the grooves were straight.

S Grooves (S)

The groove is divided into short segments so that a continuous disc surface area is maintained, helping to reduce thermal distortion. The curved form of each groove produces a longer edge than would otherwise be achieved if the grooves were straight. There is less grooving of the pad and disc surfaces with this design.

Assembly procedure for Alcon bobbin drive discs

There are two types of bobbin available:

- Bobbin drive system with bolt (see Figure 1).
- Bobbin drive system with integral stud (see Figure 2).

Assembly procedure

1. Place the bobbins in the slots in bell, with the 'ears' of the bobbin at right angles to the outside diameter of the bell, unless otherwise specified.
2. Push the bolt through the bobbin so that it engages in the disc.
3. Apply a small amount of thread retainer, enough to cover 2-4 threads, to the portion of bolt protruding from the disc. Fit a nut onto each bolt and finger tighten.
4. Tighten the nuts in the sequence shown in Figure 3, rather than a rotational sequence, to the specified torque using the appropriate tools. Prevent the bolt from rotating when applying the specified tightening torque to the nut. Do not hold the nut and tighten the bolt as it will cause the bobbin to rotate and the bell will lock up.

Where bobbins with integral studs are supplied (405 series bobbin) Alcon tool TSB3430X577 is available and is used to prevent the bobbin from rotating during tightening. This tool can also be used to 'square' both 401 & 405 series bobbins after tightening to ensure the bell is not locked up (see Figure 4). Once assembled, the bell should be a 'rattle' fit on the disc and bobbins.

Once assembly is complete, use feeler gauges to check that the float between the bobbin and bell is correct and uniform on all bobbins.

General notes:

1. Ensure that all parts are clean and grease free.
2. Approved thread retainer: Loctite 243 (Blue).
3. Tightening torque: 0.25" UNF 16-18Nm (11.8 – 13.3 lb ft).

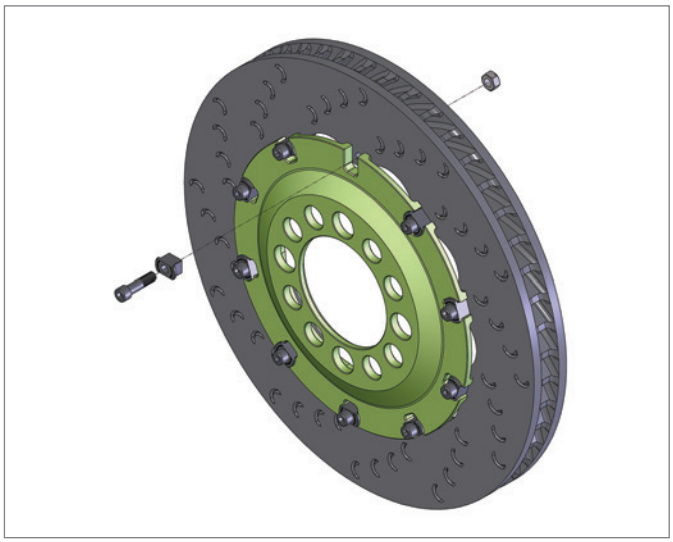


Figure 1. Bobbin drive system with bolt (x401 series).

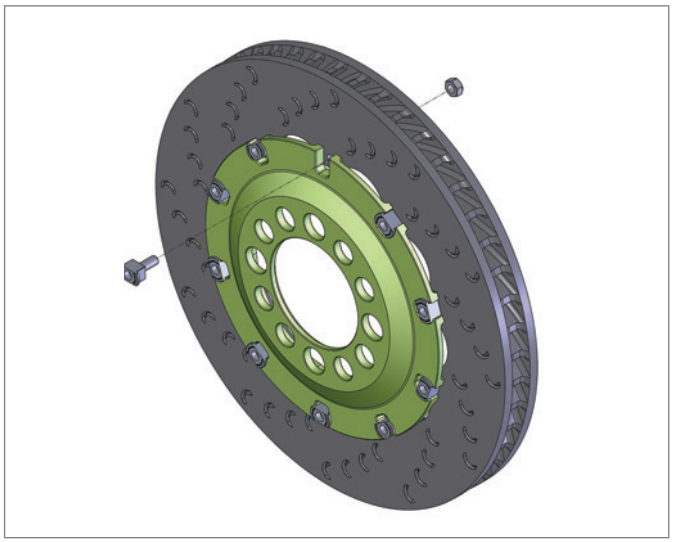


Figure 2. Bobbin drive system with integral stud (x405 series).

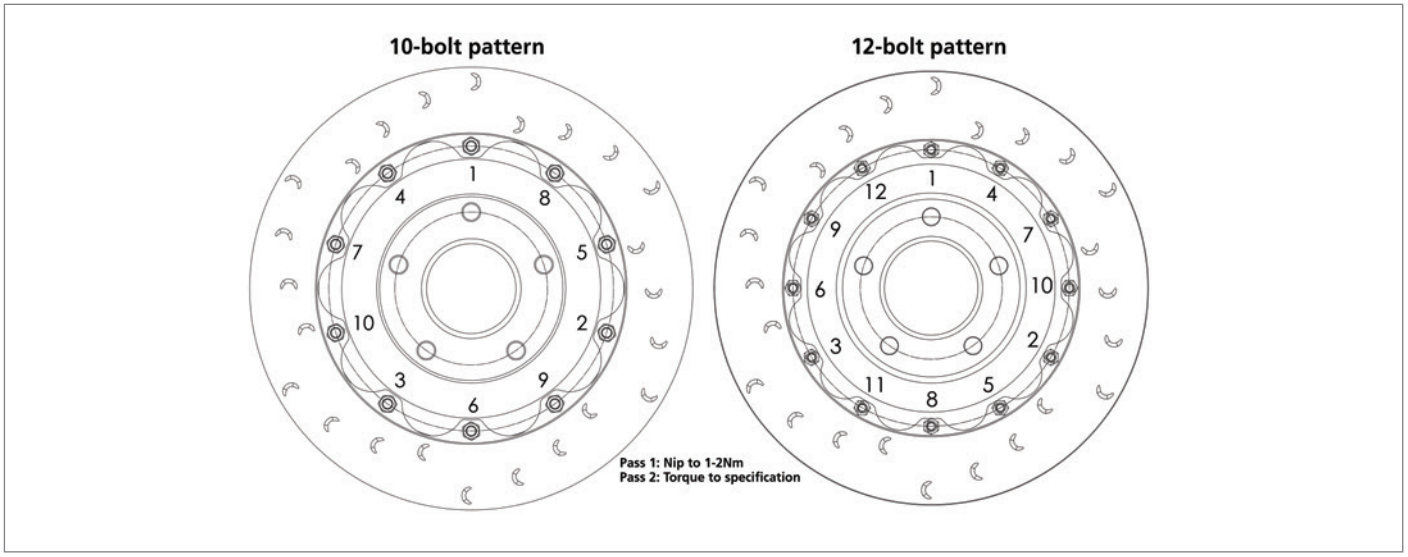


Figure 3. Tightening sequence

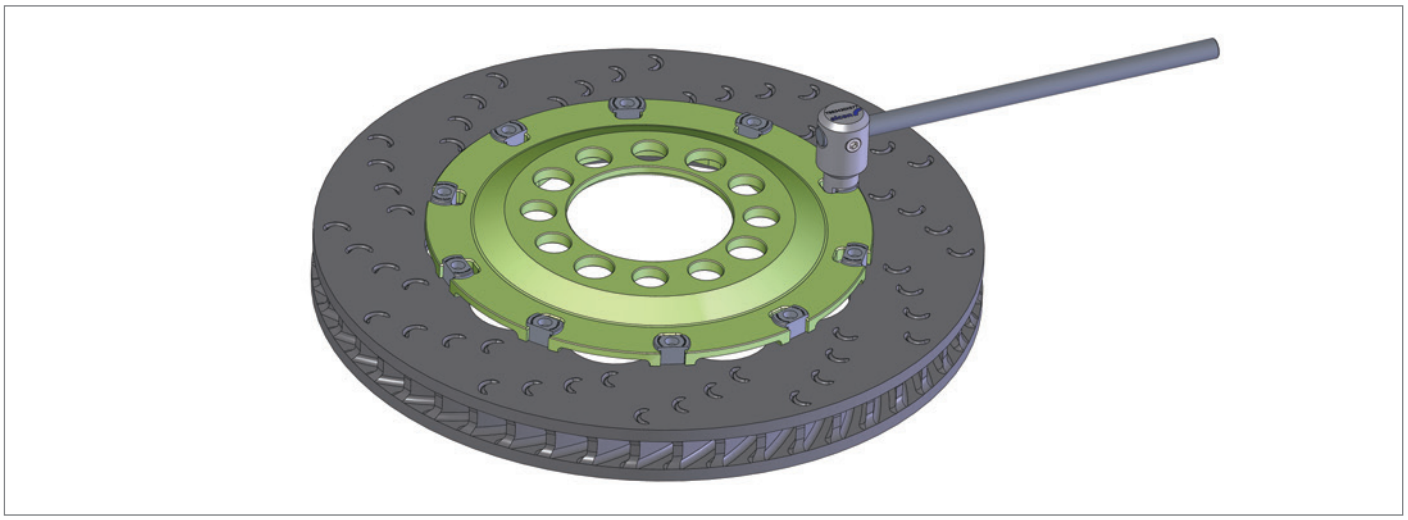


Figure 4. Bobbin squaring tool

Disc and pad bedding and running in

1. Pre-bedding at Alcon

Most discs and pads supplied by Alcon are pre-bedded to deposit an even transfer layer of friction material on to the surface of the disc and to thermally condition the disc.

After the discs have been pre-bedded and allowed to cool, the disc and pads can be bolted on to the car and should be ready for competition use providing that the discs and pads are "run-in" correctly.

2. Use of pre-bedded discs in competition

Care needs to be taken during "running-in" to obtain the best performance and life from pre-bedded discs and pads. Lightweight discs are particularly sensitive to potential problems during use, failure to correctly run-in the discs and pads can result in problems including

Long pedal, poor feel and modulation, vibration, premature wear and disc cracking. Heavier-weight discs are more stable and less prone to these problems, due to the increased structural rigidity gained from 48 and 72 vane design and generally increased flange thickness. It is still advisable to run-in the discs carefully as per instructions to follow.

To prevent these problems, an appropriate and proven "running-in" procedure needs to be followed during rallies, races and tests. We suggest that the following procedures are employed:

- 5 brake applies from slow speed and light pedal pressure to complete system check.
- 15 brake applies from 80 to 40 kph, light to moderate pedal pressure. (2.5 - 3.0 seconds, line pressure 20 bar).
- 15 brake applies from 120 to 60kph, light to moderate pedal pressure. (4.0 seconds, line pressure 20 bar).

Disc warming

Irrespective of which friction materials are being used, pads and discs used in all forms of motorsport require a period of bedding-in before being used.

Discs and pads that are supplied as 'pre-bedded' as well as those that have been run before, must be brought up to temperature on the car before being used in test, qualifying or race conditions.

A suggested brake warming routine from cold is to carry out 3 stops from 120km/h to 40km/h followed by 6 or 7 stops from 160km/h to 40km/h, both at around at 0.5g. Brake ducts can be left fully open. During this procedure, disc surface temperature will rise gradually to around 370°C. Note that this is a disc warming procedure, to be repeated each time the car runs with cold brakes.

The actual procedure will vary depending on the circuit layout and can often begin exiting the pit lane on the out lap. A correctly warmed disc will have an even, grey layer of friction material with no sign of spots or blotches of friction material. Within a few additional laps the brake pedal should become firm and consistent as a transfer layer of pad material develops on each brake disc.

Failure to carry out a procedure to warm the brakes may lead to uneven deposition or spotting of friction material on the disc surfaces, causing vibration under braking. Uneven deposition also leads to uneven temperature distribution, which may cause the disc to permanently distort, and brake pedal travel to increase, particularly after a long run without the brakes being used.

Alternatively, the disc may crack prematurely due to an unequal distribution of thermal stresses around the disc.

Disc groove types.

Alcon floating disc and bell assemblies

As with all premium performance lightweight racing products, disc assemblies demand a high level of care and maintenance in order to ensure that optimum brake performance is always achieved.

1. **Disc care**
   Generally, when disc mass is reduced, the operating temperature of the disc will increase. However, Alcon's turbulator disc is designed to dissipate heat more efficiently, resulting in lower disc temperatures than other discs of similar weight.

   The use of thermal paints allows disc cooling air supply to be monitored. As a guide, temperature of the inner and outer friction faces must be approximately the same at all times. If the temperature differential between each face differs by more than 20°-30°C, distortion of the disc is very likely, often leading to cracking of the friction faces and disc coning.

2. **Bell maintenance**
   The Alcon floating disc system is designed to allow even thermal expansion of the disc without constraint from the hub mounting components, thereby substantially reducing thermal stress on the disc. The amount of float is controlled in two directions:

   Linear clearance between each bobbin and its relative slot in the bell.

   Lateral clearance under the bobbin head.

   The parts must be in a good condition to ensure that the designated clearances are maintained during use.

   The bobbin contact surfaces of the bell must be inspected regularly. If the hard anodised surface in the slot area is damaged, with the anodising worn away, the disc will not float freely on the bell. Bell life may be extended by using a bell on the opposite side of the car, thus utilising the opposing load surface. Clean off any debris that may prevent the bobbin from sliding in the slot by Vaqua blasting and check the condition of the opposing face before proceeding. If both surfaces are in poor condition the bell must be replaced.

   Continued exposure to high temperature causes annealing of the aluminium, in which case wear is exaggerated due to softness of the base material. Extended use at high temperature can also lead to bell distortion, such that the assembly is no longer floating.

3. **Bobbin maintenance**
   The condition of the bobbin is equally important. Under normal use, bobbin surfaces can be cleaned by Vaqua blasting to remove debris, and the bobbin re-used several times.

   However, bobbins that have been used with a bell that has worn during service often have heavy deposition of debris that has adhered to the face; this debris prevents the bobbin from sliding in the slot, such that float is eliminated, often causing vibration and sometimes associated with premature cracking of the disc.

Conditions leading to cracking in cast iron brake discs

The performance of a brake disc is affected by:

- The speed with which heat is fed in.
- The speed with which heat can be dissipated.

These conditions are affected markedly by frictional characteristics, thermal conductivity and diffusivity; the final bulk temperature is affected by the total heat capacity of the entire braking system, which is proportional to the weight of the discs.

The speed with which heat can be dissipated is particularly dependent on the freedom with which air can flow around the brake.

To avoid disc cracking, the braking system must be designed around the maximum energy input to the disc, with careful consideration given to maximising the flow of cooling air.

In addition, the type of friction material used can influence the formation of heat checking and major cracking, as some friction materials can result in much higher surface temperatures for a given power input and therefore this factor must also be considered.

Frequent checks must be made on the condition of the surfaces of the disc, and the discs must be changed if there is any doubt.

advantage range part numbering **GUIDE**

D	V	330	/	32	/	55	-	12	/	218	L
1	2	3		4		5		6		7	8

1. Part

D: Disc

2. Type

S: Solid

V: Ventilated

3. Outer Diameter

E.G: 330

4. Disc thickness

E.G: 32

5. Radial depth

E.G: 55

6. Number of mounting holes

E.G: 12

7. Mounting hole PCD

E.G: 218mm

8. Handling

L: Left hand

R: Right hand

Please note: All measurements are given in metric (mm) unless otherwise stated in imperial (").

Part numbers and measurements

Part Number	OD	ID	Thickness	No of holes	Hole Diameter	Hole PCD
DV256/25/47-6/140	256	162	25	6	6.4	140
DV267/21/56-6/140	267	154.9	21	6	6.4	140
DV278/16/45-8/176	278	188	16	8	8.4	176
DV280/23/44-8/177	280	192.75	23	8	6.4	177
DV280/25/42-12/178	280	197	25	12	6.4	178
DV280/25/53-8/159	280	174	25	8	6.4	159
DV295/25/53-12/178	295	189	25	12	6.4	178
DV295/28/53-12/178	295	189	28	12	6.4	178
DV304/25/51-12/178	304	203	25	12	6.4	178
DV304/28/55-12/178	304	195	28	12	6.4	178
DV315/28/50-12/203	315	215	28	12	6.4	203
DV325/28/53-12/203	325	220	28	12	6.4	203
DV330/32/55-12/203	330	220	32	12	6.4	203
DV343/28/55-12/218	343	233	28	12	6.4	218
DV343/32/55-12/218	343	233	32	12	6.4	218
DV355/28/54-12/235	355	248	28	12	6.4	235
DV355/32/54-12/235	355	248	32	12	6.4	235
DV378/32/48-12/260	378	282	32	12	6.4	260
DV380/34/60-12/245	380	261	34	12	6.4	245

motorsport range part numbering **GUIDE**

D	I	V	2	235	X	535	C	36	L
1	2	3	4	5	6	7	8	9	10

1. Part

D: Disc

2. Material

I: Iron
C: Carbon

3. Type

S: Solid
V: Ventilated

4. Disc material

2: RC2036
4: RC2253

5. Disc casting

135 = DIV2135

6. Condition

X: Natural
b: Bedded

7. Series number

001-999

8. Face type

A: Grooved, Affinia specification
B: Grooved, curved
C: Grooved, crescent
D: Drilled faces
G: Grooved, straight
P: Plain
S: S Groove

9. Number (where specified)

Number of crescent or curved grooves or holes

10. Handling

L: Left hand
R: Right hand

Please note: All measurements are given in metric (mm) unless otherwise stated in imperial (").

Part numbers and measurements

Part Number	OD	ID	Thickness	No of holes	Hole Diameter	Hole PCD	Groove type	Notes
DIV2155X341L4	277.8	198	16	8	8.5	186	G	F3 Dallara from 2005
DIV2111X357L4	278	178	18	8	6.4	190.5	G	F3
DIV2154X325L4	280	174	30	8	6.4	146	G	-
DIV2154X336L4	280	194	23	8	6.4	176.75	G	-
DIV2207X387C20	285	194.5	27	10	SLOT	179	C20	Subaru Impreza Group N Common Rear
DIV2154X254L4	285	182	25.4	8	6.4	158.75	G	-
DIV2155X253G	286	202	20.7	8	6.4	177.8	G	-
DIV2153X261G	290	200	28	12	6.4	177.8	G	-
DIV2154X385B8	294.8	206.6	25.5	8	SLOT	189.85	B	Mitsubish Evo 10 Group N Rear Brembo replacement.
DIV2154X385L8	294.8	206.6	25.5	8	SLOT	189.85	G	Mitsubish Evo 9 Group N Rear Brembo replacement.
DIV2135X507C24	295	193.4	32	12	SLOT	177.8	C24	Subaru Impreza Group N Gravel Front
DIV2207X390P	295	215	25.4	8	8	177.8	P	-
DIV2215X559S36	300	194	33	12	6.4	177.8	S36	-
DIV2215X542S36	300	194	32	12	6.4	177.8	S36	-
DIV2235X561B8	300	193	32	8	SLOT	180.5	B	Mitsubish Evo 10 Group N Gravel Front Brembo Replacement / 3.1mm Inset Face
DIV2215X587S36	300	194	31	12	6.4	177.8	S36	0.5Mm Raised Face
DIV2135X505B5	300	193	30	8	SLOT	180.5	B	Mitsubishi Evo 9 Grp N Gravel Front Brembo Replacement.
DIV2135X505B8	300	193	30	8	SLOT	180.5	B	Mitsubishi Evo 10 Grp N Gravel Front Brembo Replacement
DIV2215X589S36	300	194	30	12	6.4	177.8	S36	1.0mm Raised Face
DIV2201X628S30	300	206	29	10	6.4	188	S30	0.5mm Raised Face
DIV2213X569G	300	195	28	12	6.4	175	G	-
DIV2154X377C48	300	203	25.4	10	6.4	189	C48	-
DIV2153X322B48	304	203	24	12	6.4	188	B	-

Part numbers and measurements

Part Number	OD	ID	Thickness	No of holes	Hole Diameter	Hole PCD	Groove type	Notes
DIV2213X513B8	305	198	32	12	6.4	182	B	-
DIV2201X509C48	310	206	32	12	6.4	188	C48	-
DIV2235X562C48	310	206	30	12	6.4	188	C48	-
DIV2153X406C24	310	208	26	12	6.4	188	C24	-
DIV2201X603S36	315	221	32	12	6.4	206	S36	-
DIV2213X581C48	320	199	25	12	6.4	181	C48	-
DIV2197X029S36	325	231	22.5	12	6.4	215	S36	-
DIV2235X630S36	330	224	30	12	6.4	210	S36	-
DIV2197X003C24	330	224	28	12	6.4	203.2	C24	-
DIV2135X594S36	332	220	35.6	12	6.4	203.2	S36	-
DIV2201X565S36	332	233	34	12	6.4	215	S36	-
DIV2198X448C36	332	225	32	12	6.4	210	C36	-
DIV2198X564S36	332	233	32	12	6.4	215	S36	1.0mm Raised Face
DIV2198X483C36	332	233	28	12	6.4	210	C36	-
DIV2213X531C24	335	233	32	12	6.4	214	C24	-
DIV2213X532C24	335	235	30	12	6.4	214	C24	-
DIV2213X530C24	335	233	28	12	6.4	214	C24	-
DIV2175X634C24	343	235	32	12	6.4	213	C24	-
DIV2175X463C24	350	244	28	12	6.4	228.6	C24	-
DIV2216X780S48	350	255	31	12	6.4	233	S48	-
DIV2202X220C48	355	245	35.5	12	6.4	228.6	C48	-
DIV2216X770S36	355	249	32	12	6.4	233	S36	-
DIV2202X599C48	355	259	30	12	6.4	235	C48	-
DIV2202X835S36	355	250	35.6	12	6.4	231	S36	-
DIV2175X836S36	355	250	35.6	12	6.4	231	S36	-

Part numbers and measurements

Part Number	OD	ID	Thickness	No of holes	Hole Diameter	Hole PCD	Groove type	Notes
DIV2175X837S36	355	222	35.6	12	6.4	204	S36	-
DIV2202X835G	355	250	35.6	12	6.4	231	G	-
DIV2175X836G	355	250	35.6	12	6.4	231	G	-
DIV2175X837G	355	222	35.6	12	6.4	204	G	-
DIV2202X684C24	360	248	36	12	6.4	234	C24	-
DIV2202X773B	370	264	30	12	6.4	248	B	-
DIV2211X639C48	375	261	35.6	12	8	247.5	C48	-
DIV2211X703S36	375	247	35.6	12	6.4	233	S36	-
DIV2211X716S36	378	264	35.6	12	6.4	242	S36	-
DIV2211X711G	380	267	35.6	12	6.4	250	G	-
DIV2202X444C32	380	275	35	12	6.4	258	C32	-
DIV2211X742S72	380	275	34	12	6.4	258	S72	-
DIV2211X803S36	380	268	32	12	6.4	245	S36	-
DIV2175X499L16	382	270	32	12	6.4	247	G	-
DIV2211X001B24	390	278	35	12	6.4	265	B	-
DIV2211X001S72	390	278	35	12	6.4	265	S72	-

This is just a small selection of the discs that we supply. For anything that falls outside of the listings here, please get in touch with one of our sales representatives.

Part numbers

Part numbers and measurements

Part Number	OD	ID	Thickness	No of holes	Hole Diameter	Hole PCD	Groove type	Notes
DIV2111X265L4	260	154	25	6	6.4	139.7	G	Escort MK2 Asphalt Front
DIV2111X023	264	154	20.7	6	6.5	139.7	G	Escort MK2 Gravel Front
DIV2111X112G	267	184	25.4	8	6.4	165.1	G	-
DIV2207X402S36	277.5	190	28	10	6.4	172	S36	-
DIV2155X344L4	277.8	197.6	18	8	8.5	186	G	F3 Dallara
DIV2155X341L4	277.8	198	16	8	8.5	186	G	F3 Dallara from 2005
DIV2111X357L4	278	178	18	8	6.4	190.5	G	F3
DIV2154X325L4	280	174	30	8	6.4	146	G	-
DIV2154X336L4	280	194	23	8	6.4	176.75	G	-
DIV2207X387C20	285	194.5	27	10	SLOT	179	C20	Subaru Impreza Group N Common Rear
DIV2154X254L4	285	182	25.4	8	6.4	158.75	G	-
DIV2155X253G	286	202	20.7	8	6.4	177.8	G	-
DIV2153X261G	290	200	28	12	6.4	177.8	G	-
DIV2154X385B8	294.8	206.6	25.5	8	SLOT	189.85	B	Mitsubish Evo 10 Group N Rear Brembo replacement.
DIV2154X385L8	294.8	206.6	25.5	8	SLOT	189.85	G	Mitsubish Evo 9 Group N Rear Brembo replacement.
DIV2135X507C24	295	193.4	32	12	SLOT	177.8	C24	Subaru Impreza Group N Gravel Front
DIV2207X390P	295	215	25.4	8	8	177.8	P	-
DIV2215X559S36	300	194	33	12	6.4	177.8	S36	-
DIV2215X542S36	300	194	32	12	6.4	177.8	S36	-
DIV2235X561B8	300	193	32	8	SLOT	180.5	B	Mitsubish Evo 10 Group N Gravel Front Brembo Replacement / 3.1mm Inset Face
DIV2111X265L4	260	154	25	6	6.4	139.7	G	Escort MK2 Asphalt Front
DIV2111X023	264	154	20.7	6	6.5	139.7	G	Escort MK2 Gravel Front
DIV2111X112G	267	184	25.4	8	6.4	165.1	G	-
DIV2207X402S36	277.5	190	28	10	6.4	172	S36	-
DIV2155X344L4	277.8	197.6	18	8	8.5	186	G	F3 Dallara

actuation introduction

Master cylinders

Alcon's range of master cylinders covers the majority of race applications that we may encounter. They feature compact, cutting edge designs and are made from highgrade materials in all instances. Each master cylinder comes in a range of bore sizes to suit the requirement, please see breakdown of part numbers for more information on individual specifications.

Balance bars

Alcon's balance bar range includes both pedal and bulkhead mountings, and are designed for use with specific master cylinders. Using either high-grade aluminium or steel housings, they are robust and durable and well up to the tests of both race and rally applications. See individual product listings for measurements and part numbers and, if in doubt, just get in touch.

Bias adjusters and valves

Alcon also produces a range of anti knock-off valves, proportioning valves, and bias adjusters for customers' needs. Again crafted to Alcon's high standards, these are designed to be used in conjunction with Alcon master cylinders and calipers with all necessary information on each product listing.

actuation part numbering **GUIDE**

MAR	5	44	0	H	M161	M	A	B
1	2	3	4	5	6	7	8	9

1. Master cylinder assembly

2. Fixation method

1: Vertical flange
3: Threaded nose
4: Offset flange
5: Spherical bearing
6: Trunnion end
8: Low hysteresis (vl seal)
9: Non standard blank: no fixation (e.g. tandem)

3. Bore

Measure	Short series	2 Stage	Pull type
Imperial	**20:** 5/8" (15.9mm)	**04:** 5/8" / 7/8"	**148:** 19mm Bore 12mm Rod
	21: 0.7" (17.8mm)	**15:** 11/16" / 15/16"	**162:** 19mm Bore 10mm Rod
	22: 3/4" (19.05mm)	**16:** 0.7" / 1.00"	**173:** 22mm Bore 14mm Rod
	23: 13/16" (20.6mm)	-	**187:** 22mm Bore 12mm Rod
	24: 7/8" (22.2mm)	-	**203:** 22mm Bore 9mm Rod
	25: 15/16" (23.8mm)	-	**218:** 25.4mm Bore 13mm Rod
	26: 1.0" (25.4mm)	-	**234:** 25.4mm Bore 10mm Rod
	27: 1 1/16" (27.0mm)	-	-
	28: 1 1/8" (28.6mm)	-	-
	29: 1 3/16" (30.2mm)	-	-
	30: 1 1/4" 31.8mm)	-	-
Metric	**41:** 17mm	**61:** 16.5 / 23.8	-
	42: 15.5mm	**62:** 16.5 / 22.2	-
	43: 16mm	**63:** 19.05 / 23.8	-
	44: 15.1mm	-	-
	45: 14.8mm	-	-
	46: 14.5mm	-	-
	47: 16.5mm	-	-
	48: 17.5mm	-	-

4. Seal type

Short series	2 Stage
0: Lip seal	**0:** 210psi blow off
1: Lip seal with '0' seal sec	-
2: Teves seal	-
3: VL seal	-
4: Seals for use with mineral oil only	-
5: Lip seal primary, vl seal secondary (2 stage)	-

5. Fluid inlet

A: Integral Reservoir
B: 7/16" - 20UNF Female
C: Push on stem
D: M14 × 1.5 Female
E: 3/4" × 16
F: 3/8" × 24UNF Male
G: M12 × 1.0 Female
H: M10 × 1.0 Female
J: M14 × 1.5
K: 3/8" - 24UNF Female

6. Push rod

E178: 3/8"UNF × 178
F115: 5/16"UNF × 115
F160: 5/16"UNF × 160
M115: M8x1.25 × 115
M158: M10x1.0 × 160
M160: M8x1.25 × 160
M230: M10x1.25 × 230
P160: Plain × 160
C180: Clevis × 180
X: Flanged (no thread)
R172: Recess × 172 long (honda)
R184: recess × 184 long (honda)

7. Outlet

M: M10x1.0 outlet
d: Dual outlet (all others 3/8"unf)

8. Serial letter

A, B, ETC.
X: Third outlet

9. Bearing

B: Spherical bearing fitted

Please note: All measurements are given in metric (mm) unless otherwise stated in imperial (").

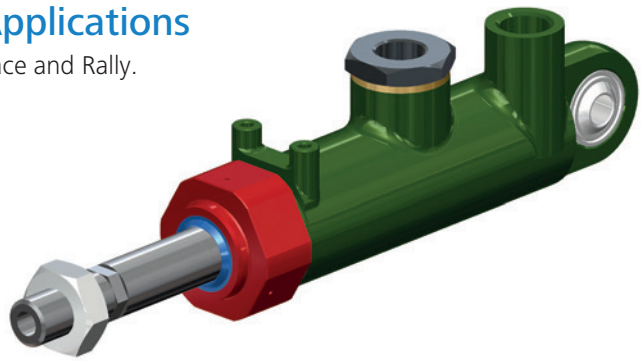
Spherical bearing-mounted master cylinder

Part numbers

Ø Bore	Part number
15.00 (0.590”)	MAR5440HM161MAB
15.90 (0.625”)	MAR5200HM161MAB
17.78 (0.700”)	MAR5210HM161MAB
19.05 (0.750”)	MAR5220HM161MAB
20.62 (0.812”)	MAR5230HM161MAB
22.22 (0.875”)	MAR5240HM161MAB
23.8 (0.937”)	MAR5250HM161MAB
25.4 (1.00”)	MAR5260HM161MAB

Applications

Race and Rally.



Key features and benefits

- Compact design push type master cylinder.
- Suitable for brake and clutch applications.
- 0.25” high grade spherical bearing allows the master cylinder to rotate with the arc of the pedal and offset of the balance bar to minimise side loads at the push rod.
- Breather port clearance (cut-off travel) calibrated during assembly to provide controlled lost travel.
- Scraper seal to prevent ingress of dust and debris.
- Non-standard push rods available on request.
- Integrated travel sensor SHM4917C available (not included) for accurate measurement of push rod travel in both front and rear circuits.

Replacement parts

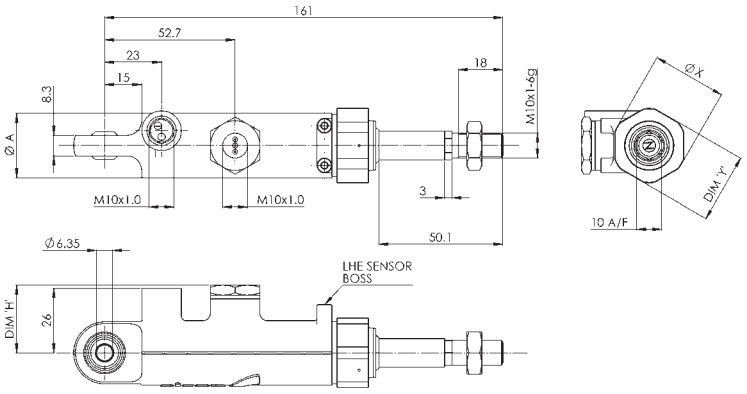
Item	Ø Bore	Service kit
Seal kit, comprises: Primary Seal, Secondary Seal, Primary Seal Washer, Circlip, Spring and Wiper seal	15.00	MAR5440SK
	15.90	MSK5200SK
	17.78	MSK5210SK
	19.05	MSK5220SK
	20.62	MSK5230SK
	22.22	MSK5240SK
	23.8	MSK5250SK
	25.4	MSK5260SK
Spherical bearing	BSS0089X392	
Copper gasket 0.375 UNF	FCG0080X015	

Specifications

- Maximum stroke: 29.5mm.
- Breather port clearance 0.7mm-1.0mm. Versions available with larger breather port diameter for rally car handbrake.
- Fluid inlet port M10x1 Tightening torque 17-20Nm with a copper washer.
- Fluid outlet port M10X1 Tightening torque 17-20Nm with a copper washer.
- To avoid trapping air, install with the ports uppermost. The fluid outlet port must not be below the horizontal axis.
- Average weight 0.13Kg.

Installation dimensions

NOM. BORE	PART NUMBER	ØA	DIM 'H'	ØX	DIM 'Y'	BREATHER PORT CLEARANCE
15.00 / 0.590"	MAR5440HM161MAB	26	27	30	28	0.7 / 1.0
15.9 / 0.625"	MAR5200HM161MAB					
17.8 / 0.700"	MAR5210HM161MAB					
19.05 / 0.750"	MAR5220HM161MAB					
20.62 / 0.812"	MAR5230HM161MAB					
22.22 / 0.875"	MAR5240HM161MAB	28	28.5	32	30	
23.81 / 0.937"	MAR5250HM161MAB	31.6		34	32	
25.4 / 1.000"	MAR5260HM161MAB	31.6		34	32	



motorsport range **MAR62**

Trunnion-mounted master cylinder

Part numbers

Ø Bore	Part number
15.00 (0.590”)	MAR6440HM148MAS
15.90 (0.625”)	MAR6200HM148MAS
17.78 (0.700”)	MAR6210HM148MAS
19.05 (0.750”)	MAR6220HM148MAS
20.62 (0.812”)	MAR6230HM148MAS
22.22 (0.875”)	MAR6240HM148MAS
23.8 (0.937”)	MAR6250HM148MAS
25.4 (1.00”)	MAR6260HM148MAS

Replacement parts

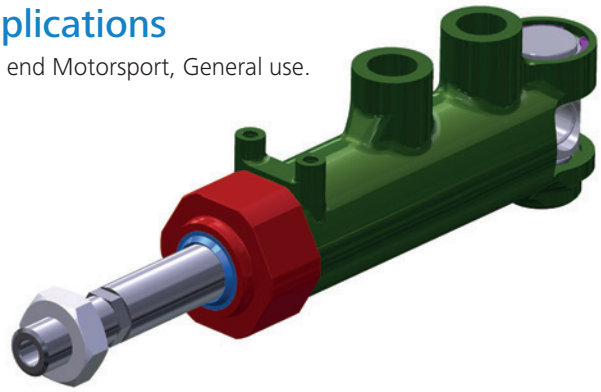
Item	Ø Bore	Service kit
Seal kit, comprises: Primary Seal, Secondary Seal, Primary Seal Washer, Circlip, Spring and Wiper seal	15.00	MAR5440SK
	15.90	MSK5200SK
	17.78	MSK5210SK
	19.05	MSK5220SK
	20.62	MSK5230SK
	22.22	MSK5240SK
	23.8	MSK5250SK
	25.4	MSK5260SK
Copper gasket 0.375 UNF	FCG0080X015	

Installation dimensions

NOM. BORE	PART NUMBER	ØA	DIM 'H'	ØX	DIM 'Y'	BREATHER PORT CLEARANCE
15.00 / 0.590"	MAR6440HM148MA	26	26	30	28	0.7 / 1.0
15.9 / 0.625"	MAR6200HM148MA					
17.8 / 0.700"	MAR6210HM148MA					
19.05 / 0.750"	MAR6220HM148MA					
20.62 / 0.812"	MAR6230HM148MA					
22.22 / 0.875"	MAR6240HM148MA	31.6	28.5	34	32	
23.81 / 0.937"	MAR6250HM148MA					
25.4 / 1.000"	MAR6260HM148MA					

Applications

High end Motorsport, General use.

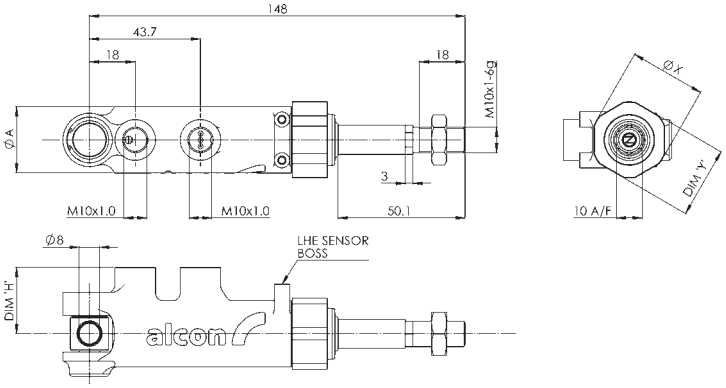


Key features and benefits

- Compact design push type master cylinder.
- The trunnion is mounted in needle roller bearings, providing minimal friction when adjusting front to rear brake bias.
- An Ø8mm DU Bearing reduces friction between the master cylinder and balance bar.
- Suitable for brake and clutch applications.
- Suitable for use with Alcon bulkhead mounted balance bar ref MPA3200X111.
- Breather port clearance (cut-off travel) calibrated during assembly to provide controlled lost travel.
- Scraper seal to prevent ingress of dust and debris.
- Non-standard push rods available on request.
- Integrated travel sensor SHM4917C available (not included) for accurate measurement of push rod travel in both front and rear circuits.

Specifications

- Nominal stroke: 25.4mm.
- Breather port clearance 0.7mm-1.0mm. Versions available with larger breather port diameter for rally car handbrake.
- Recommended shaft diameter: Ø8 f7 Ø7.972/7.987.
- Fluid inlet port M10x1 Tightening torque 17-20Nm with a copper washer.
- Fluid outlet port M10X1 Tightening torque 17-20Nm with a copper washer.
- To avoid trapping air inside, install with the ports uppermost. The fluid outlet port must not be below the horizontal axis.
- Average weight 0.16Kg.



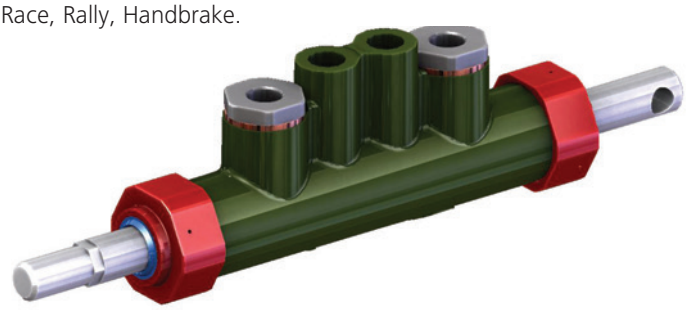
Tandem in-line master cylinder

Part numbers

Ø Bore	Part number
15.90/15.90 (0.625”)	MAR7200KC180A
17.78/17.78 (0.700”)	MAR7210KC180A

Applications

Race, Rally, Handbrake.



Replacement parts

Item	Ø Bore	Service kit
Service kit, comprises 2 off: Primary Seal, Secondary Seal, Primary Seal Washer, Gasket, Spring and Wiper seal	15.90	MAR7200SK
	17.78	MSK7210SK

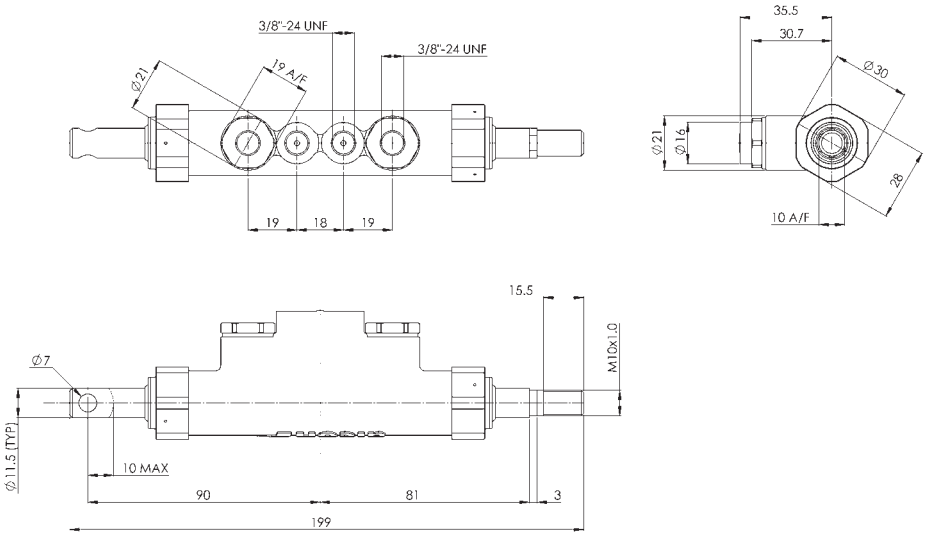
Key features and benefits

- Compact design push type master cylinder with two separate circuits.
- Equal pressure generated in each circuit.
- Suitable for hand brake where regulations specify that the original diagonal split to the rear brakes must be retained.
- Hole in push rod at one end for compact installation using a clevis.
- Breather port clearance (cut-off travel) calibrated during assembly to provide controlled lost travel.
- Scraper seals to prevent ingress of dust and debris.
- Non-standard push rods available on request.

Specifications

- Nominal stroke: 12mm per circuit.
- Breather port clearance 0.7mm-1.0mm. Versions available with larger breather port diameter.
- Fluid inlet port 0.375-24 UNF. Tightening torque 17-20Nm with a copper washer.
- Fluid outlet port 0.375-24 UNF. Tightening torque 17-20Nm with a copper washer.
- To avoid trapping air inside the master cylinder, install it with the ports uppermost.
- Average weight 0.26Kg.

Installation dimensions



motorsport range **MAR72**

Differential bores tandem master cylinder

Part numbers

Bore 'A'	Bore 'B'	Part number
19.05 (0.750")	15.90 (0.626")	MAR72-2022HL236M-A
20.62 (0.812")	15.90 (0.626")	MAR72-2023HL236M-A
20.62 (0.812")	19.05 (0.750")	MAR72-2223HL236M-A

Applications

Race, Rally, Handbrake.

Replacement parts

Bore 'A'	Bore 'B'	Part number
19.05 (0.750")	15.90 (0.626")	MAR72-2022SK
20.62 (0.812")	15.90 (0.626")	MAR72-2023SK
20.62 (0.812")	19.05 (0.750")	MAR72-2223SK

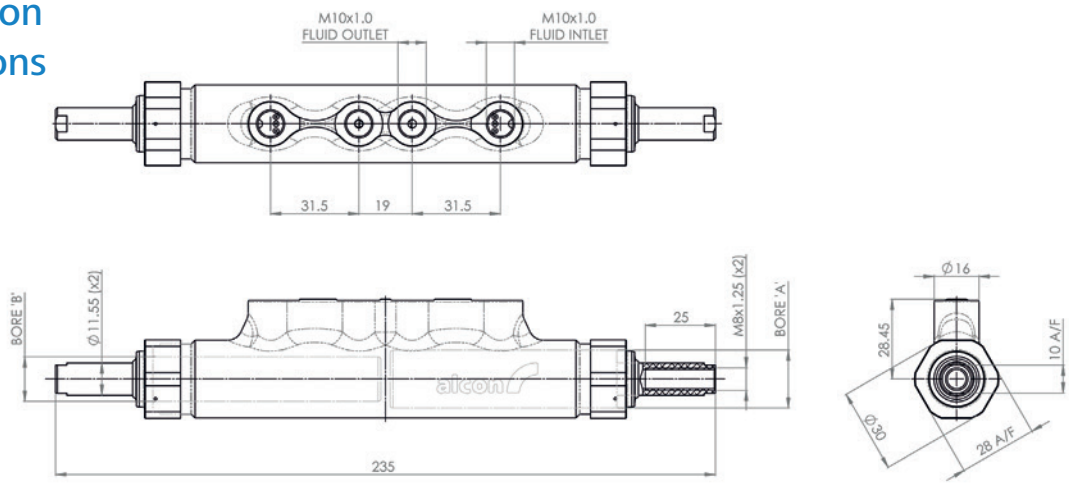
Key features and benefits

- Compact design push type master cylinder with two separate circuits.
- Differential bores size tandem master cylinder.
- Suitable for hand brake where regulations specify that the original diagonal split to the rear brakes must be retained.
- Breather port clearance (cut-off travel) calibrated during assembly to provide controlled lost travel.
- Scraper seals to prevent ingress of dust and debris.
- Non-standard push rods available on request.

Specifications

- Maximum stroke available: 23.0mm.
- Estimated weight: 27.5kg.
- Fluid inlet and outlet connection torque: 17 - 20Nm (12.5 - 15lbft) with copper sealing washer.
- Test pressure 138 bar (2000psi).
- Aluminium piston retainer nut torque 16 - 19Nm (12 - 14lbft).

Installation dimensions



BORE 'A'	BORE 'B'	ALCON PART NUMBER	SERVICE KIT
19.05	15.9	MAR72-2023HL236M-A	MAR72-2022SK
20.62	15.9	MAR72-2023HL236M-A	MAR72-2023SK
20.62	19.05	MAR72-2223HL236M-A	MAR72-2223SK

High efficiency master cylinder

Part numbers

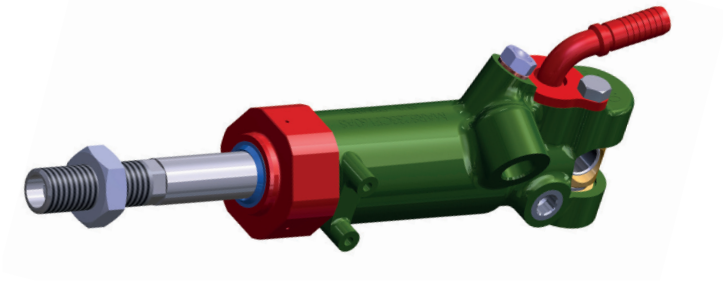
Ø Bore	Part number
17.78 (0.700")	MAR8213CFS160AS
19.05 (0.750")	MAR8223CFS160AS
20.62 (0.812")	MAR8233CFS160AS
22.22 (0.875")	MAR8243CFS160AS
23.8 (0.937")	MAR8253CFS160AS
25.4 (1.00")	MAR8263CFS160AS

Replacement parts

Item	Ø Bore	Service kit
Seal kit, comprises: Main Seal, 3 x O Seals, Centre Seal, Circlip, Spring and Wiper seal	17.78 (0.700")	MAR8213SK
	19.05 (0.750")	MAR8223SK
	20.62 (0.812")	MAR8233SK
	22.22 (0.875")	MAR8243SK
	23.8 (0.937")	MAR8253SK
	25.4 (1.00")	MAR8263SK
Inlet fitting 30°	SAM8200X106	
Inlet fitting 90°	SAM8200X108	
Copper gasket 0.375 UNF	FCG0080X015	
AKB Capsule,58 psi	HAA8200X100A	
AKB Capsule,44 psi	HAA8200X100B	
AKB Capsule, 26 psi	HAA8200X100C	

Installation dimensions

NOM. BORE	PART NUMBER	ØA	DIM 'H'	ØX	DIM 'Y'	BREATHER PORT CLEARANCE
17.8 / 0.700"	MAR8213CF160AS	28	36.9	32	30	0.7 / 1.0
19.05 / 0.750"	MAR8223CF160AS					0.7 / 1.0
20.62 / 0.812"	MAR8233CF160AS					0.7 / 1.0
22.22 / 0.875"	MAR8243CF160AS					0.7 / 1.0
23.81 / 0.937"	MAR8253CF160AS	31.6		34	32	0.7 / 1.0
25.4 / 1.000"	MAR8263CF160AS					0.7 / 1.0



Applications

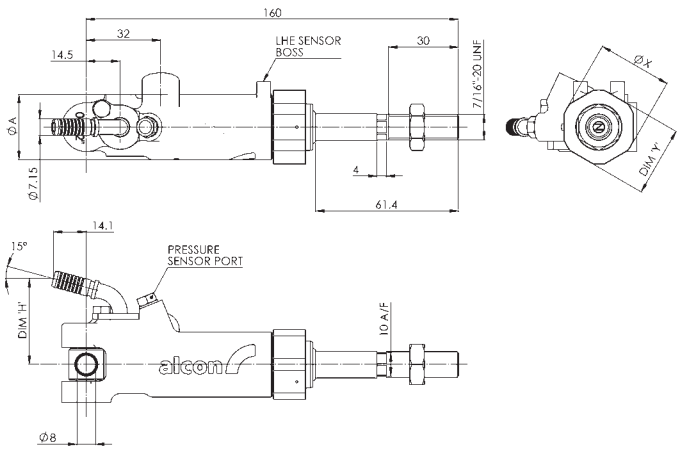
NASCAR.

Key features and benefits

- Compact design push type master cylinder with a single low friction pressure seal in place of conventional primary and secondary lip seals.
- Integral Pressure Sensor port, suits Kulite or similar.
- Integral port for a removable Anti-Knock back valve capsule, with three versions available.
- Face seal closure (cut-off travel) calibrated during assembly to provide minimal lost travel.
- Trunnion mounted in needle roller bearings, providing minimal friction when adjusting front to rear brake bias.
- Scraper seal to prevent ingress of dust and debris.
- Suitable for brake and clutch applications.
- Suitable for use with Alcon PBA3300 series pedal box.
- Integrated travel sensor SHM4917C available for accurate measurement.

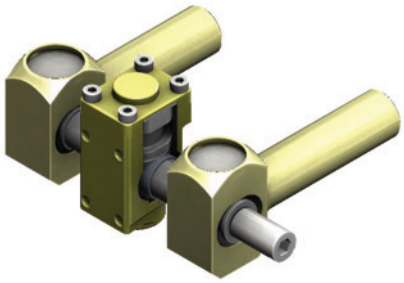
Specifications

- Nominal stroke: 25.4mm.
- Face seal closure 0.4-0.6mm.
- Recommended shaft diameter: Ø8 f7 Ø7.972 / 7.987.
- Fluid outlet port rotatable Ø7 stem suits Goodridge hose.
- Fluid inlet port 3/8-24UNF Tightening torque 17-20Nm with a copper washer.
- Pressure sensor port 10-32UNF.
- To avoid trapping air inside, install with the ports uppermost. The fluid outlet port must not be below the horizontal axis.
- Average weight 0.24Kg.



motorsport range **BALANCE BARS**

Low friction balance bars



Dim W	Part number
68mm	MPA3200X107.68
72mm	MPA3200X107.72

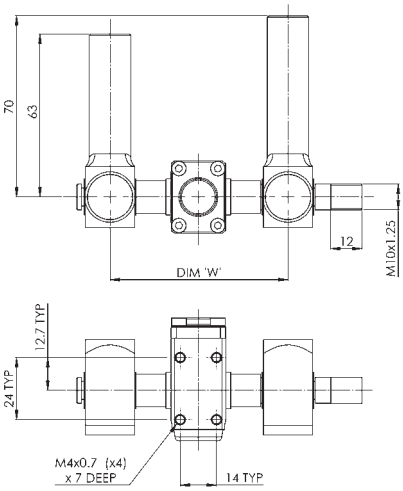
MPA3200X107

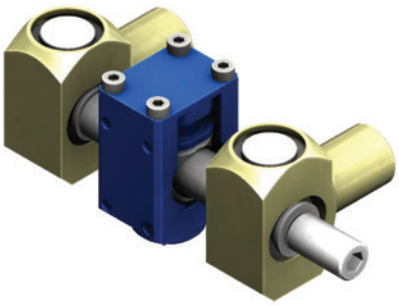
Applications

Race and Rally.

Key features and benefits

- Pedal mounting.
- Designed for use with Alcon MAR52 series master cylinder.
- Aluminium housing.
- Rod ends included, extra-long type.
- Cable adjuster connector M10x1.25.





Dim W	Part number
68mm	MPA3200X107.68
72mm	MPA3200X107.72

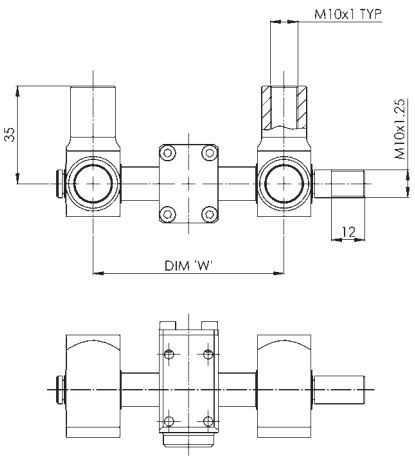
MPA3200X110

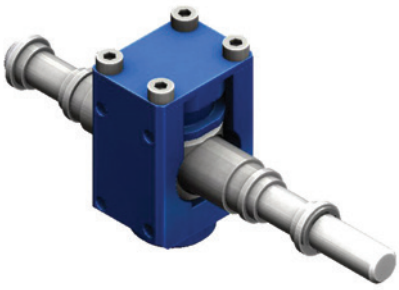
Applications

Race and Rally.

Key features and benefits

- Pedal mounting.
- Designed for use with Alcon MAR52 series master cylinder.
- Steel housing.
- Rod ends included, short type.
- Cable adjuster connector M10x1.25.





Dim W	Part number
68mm	MPA3200X111.68
76mm	MPA3200X111.76

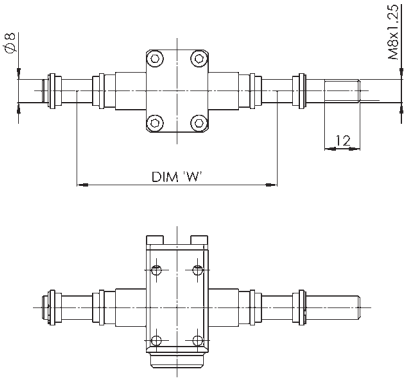
MPA3200X111

Applications

Race and Rally.

Key features and benefits

- Bulkhead mounting.
- Designed for use with Alcon MAR62 series master cylinder.
- Aluminium housing.
- Cable adjuster connector M8x1.25.



Anti knock-off and proportional valves

Tee type

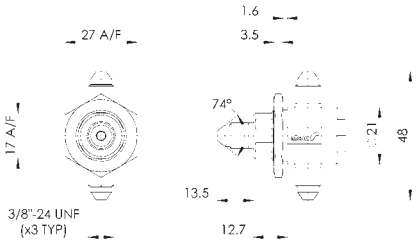
Applications

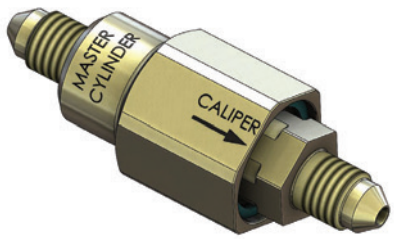
Race and Rally.

Key features and benefits

- Brake on pressure 40kPa.
- Brake on flow rate 75 LOHM.
- Brake off pressure, see above.
- Brake off flow rate 1900 LOHM.

Brake off pressure rating	Part number
172 kPa	VAR3430X607A
300 kPa	VAR3430X607B
40 kPa	VAR3430X607C





In-line type

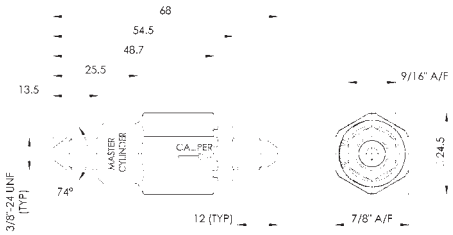
Applications

Race and Rally.

Key features and benefits

- Brake on pressure 40kPa.
- Brake on flow rate 75 LOHM.
- Brake off pressure, see above.
- Brake off flow rate 1900 LOHM.

Brake off pressure rating	Part number
172 kPa	VAR3430X607A
300 kPa	VAR3430X607B



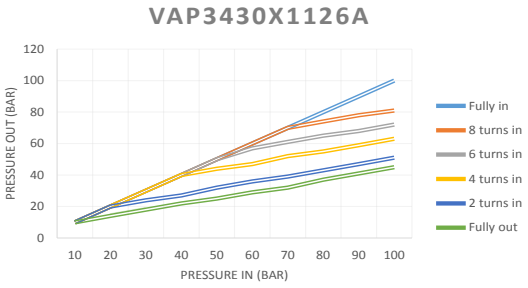
Proportioning valve

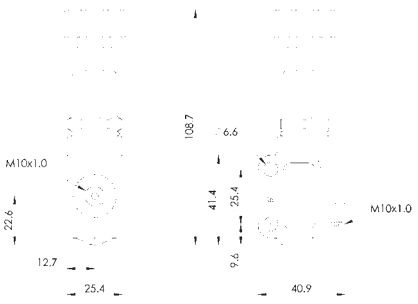
Applications

Race and Rally.

Key features and benefits

- Fluid inlet and outlet ports M10x1.
- Maximum working pressure 100 bar.
- Operating pressure range 7 to 70 bar.
- Pressure reduction ratio 2.6:1.





motorsport range **BIAS ADJUSTERS**

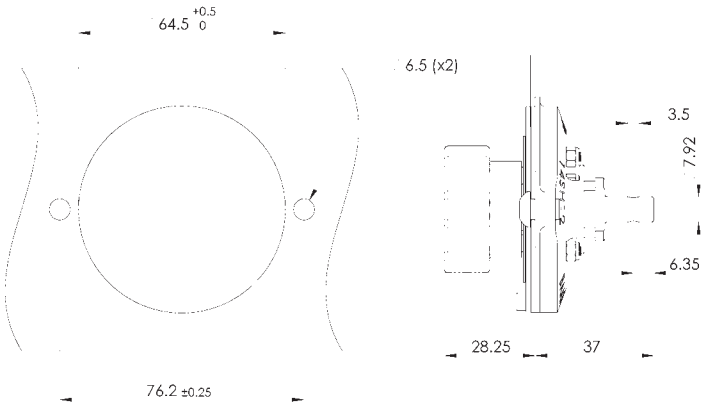
Geared adjuster knobs BAA3300X200

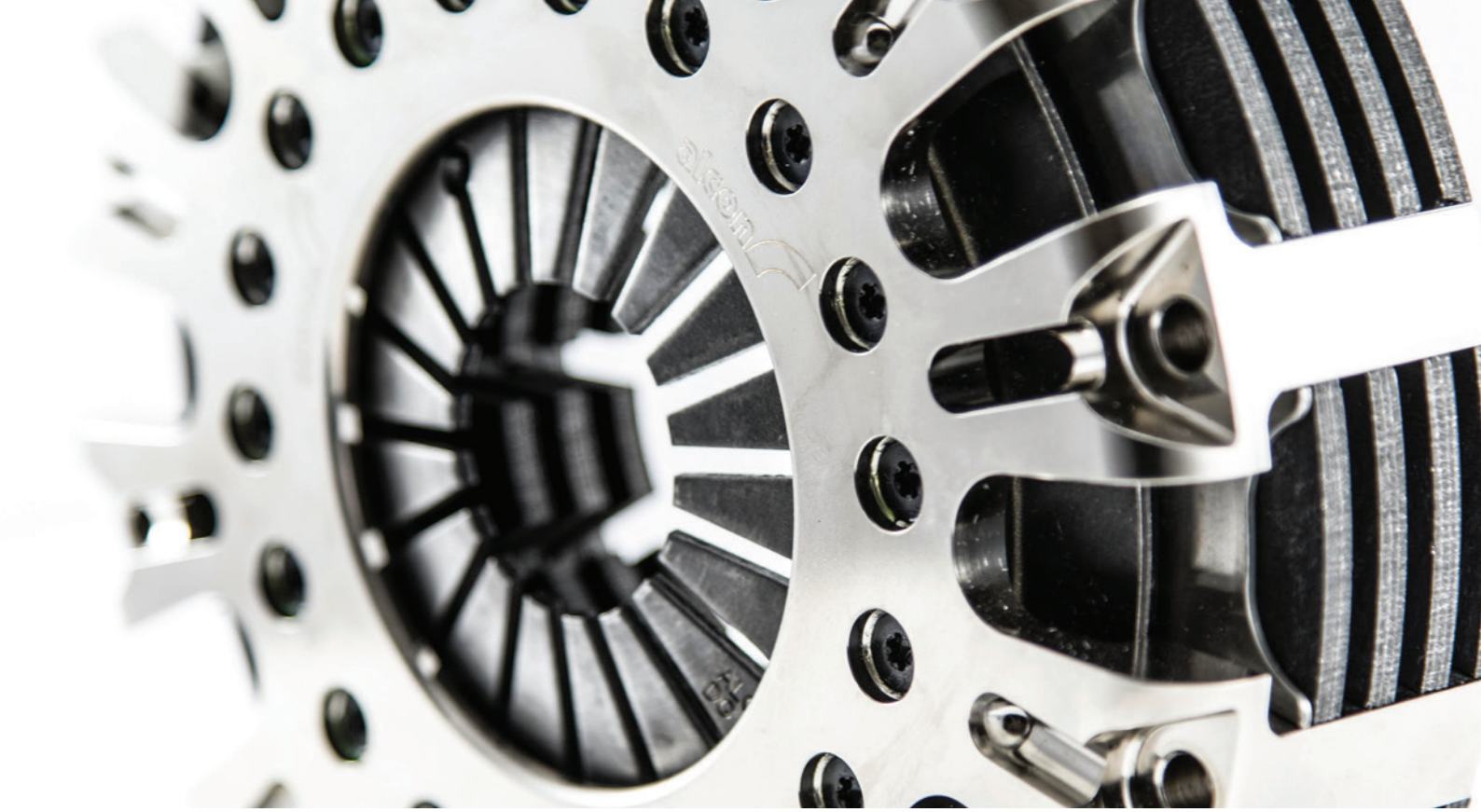
Applications

Race and Rally.

Key features and benefits

- Eliminates the need for the driver to remember the number of clicks.
- The indicator dial is geared to rotate with the adjuster knob in ¼ turn increments for visual indication of balance bar position.
- The indicator dial can be zeroed after setting the required front to rear brake bias.
- Cable not included.





clutches introduction

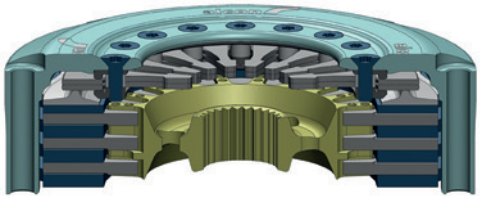
Clutch choice

Our range of clutches includes options for a number of motorsport applications. If your requirement falls outside this, then get in touch. The Alcon clutch range consists of three diameters: ø140 (5.5”), ø184 (7.25”) and ø200 (7.875”). The diameter of a clutch is determined by the driven plate diameter.

Smaller diameter clutches have less mass and inertia which allows faster engine acceleration and gear changes. Larger diameter clutches have a greater temperature resistance and will continue to function when smaller clutches will have overheated.

Number of driven plates

The number of driven plates required depends on the diameter of the clutch, the clamp load, the engine torque and the application requirements. More plates increase the clutch height but allow for greater temperature resistance and reduced wear per plate.



Friction Material

The Alcon range consists of three friction materials:

Sintered

Sintered clutches are lightweight and have low inertia. They are generally used in lightweight circuit applications such as touring car or lower duty single seater. They also benefit from having a lower clutch height for the same number plates than the other friction materials.

Cerametallic

Cerametallic or “paddle” clutches have a greater temperature resistance than sintered. They are generally used in rally applications or circuit applications with numerous standing stars. As a trade-off between inertia and temperature resistance the number pads can vary, e.g. 4 or 6.

Carbon

Carbon clutches are used in high end applications e.g. Rallycross, Formula 1, Endurance racing, etc. They have very high temperature resistance and offer a significant reduction in weight and inertia when compared to metallic clutches. By using pressure plate “shims” in increasing thickness to compensate for carbon pack wear, the clutch life can also be several times that of a metallic clutch. Alcon offer a recondition service for carbon clutches.

clutches terminology

Diaphragm spring

A belleville spring with release fingers on the inside diameter.

Pressure plate

The pressure plate has a fulcrum on one side that transmits the diaphragm spring load to the driven plate via its own friction face. Pressure plates are available with different fulcrum diameters (ratios). Increasing the ratio from High to Ultra High will result in an increase in clamp load and more travel required to release.

Floater plate

Sometimes known as “intermediate” plates, floater plates are used in multi plate clutches and are position between the driven plates.

Clamp load

The force applied by the diaphragm spring on to the driven plates via the pressure plate and floater plates. The diaphragm spring strength and the pressure plate ratio determine the clamp load.

Release load

The force required by the release bearing on the diaphragm spring fingers to disengage the clutch. The release load increases as the clutch wears.

Release bearing diameter

The diameter of the release bearing that is in contact with the diaphragm spring fingers. Increasing the release bearing diameter will increase the release load and reduce the travel required to release the clutch.

Torque capacity

This is the maximum recommended engine torque of the application in which the clutch is fitted.

Step flywheel location

A step flywheel has a 2.5mm step from the friction surface down to the mounting surface. The inside diameter of the clutch cover legs locate on this step.

Pot flywheel location

A pot - sometimes known as a “flat” – flywheel has the mounting surface and the friction surface on the same plane.

The outside diameter of the clutch cover legs locate on a register on the flywheel.

Set up height

This is the height from the cover assembly mounting face to the top of the diaphragm spring fingers at the release bearing fulcrum diameter.

Carbon/carbon clutches offer a significant reduction in weight and inertia and have a very high temperature resistance when compared to metallic clutches. Each clutch is individually match machined and clamp load, set up height and release characteristic measurements recorded. The results of these tests are supplied with the clutch along with a build sheet.

It is important to save the build sheet as it includes thickness measurements of the carbon stack which will be required for clutch maintenance later on. Replacement copies of build sheets can be supplied by Alcon by quoting the serial number which is marked on one of the clutch cover legs.

Installation

Before installation onto the vehicle ensure:

- The clutch fits the flywheel correctly i.e. pot or step location, bolt PCD and diameter.
- The mounting bolts or studs are of the correct length.
- All parts are present and are fitted to the clutch in the correct order (see below).
- The carbon driven plates are free to move on the hub.
- The pressure plate and carbon floater plates are free to move on the cover legs.

The carbon plates must be installed in the clutch in the same position and orientation as when the clutch was originally built. One of the clutch legs is marked with a serial no and a triangular orientation mark "Λ". (figure1).

The floater plates are marked as "Λ", "ΛΛ", "ΛΛΛ" etc. Floater plate "Λ" is installed into the cover first next to the pressure plate and with its marking next to the marked cover leg. It must also in line with the orientation mark. The other plates are fitted in numerical order either side of the driven plates with the highest number plate against the flywheel (see figure 1).

The driven plates are marked in the same way and must be fitted in the same sequence, i.e. "Λ" assembled into the cover first. Before fitting the last driven plate the hub must be fitted. The hub will have a "web" between the teeth to maintain hub engagement with the carbon pack. This "web" must be fitted towards the flywheel (see figure 2).

When fitting the clutch to the flywheel, a dummy input shaft should be used to centralise the clutch hub spline with the flywheel bearing.

When mounting the clutch onto the flywheel and inserting the mounting bolts/studs, ensure the bottom floater plate is not allowed to become trapped between the cover legs and the flywheel. As the clutch will be under load, tightening should be carried out half a turn at a time in a star like pattern. Recommended tightening torque for M8 and 5/16" is 22Nm (16 lbft).

When removing the dummy input shaft ensure that it moves freely before attempting to fit the gearbox. **When assembling the gearbox to the engine ensure the gearbox is not allowed to exert a bending load on the clutch hub as this could damage both the hub and the carbon plates.**

When the clutch is tightened down on the flywheel to the correct torque, the diaphragm fingers should be almost flat. If the fingers are not flat the flywheel may be incorrect for the clutch e.g. pot instead of flat or an incorrect pressure plate thickness may have been used.

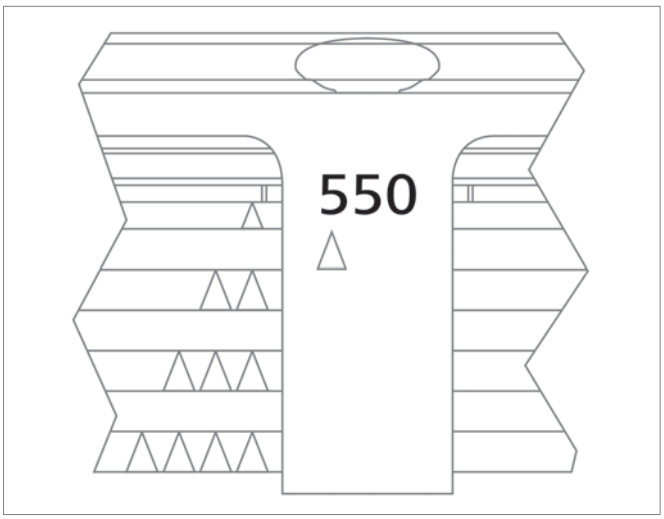


Figure 1.

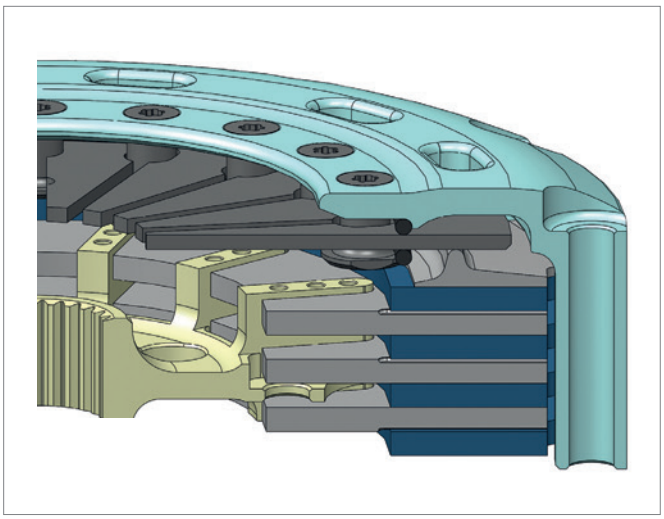


Figure 2.

Maintenance

- Regular checks should be carried out for damage, excessive wear or contamination of the friction material by e.g. oil:
- Firstly clear out all dust from the clutch components using a vacuum cleaner and a brush.
- Carefully check the tightness of the spring retainer fixings but DO NOT break the Loctite.
- Check each carbon plate for damage and ensure they are all free to travel along the cover or hub.
- Carbon plate drive face wear should also be checked using feeler gauges. With the carbon floater plates in the clutch cover, measure the gap between the drive face and the clutch cover leg, (figure 3).
- With the carbon driven plates on the hub measure the gap between the drive face and the hub, (figure 4). These gaps should be no more than 1mm.
- The diaphragm spring should be checked for "blueing" that would indicate excessive temperatures have been experienced. A diaphragm spring exposed to excessive temperatures can lose clamp load and should be returned to Alcon for Inspection.
- The diaphragm spring fingers should also be inspected for wear from the release bearing. It is normal to have some wear over the life of the clutch. If the wear is uneven or there are signs of localised heat then check the release unit / bearing for problems. Spin the release bearing, if it feels dry or has more resistance than normal replace it.
- Check the hub spline for wear. Worn spline teeth can be a result of a misalignment between the input shaft and the crankshaft. This could include a worn flywheel bearing or even the bell housing flexing during use. Having minimal spline engagement for high torque applications can also result in excessive spline teeth wear.
- Carbon stack wear: Additional pressure plate "shims" can be purchased to compensate for wear of the carbon plates and restore the original torque capacity of the clutch. Using a micrometer, measure the thickness of each carbon plate in the centre of the friction area in 3 places 120° apart and calculate the mean value for each plate. These figures can then be added to the build sheet and then subtracted from the original as new figures to determine the carbon stack wear. As a general rule, the next thickness pressure plate should be used.

  Important: Do not fit a thicker pressure plate than appropriate for the carbon stack height as this will cause the clutch to malfunction.
- Ensure the carbon plates are reinstalled into the clutch in their original positions. Do not swap complete carbon packs between clutches.

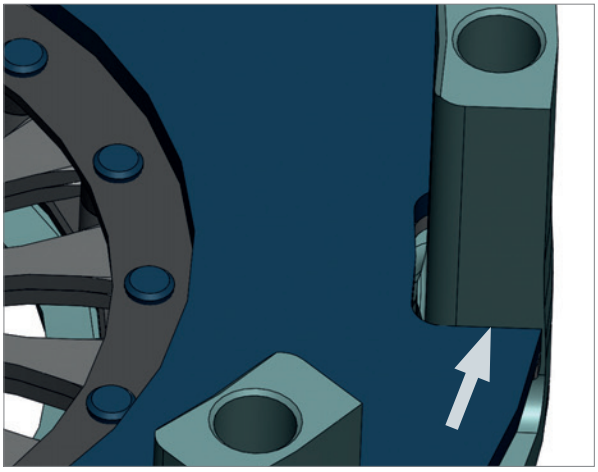


Figure 3.

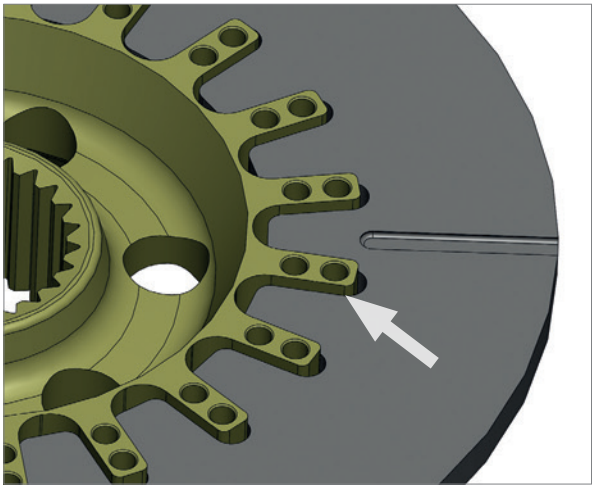


Figure 4.

Removal

Remove the clutch from the flywheel by releasing the bolts/nuts progressively in a star like pattern.

Reconditioning and repair

Wear compensating pressure plate "shims" can be replaced by the user.

If any other components require replacement, the clutch will require resetting and characterisation using Alcon's test rig and should be returned to Alcon. Clutches can be returned through your distributor, or if sent direct, contact Alcon first to obtain an RMA (Return Materials Authorization) number. The package must be identified with this number so it can be tracked through Alcon's system.

Applications list

			Max recommended torque capacity Nm (lbft)							
			OR Orange		SG Single Grey		DG Double Grey		TG Triple Grey	
Friction material	**Flywheel Details**	**Diameter**	**HR**	**UHR**	**HR**	**UHR**	**HR**	**UHR**	**HR**	**UHR**
Sintered	8 Bolt fixing	ø140 2 plt	481 (355)	-	-	-	559 (411)	-	-	-
	8 Bolt fixing	ø140 3 plt	722 (532)	-	-	-	839 (617)	-	-	-
	8 Bolt fixing	ø140 4 plt	962 (709)	-	1117 (822)	-	-	-	-	-
	6 Bolt fixing	ø184 1 plt	220 (162)	290 (213)	277 (204)	365 (269)	334 (246)	440 (324)	-	-
	6 Bolt fixing	ø184 2 plt	440 (324)	580 (427)	554 (407)	730 (537)	668 (492)	880 (649)	-	-
	6 Bolt fixing	ø184 3 plt	660 (486)	870 (641)	831 (611)	1095 (806)	1002 (739)	1320 (973)	-	-
Cerametallic	8 Bolt fixing	ø140 1 plt	228 (168)	-	-	-	317 (233)	-	-	-
	8 Bolt fixing	ø140 2 plt	456 (336)	-	-	-	634 (466)	-	-	-
	6 Bolt fixing	ø184 1 plt	220 (162)	290 (213)	277 (204)	365 (269)	334 (246)	440 (324)	-	-
	6 Bolt fixing	ø184 2 plt	440 (324)	580 (427)	554 (407)	730 (537)	668 (492)	880 (649)	-	-
	6 Bolt fixing	ø200 1 plt	-	-	-	-	370 (273)	412 (304)	-	457 (337)
	6 Bolt fixing	ø200 2 plt	-	-	-	-	740 (546)	824 (608)	-	915 (674)
Carbon	8 Bolt fixing	ø140 2 plt	402 (296)	-	-	-	518 (382)	-	-	-
	8 Bolt fixing	ø140 3 plt	603 (444)	-	-	-	840 (619)	-	-	-
	8 Bolt fixing	ø140 4 plt	804 (592)	-	-	-	1120 (826)	-	-	-
	12 Bolt fixing	ø184 2 plt	428 (316)	534 (394)	473 (349)	612 (451)	556 (410)	712 (525)	-	-
	12 Bolt fixing	ø184 3 plt	642 (473)	801 (591)	709 (523)	918 (677)	834 (615)	1068 (788)	-	-

clutches part numbering **GUIDE**

KK	C	140	2	H	OR	S	R	01
1	2	3	4	5	6	7	8	9

1. Clutch assembly

2. Type

C: Carbon
R: Rally (Cerametallic)
S: Sintered

3. Diameter of driven plates

E.G: 140

4. Number of plates

E.G: 2

5. Pressure plate

H: High ratio
U: Ultra high ratio

6. Spring load designation

OR: Orange
SG: Single grey
DG: Double grey
TG: Triple grey

7. Flywheel type

S: Step type (internal spigot)
P: Pot type (external spigot)

8. Type of hub drive

R: Rigid (sintered/cerametallic)
D: Carbon hub 20 drive lugs
W: Carbon hub 12 drive lugs

9. Revision numbers

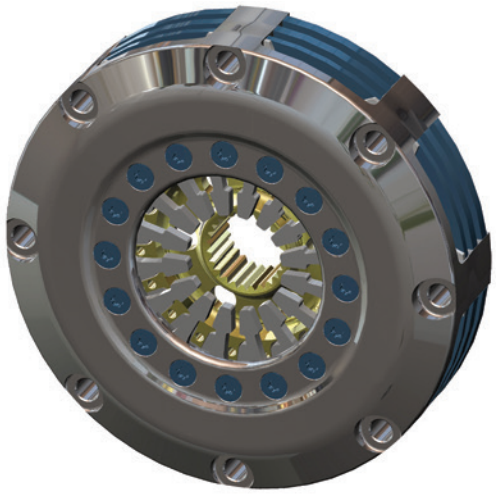
Please note: All measurements are given in metric (mm) unless otherwise stated in imperial (").

motorsport carbon range **KKC1402**

ø140 (5.5″) Twin plate carbon clutch

Specifications

Part Number	KKC1402HORSD01	KKC1402HDGSD01
Dynamic Torque Capacity Nm (lb/ft)	402 (296)	518 (382)
Release ratio	High	High
Assembly Weight inc. Driven Plate (Kg)	1.78	1.78
Assembly Inertia inc. Driven Plate (Kgm²)	0.00579	0.00579
Driven Plates and Hub Inertia (Kgm²)	0.00086	0.00086
Release Load New ø38 Bearing (kN)	2.2	2.9
Release Load New ø44 Bearing (kN)	2.6	3.2
Release Load New ø52 Bearing (kN)	2.9	3.5



Replacement pressure plate shims and hubs

Part Number	Thickness (mm)	Wear Compensation (mm)
KPS140L08H550	5.5	0
KPS140L08H600	6.0	0.5
KPS140L08H650	6.5	1.0
KPS140L08H700	7.0	1.5
KPS140L08H750	7.5	2.0
KPS140L08H800	8.0	2.5
KPS140L08H850	8.5	3.0
Part Number	**Spline**	
KHSC20252X010	0.875″ × 20T	
KHSC20292X010	1.0″ × 22T	
KHSC20302X010	1.0″ × 23T	
KHSC20362X010	1 5/32″ × 26T	
Other spline sizes available on request.		

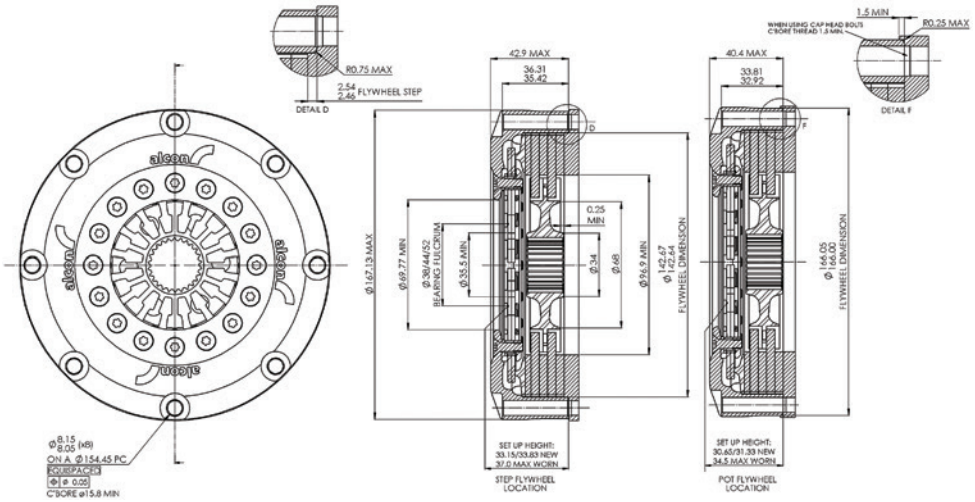
Applications

Single Seater, Touring Car, Rallycross use.

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable plated finish.
- Significant reduction in weight and inertia compared to metallic clutches.
- Very high temperature resistance.
- No flywheel or pressure plate wear.

Installation dimensions

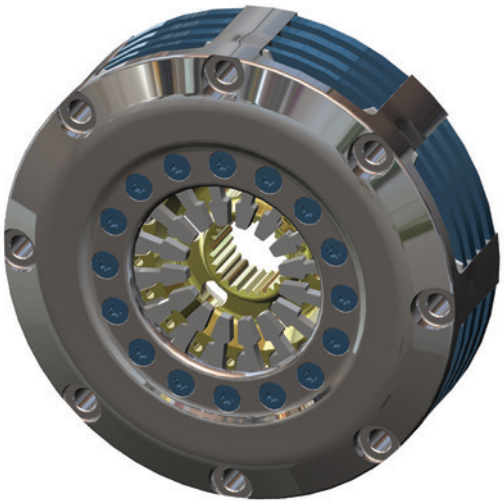


motorsport carbon range **KKC1403**

ø140 (5.5”) Triple plate carbon clutch

Specifications

Part Number	KKC1403HORSD01	KKC1403HDGSD01
Dynamic Torque Capacity Nm (lb/ft)	603 (444)	840 (619)
Release ratio	High	High
Assembly Weight inc. Hub (Kg)	2.11	2.11
Assembly Inertia inc. Hub (Kgm²)	0.00683	0.00683
Driven Plates and Hub Inertia (Kgm²)	0.00128	0.00128
Release Load New ø38 Bearing (kN)	2.2	2.9
Release Load New ø44 Bearing (kN)	2.6	3.2
Release Load New ø52 Bearing (kN)	3.0	3.5



Replacement pressure plate shims and hubs

Part Number	Thickness (mm)	Wear Compensation (mm)
KPS140L08H550	5.5	0
KPS140L08H600	6.0	0.5
KPS140L08H650	6.5	1.0
KPS140L08H700	7.0	1.5
KPS140L08H750	7.5	2.0
KPS140L08H800	8.0	2.5
KPS140L08H850	8.5	3.0
KPS140L08H900	9.0	3.5
KPS140L08H950	9.5	4.0
Part Number	**Spline**	
KHSC20303X010	1.0” × 23T	
KHSC20363X010	1 5/32” × 26T	
Other spline sizes available on request.		

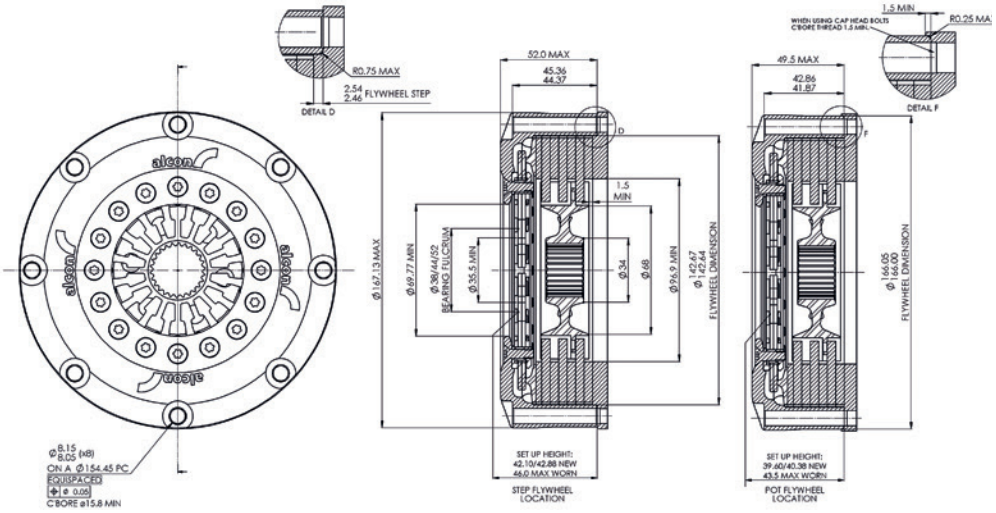
Applications

Touring Car, GT, Endurance Racing.

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable plated finish.
- Significant reduction in weight and inertia compared to metallic clutches.
- Very high temperature resistance.
- No flywheel or pressure plate wear.

Installation dimensions

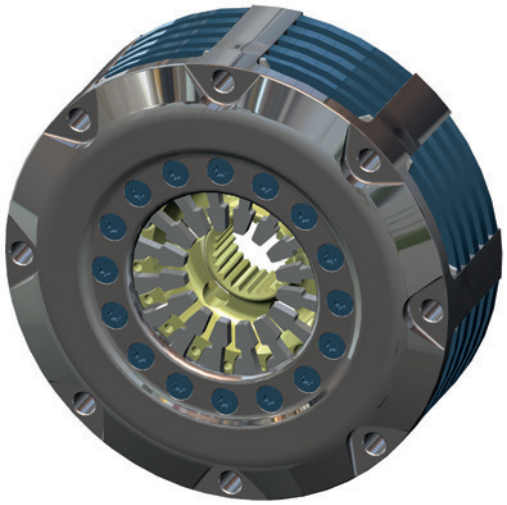


motorsport carbon range **KKC1404**

ø140 (5.5”) Four plate carbon clutch

Specifications

Part Number	KKC1404HORSD01	KKC1404HDGSD01
Dynamic Torque Capacity Nm (lb/ft)	804 (592)	1120 (826)
Release ratio	High	High
Assembly Weight inc. Hub (Kg)	2.42	2.42
Assembly Inertia inc. Hub (Kgm²)	0.00784	0.00784
Driven Plates and Hub Inertia (Kgm²)	0.00168	0.00168
Release Load New ø38 Bearing (kN)	2.2	2.9
Release Load New ø44 Bearing (kN)	2.6	3.2
Release Load New ø52 Bearing (kN)	3.0	3.5



Replacement pressure plate shims and hubs

Part Number	Thickness (mm)	Wear Compensation (mm)
KPS140L08H550	5.5	0
KPS140L08H600	6.0	0.5
KPS140L08H650	6.5	1.0
KPS140L08H700	7.0	1.5
KPS140L08H750	7.5	2.0
KPS140L08H800	8.0	2.5
KPS140L08H850	8.5	3.0
KPS140L08H900	9.0	3.5
KPS140L08H950	9.5	4.0
Part Number	**Spline**	
KHSC20304X010	1.0” × 23T	
KHSC20364X010	1 5/32” × 26T	
Other spline sizes available on request.		

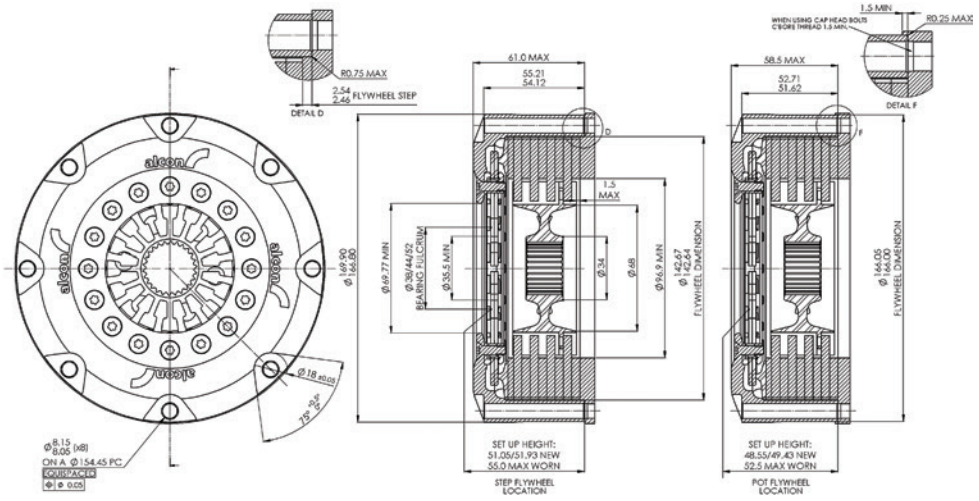
Applications

GT, Endurance Racing.

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable plated finish.
- Significant reduction in weight and inertia compared to metallic clutches.
- Very high temperature resistance.
- No flywheel or pressure plate wear.

Installation dimensions

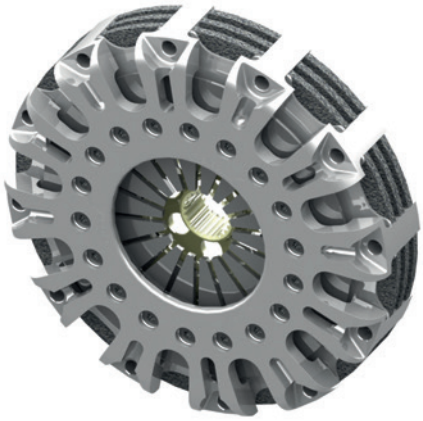


motorsport carbon range **KKC1842**

ø184 (7.25”) Twin plate carbon clutch

Specifications

Part Number	Dynamic Torque Capacity Nm (lb/ft)	Release ratio	Assembly Weight inc. Driven Plate (Kg)	Assembly Inertia inc. Driven Plate (Kgm²)	Driven Plates and Hub Inertia (Kgm²)	Release Load New ø44 Bearing (kN)	Release Load New ø52 Bearing (kN)
KKC1842-HDGSW05	556 (410)	High	2.6	0.0142	0.0023	3.2	3.4
KKC1842-HSGSW05	473 (349)	High	2.6	0.0142	0.0023	2.6	2.8
KKC1842-HORSW05	428 (316)	High	2.6	0.0142	0.0023	2.1	2.25
KKC1842-UDGSW05	712 (525)	Ultra	2.6	0.0142	0.0023	3.2	3.4
KKC1842-USGSW05	612 (451)	Ultra	2.6	0.0142	0.0023	2.6	2.8
KKC1842-UORSW05	534 (394)	Ultra	2.6	0.0142	0.0023	2.1	2.25
Step flywheel part numbers shown. For Pot flywheel replace “SW” with “PW”.							



Applications

Touring Car, GT, Rallycross use.

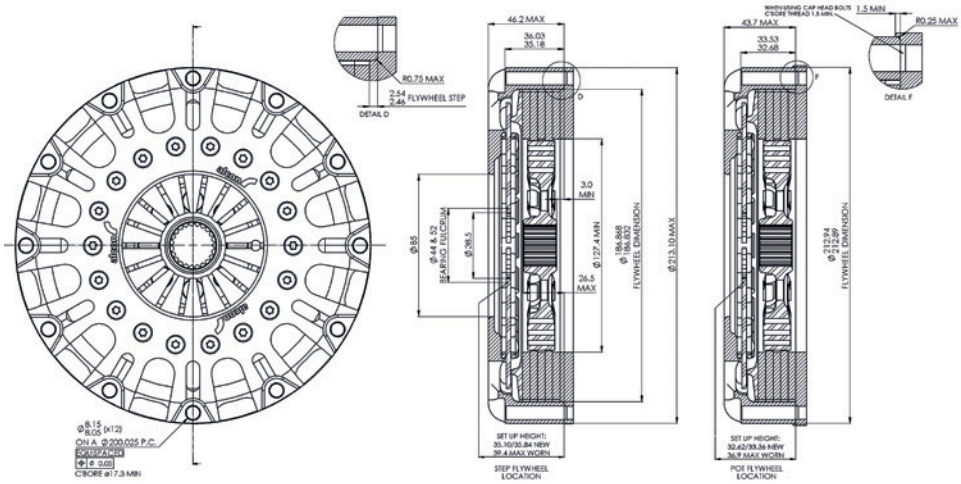
Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling anddust removal.
- Durable plated finish.
- Significant reduction in weight and inertia compared to metallic clutches.
- Very high temperature resistance.
- No flywheel or pressure plate wear.

Replacement pressure plate shims and hubs

Part Number (High Ratio)	Part Number (Ultra High Ratio)	Thickness (mm)	Wear Compensation (mm)
KPS184L12H274	KPS184L12U274	7.0	0
KPS184L12H294	KPS184L12U294	7.5	0.5
KPS184L12H314	KPS184L12U314	8.0	1.0
KPS184L12H334	KPS184L12U334	8.5	1.5
KPS184L12H354	KPS184L12U354	9.0	2.0
KPS184L12H374	KPS184L12U374	9.5	2.5
KPS184L12H394	KPS184L12U394	10.0	3.0
Part Number	**Spline**	**Part Number**	**Spline**
KHSC12102X001	29 × 10T	KHSC12362X001	1 5/32” × 26T
KHSC12302X001	1.0” × 23T	KHSC12502X001	24.25 × 24T
KHSC12352X001	22 × 26T	Other spline sizes available on request	

Installation dimensions



motorsport carbon range **KKC1843**

ø184 (7.25") Triple plate carbon clutch

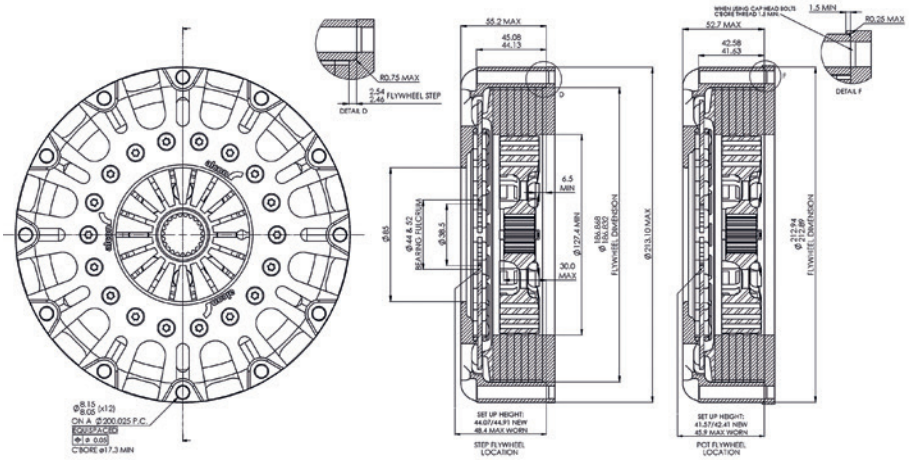
Specifications

Part Number	Dynamic Torque Capacity Nm (lb/ft)	Release ratio	Assembly Weight inc. Driven Plate (Kg)	Assembly Inertia inc. Driven Plate (Kgm²)	Driven Plates and Hub Inertia (Kgm²)	Release Load New ø44 Bearing (kN)	Release Load New ø52 Bearing (kN)
KKC1843-HDGSW05	834 (615)	High	3.10	0.0168	0.0034	3.2	3.4
KKC1843-HSGSW05	709 (523)	High	3.10	0.0168	0.0034	2.6	2.8
KKC1843-HORSW05	642 (473)	High	3.10	0.0168	0.0034	2.1	2.25
KKC1843-UDGSW05	1068 (788)	Ultra	3.10	0.0168	0.0034	3.2	3.4
KKC1843-USGSW05	918 (677)	Ultra	3.10	0.0168	0.0034	2.6	2.8
KKC1843-UORSW05	801 (591)	Ultra	3.10	0.0168	0.0034	2.1	2.25
Step flywheel part numbers shown. For Pot flywheel replace "SW" with "PW".							

Replacement pressure plate shims and hubs

Part Number (High Ratio)	Part Number (Ultra High Ratio)	Thickness (mm)	Wear Compensation (mm)
KPS184L12H274	KPS184L12U274	7.0	0
KPS184L12H294	KPS184L12U294	7.5	0.5
KPS184L12H314	KPS184L12U314	8.0	1.0
KPS184L12H334	KPS184L12U334	8.5	1.5
KPS184L12H354	KPS184L12U354	9.0	2.0
KPS184L12H374	KPS184L12U374	9.5	2.5
KPS184L12H394	KPS184L12U394	10.0	3.0
Part Number	**Spline**		
KHSC12103X001	29 × 10T		
KHSC12253X001	0.875" × 20T		
KHSC12303X001	1.0" × 23T		
KHSC12363X001	1 5/32" × 26T		
Other spline sizes available on request			

Installation dimensions



Applications

GT, Rallycross use.

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable plated finish.
- Significant reduction in weight and inertia compared to metallic clutches.
- Very high temperature resistance.
- No flywheel or pressure plate wear.

motorsport sintered range **KKS1402**

ø140 (5.5”) Twin plate race clutch

Specifications

Part Number	KKS1402HORSR01	KKS1402HDGSR01
Dynamic Torque Capacity Nm (lb/ft)	481 (355)	559 (411)
Release ratio	High	High
Assembly Weight inc. Driven Plate (Kg)	2.37	2.37
Assembly Inertia inc. Driven Plate (Kgm²)	0.0081	0.0081
Release Load New ø38 Bearing (kN)	2.3	2.9
Release Load New ø44 Bearing (kN)	2.6	3.2
Release Load New ø52 Bearing (kN)	2.9	3.5
Step flywheel part numbers shown. For Pot flywheel replace “SR” with “PR”. Other hub configurations are available.		

Applications

Circuit Racing.

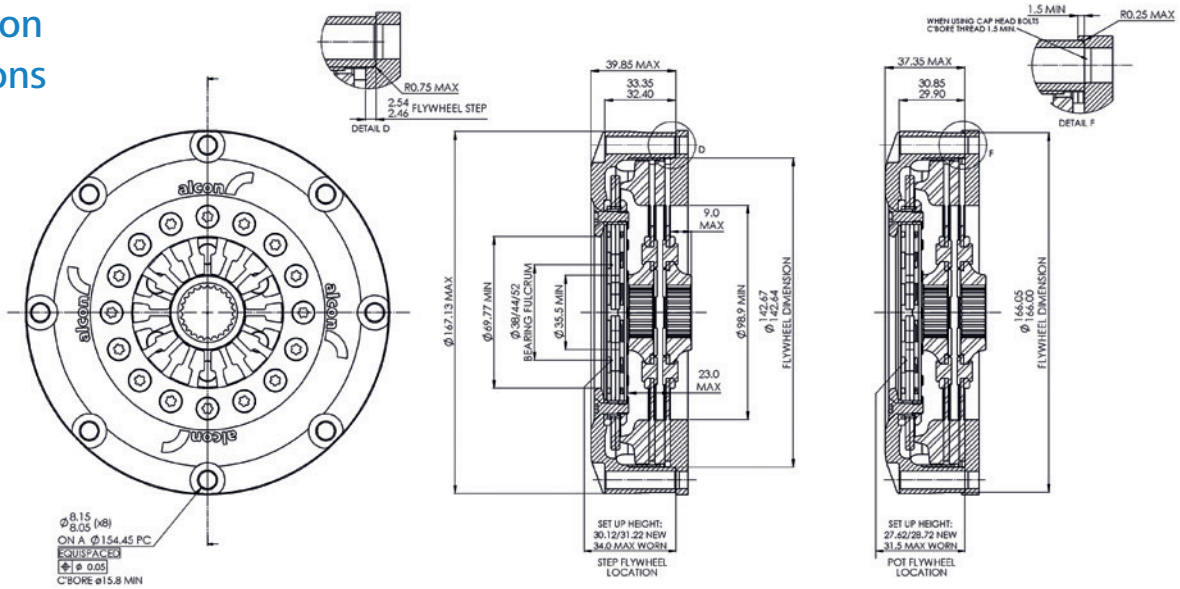
Replacement parts

Part Number	KKS1402HORSR01	KKS1402HDGSR01
Pressure Plate (High Ratio)	KPS140L08H537	KPS140L08H537
Pressure Plate Thickness (mm)	13.7	13.7
Pressure Plate Fulcrum Dia (mm)	Ø117	Ø117
Floater plate	KPS140L08FX01	KPS140L08FX01

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable plated finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ products.
- Step and Pot flywheel mounting options available.

Installation dimensions

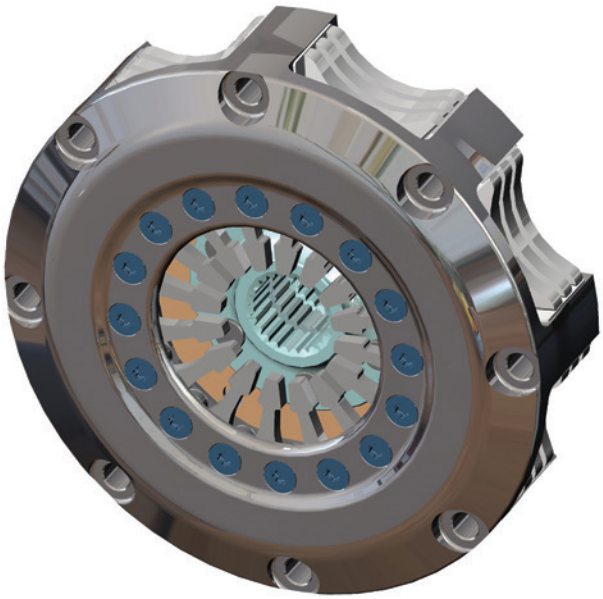


motorsport sintered range **KKS1403**

ø140 (5.5”) Triple plate race clutch

Specifications

Part Number	KKS1403HORSR01	KKS1403HDGSR01
Dynamic Torque Capacity Nm (lb/ft)	722 (532)	839 (617)
Release ratio	High	High
Assembly Weight inc. Driven Plate (Kg)	3.20	3.20
Assembly Inertia inc. Driven Plate (Kgm²)	0.0102	0.0102
Release Load New ø38 Bearing (kN)	2.3	2.9
Release Load New ø44 Bearing (kN)	2.6	3.2
Release Load New ø52 Bearing (kN)	2.9	3.5
Step flywheel part numbers shown. For Pot flywheel replace “SR” with “PR”. Other hub configurations are available.		



Applications

Circuit Racing.

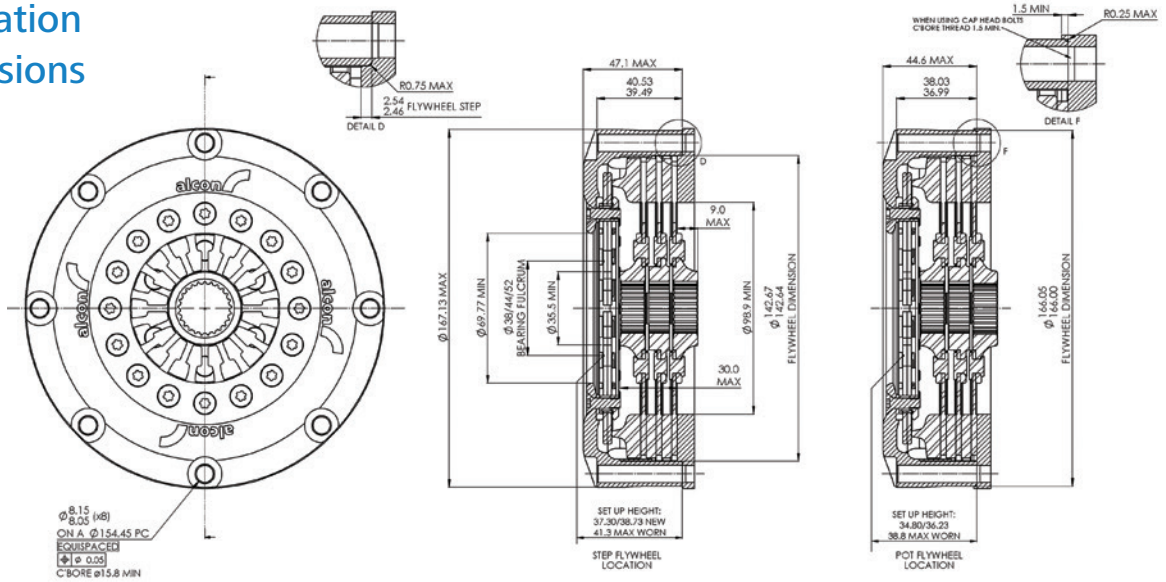
Replacement parts

Part Number	KKS1403HORSR01	KKS1403HDGSR01
Pressure Plate (High Ratio)	KPS140L08H537	KPS140L08H537
Pressure Plate Thickness (mm)	13.7	13.7
Pressure Plate Fulcrum Dia (mm)	Ø117	Ø117
Floater plate	KPS140L08FX01	KPS140L08FX01

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable plated finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ products.
- Step and Pot flywheel mounting options available.

Installation dimensions

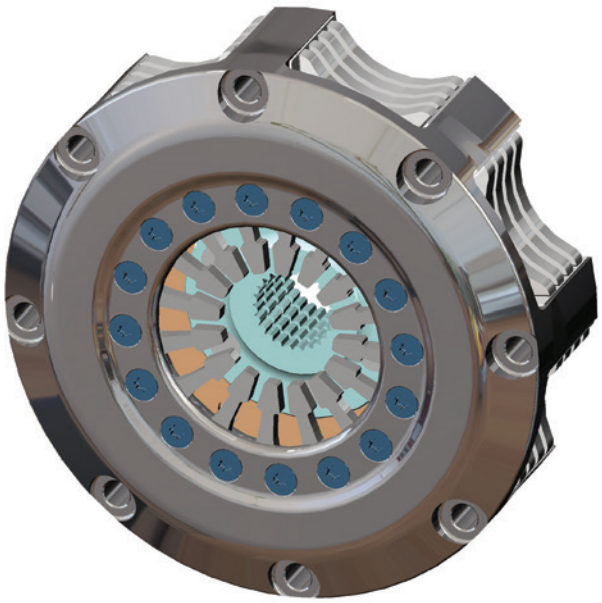


motorsport sintered range **KKS1404**

ø140 (5.5”) Four plate race clutch

Specifications

Part Number	KKS1404HORSR01	KKS1404HDGSR01
Dynamic Torque Capacity Nm (lb/ft)	962 (709)	1117 (822)
Release ratio	High	High
Assembly Weight inc. Driven Plate (Kg)	3.80	3.80
Assembly Inertia inc. Driven Plate (Kgm²)	0.0128	0.0128
Release Load New ø38 Bearing (kN)	2.3	2.9
Release Load New ø44 Bearing (kN)	2.6	3.2
Release Load New ø52 Bearing (kN)	2.9	3.5
Step flywheel part numbers shown. For Pot flywheel replace “SR” with “PR”. Other hub configurations are available.		



Applications

Circuit Racing.

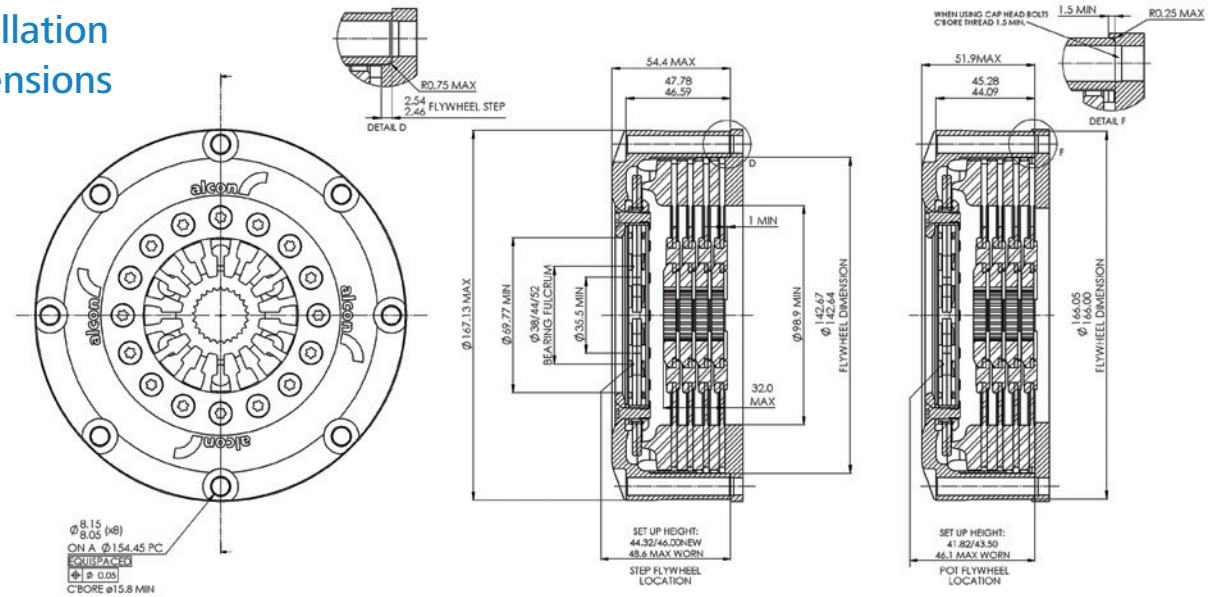
Replacement parts

Part Number	KKS1404HORSR01	KKS1404HDGSR01
Pressure Plate (High Ratio)	KPS140L08H537	KPS140L08H537
Pressure Plate Thickness (mm)	13.7	13.7
Pressure Plate Fulcrum Dia (mm)	Ø117	Ø117
Floater plate	KPS140L08FX01	KPS140L08FX01

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable plated finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ products.
- Step and Pot flywheel mounting options available.

Installation dimensions



motorsport sintered range **KKS1841**

ø184 (7.25”) Single plate race clutch

Specifications

Part Number	Dynamic Torque Capacity Nm (lb/ft)	Release ratio	Assembly Weight inc. Driven Plate (Kg)	Assembly Inertia inc. Driven Plate (Kgm²)	Release Load New ø44 Bearing (kN)	Release Load New ø52 Bearing (kN)
KKS1841HDGSR01	334 (246)	High	2.50	0.0136	3.2	3.4
KKS1841HSGSR01	277 (204)	High	2.50	0.0136	2.6	2.8
KKS1841HORSR01	220 (162)	High	2.50	0.0136	2.1	2.25
KKS1841UDGSR01	440 (324)	Ultra	2.50	0.0136	3.2	3.4
KKS1841USGSR01	365 (269)	Ultra	2.50	0.0136	2.6	2.8
KKS1841UORSR01	290 (213)	Ultra	2.50	0.0136	2.1	2.25
Step flywheel part numbers shown. For Pot flywheel replace “SR” with “PR”. Other hub configurations are available.						

Applications

Circuit Racing.

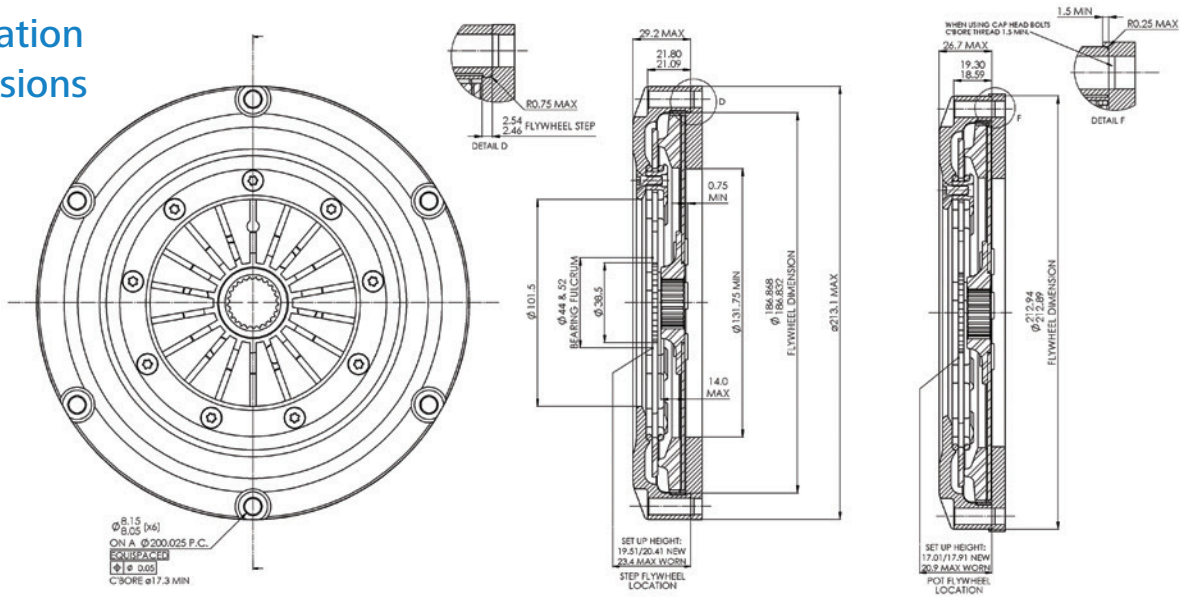
Replacement parts

Part Number	Pressure Plate (High Ratio)	Pressure Plate (Ultra High Ratio)	Pressure Plate Thickness (mm)	Pressure Plate Fulcrum Dia (mm)
KKS1841HDGSR01	KPS184L6H444	N/A	11.25	ø157
KKS1841HSGSR01	KPS184L6H444		11.25	ø157
KKS1841HORSR01	KPS184L6H444		11.25	ø157
KKS1841UDGSR01	N/A	KPS184L6U444	11.25	ø152
KKS1841USGSR01		KPS184L6U444	11.25	ø152
KKS1841UORSR01		KPS184L6U444	11.25	ø152

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable hard anodised finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ products.
- Step and Pot flywheel mounting options available.

Installation dimensions



motorsport sintered range **KKS1842**

ø184 (7.25”) Twin plate race clutch

Specifications

Part Number	Dynamic Torque Capacity Nm (lb/ft)	Release ratio	Assembly Weight inc. Driven Plate (Kg)	Assembly Inertia inc. Driven Plate (Kgm²)	Release Load New ø44 Bearing (kN)	Release Load New ø52 Bearing (kN)
KKS1842HDGSR01	668 (492)	High	3.40	0.0210	3.2	3.4
KKS1842HSGSR01	554 (407)	High	3.40	0.0210	2.6	2.8
KKS1842HORSR01	440 (324)	High	3.40	0.0210	2.1	2.25
KKS1842UDGSR01	880 (449)	Ultra	3.40	0.0210	3.2	3.4
KKS1842USGSR01	730 (537)	Ultra	3.40	0.0210	2.6	2.8
KKS1842UORSR01	580 (427)	Ultra	3.40	0.0210	2.1	2.25

Step flywheel part numbers shown. For Pot flywheel replace “SR” with “PR”.
Other hub configurations are available.

Applications

Circuit Racing.

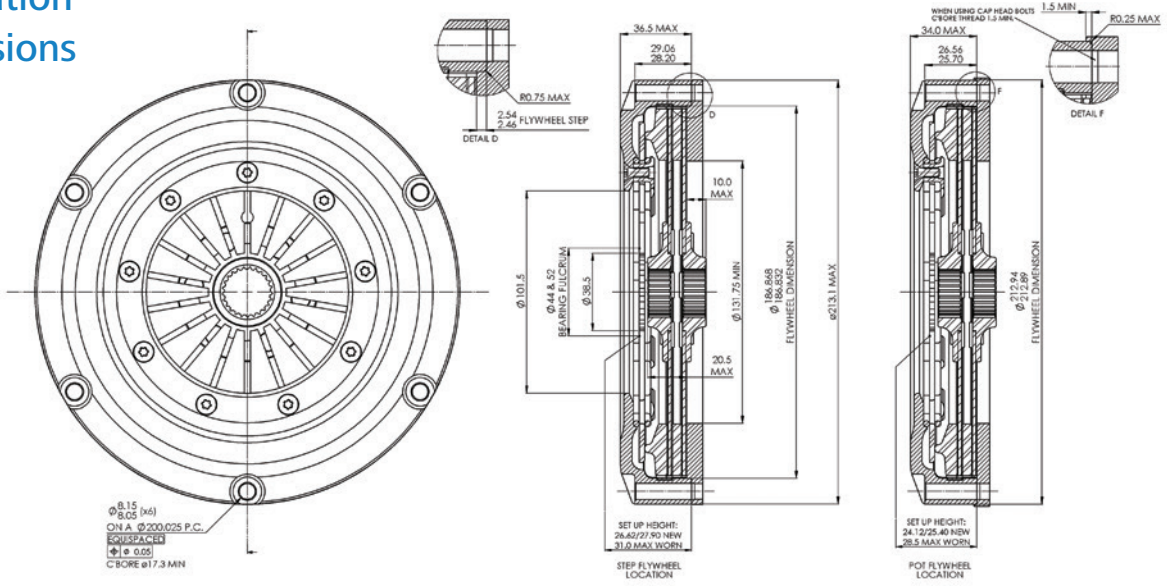
Replacement parts

Part Number	Pressure Plate (High Ratio)	Pressure Plate (Ultra High Ratio)	Pressure Plate Thickness (mm)	Pressure Plate Fulcrum Dia (mm)	Floater Plates
KKS1842HDGSR01	KPS184L6H444	N/A	11.25	ø157	KPS184L6F180
KKS1842HSGSR01	KPS184L6H444		11.25	ø157	KPS184L6F180
KKS1842HORSR01	KPS184L6H444		11.25	ø157	KPS184L6F180
KKS1842UDGSR01	N/A	KPS184L6U444	11.25	ø152	KPS184L6F180
KKS1842USGSR01		KPS184L6U444	11.25	ø152	KPS184L6F180
KKS1842UORSR01		KPS184L6U444	11.25	ø152	KPS184L6F180

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable hard anodised finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ product.
- Step and Pot flywheel mounting options available.

Installation dimensions

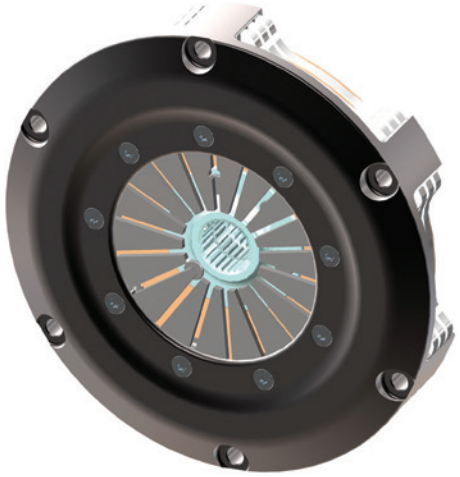


motorsport sintered range **KKS1843**

ø184 (7.25”) Triple plate race clutch

Specifications

Part Number	Dynamic Torque Capacity Nm (lb/ft)	Release ratio	Assembly Weight inc. Driven Plate (Kg)	Assembly Inertia inc. Driven Plate (Kgm²)	Release Load New ø44 Bearing (kN)	Release Load New ø52 Bearing (kN)
KKS1843HDGSR01	1002 (739)	High	4.50	0.0267	3.2	3.4
KKS1843HSGSR01	831 (611)	High	4.50	0.0267	2.6	2.8
KKS1843HORSR01	660 (486)	High	4.50	0.0267	2.1	2.25
KKS1843UDGSR01	1320 (973)	Ultra	4.50	0.0267	3.2	3.4
KKS1843USGSR01	1095 (806)	Ultra	4.50	0.0267	2.6	2.8
KKS1843UORSR01	870 (641)	Ultra	4.50	0.0267	2.1	2.25
Step flywheel part numbers shown. For Pot flywheel replace “SR” with “PR”. Other hub configurations are available.						



Applications

Circuit Racing.

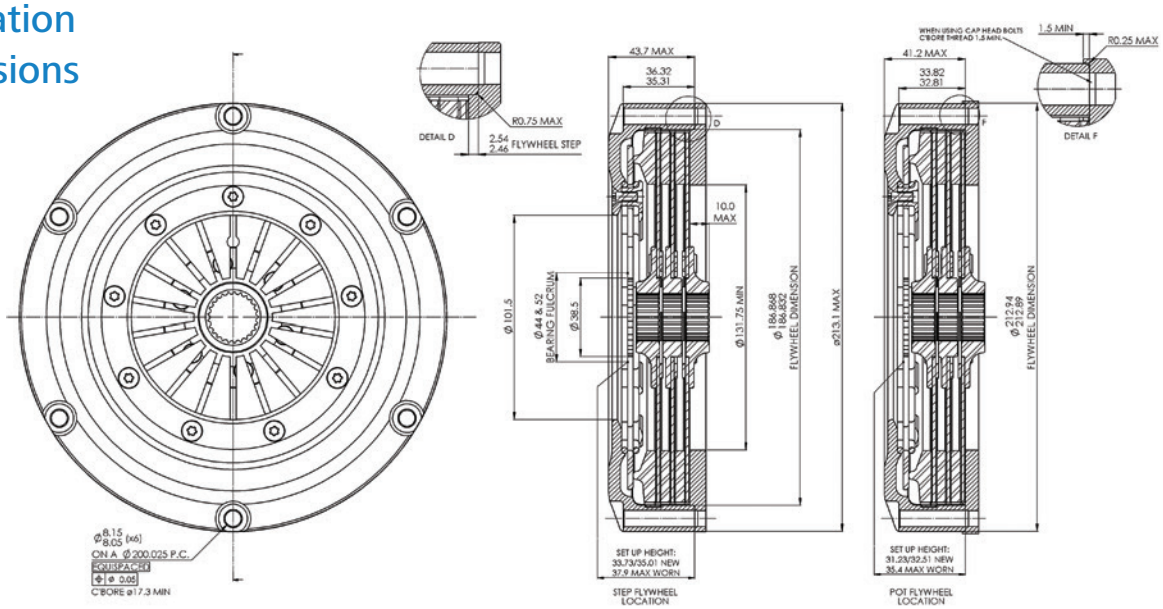
Replacement parts

Part Number	Pressure Plate (High Ratio)	Pressure Plate (Ultra High Ratio)	Pressure Plate Thickness (mm)	Pressure Plate Fulcrum Dia (mm)	Floater Plates
KKR1843HDGSR01	KPS184L6H444	N/A	11.25	ø157	KPS184L6F180
KKS1843HSGSR01	KPS184L6H444		11.25	ø157	KPS184L6F180
KKS1843HORSR01	KPS184L6H444		11.25	ø157	KPS184L6F180
KKS1843UDGSR01	N/A	KPS184L6U444	11.25	ø152	KPS184L6F180
KKS1843USGSR01		KPS184L6U444	11.25	ø152	KPS184L6F180
KKS1843UORSR01		KPS184L6U444	11.25	ø152	KPS184L6F180

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable hard anodised finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ products.
- Step and Pot flywheel mounting options available.

Installation dimensions



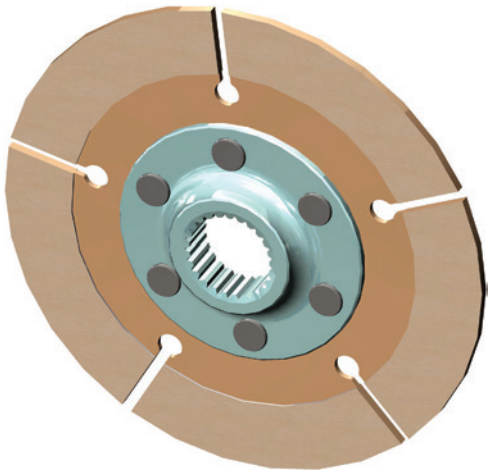
motorsport sintered range **KDS550**

ø140 (5.5″) Race driven plates

Part numbering

Spline Size	Ø	No. of Teeth	A Type 11.7mm long hub
21 × 18T	21	18	KDS550FA17X001
0.875″ × 20T	22.2	20	KDS550FA25X001
24.25 × 21T	24.25	21	KDS550FA27X001
1.0″ × 23T	25.4	23	KDS550FA30X001
1.0″× 24T	25.4	24	KDS550FA33X001
22 × 26T	22	26	KDS550FA35X001
1 5/32″ × 26T	29.36	26	KDS550FA36X001

Spline Size	B Type 9.6mm long hub	C Type 5.6mm long hub	New Thickness
21 × 18T	KDS550FB17X001	KDS550FC17X001	2.63
0.875″ × 20T	KDS550FB25X001	KDS550FC25X001	2.63
24.25 × 21T	KDS550FB27X001	KDS550FC27X001	2.63
1.0″ × 23T	KDS550FB30X001	KDS550FC30X001	2.63
1.0″× 24T	KDS550FB33X001	-	2.63
22 × 26T	KDS550FB35X001	-	2.63
1 5/32″ × 26T	KDS550FB36X001	KDS550FC36X001	2.63



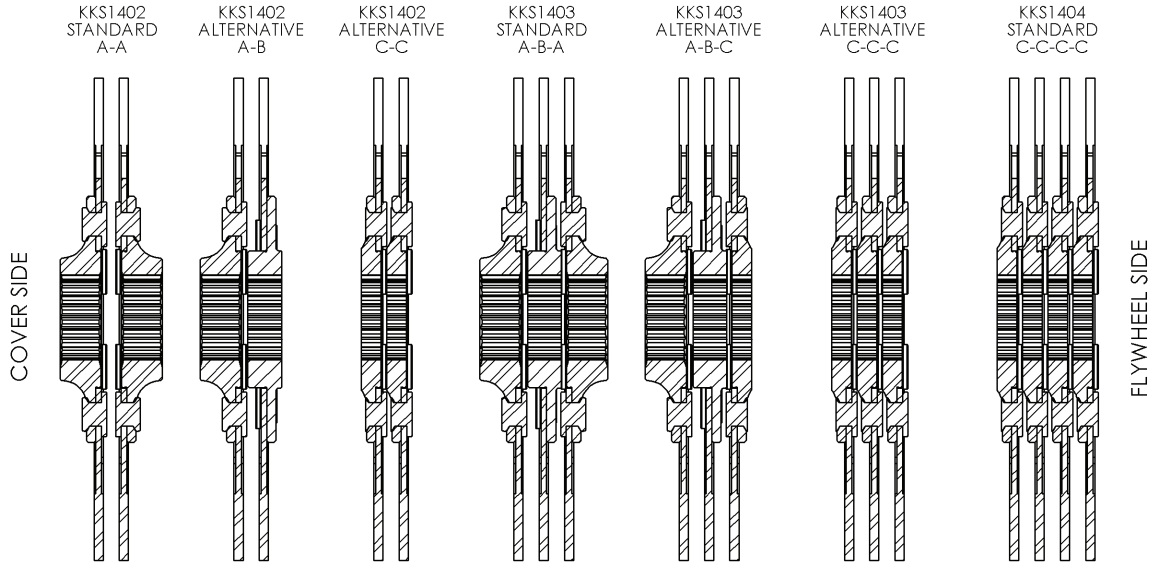
Applications

General Race use.

Key features and benefits

- Optimised design.
- Optimised hub length for low inertia with minimum hub wear.
- Sintered friction material for reduced inertia and lower cover height.
- Interchangeable with other manufacturers products.
- Various hub configurations available to provide increased hub to crank bolt clearance.
- 2.63mm plate thickness.

Hub types



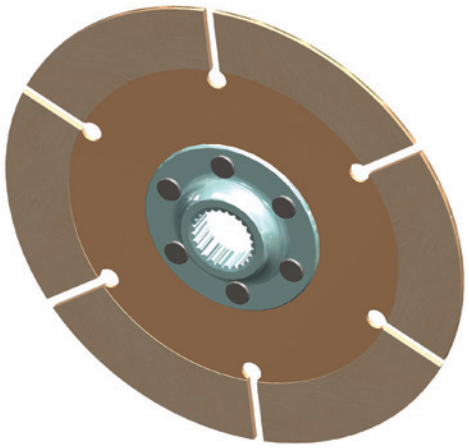
motorsport sintered range **KDS720**

ø184 (7.25”) Race driven plates

Part numbering

Spline Size	Ø	No. of Teeth	A Type 11.7mm long hub	B Type 9.6mm long hub	C Type 5.6mm long hub	New Thick-ness
1 1/8” × 10T	28.58	10	KDS720FA06X001	KDS720FB06X001	KDS720FC06X001	2.63
29 × 10T	29	10	KDS720FA10X001	KDS720FB10X001	KDS720FC10X001	2.63
25 × 14T	25	14	KDS720FA12X001	KDS720FB12X001	-	2.63
21 × 18T	21	18	KDS720FA17X001	KDS720FB17X001	-	2.63
7/8” × 20T	22.2	20	KDS720FA25X001	KDS720FB25X001	KDS720FC25X001	2.63
24.25 × 21T	24.25	21	KDS720FA27X001	KDS720FB27X001	-	2.63
29 × 21T	29	21	KDS720FA28X001	KDS720FB28X001	KDS720FC28X001	2.63
1.0” × 22T	25.4	22	KDS720FA29X001	KDS720FB29X001	-	2.63
1.0” × 23T	25.4	23	KDS720FA30X001	KDS720FB30X001	KDS720FC30X001	2.63
20.5 × 24T	20.5	24	KDS720FA32X001	-	-	2.63
1.0” × 24T	25.4	24	KDS720FA33X001	KDS720FB33X001	-	2.63
25.8 × 24T	25.8	24	KDS720FA86X001	-	-	2.63
22 × 26T	22	26	KDS720FA35X001	KDS720FB35X001	-	2.63
1 5/32” × 26T	29.36	26	KDS720FA36X001	KDS720FB36X001	-	2.63
1 1/4” × 29T	31.75	29	KDS720FA38X001	KDS720FB38X001	-	2.63

B-type and C-type driven plates can be used on the flywheel side of the clutch to provide increased hub to crank bolt clearance.



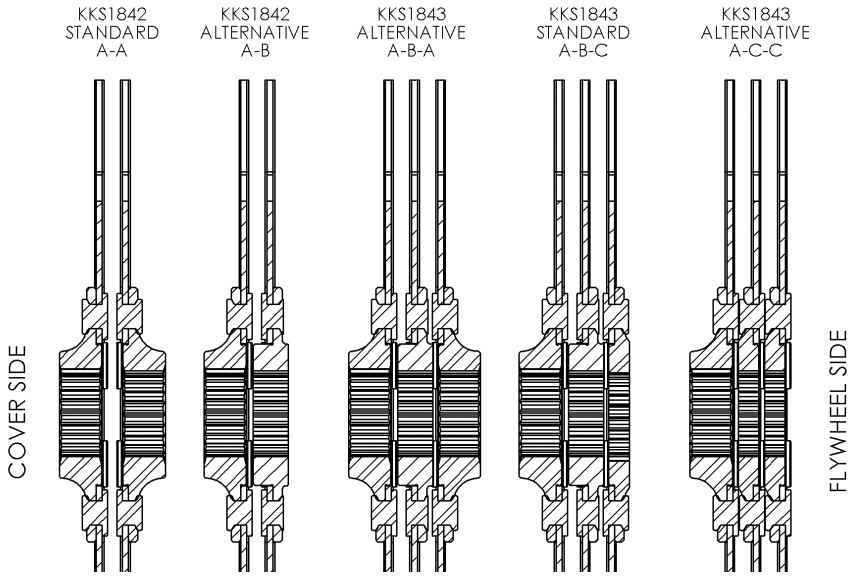
Applications

Circuit Racing.

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable hard anodised finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ product.
- Step and Pot flywheel mounting options available.

Hub types

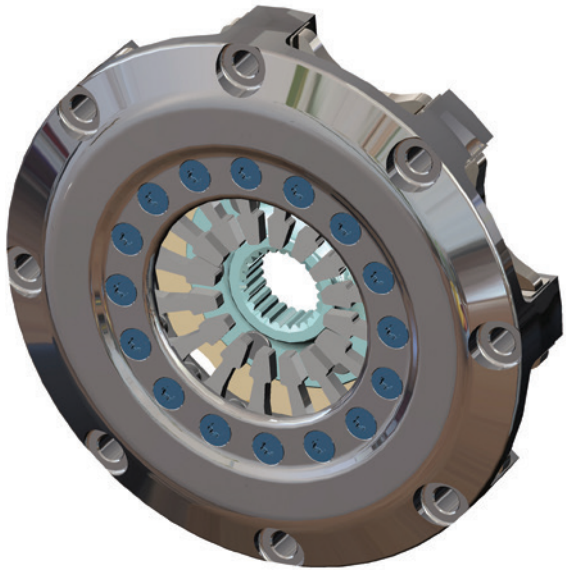


motorsport rally range **KKR1401**

ø140 (5.5”) Single plate rally clutch

Specifications

Part Number	KKR1401HORSR01	KKR1401HDGSR01
Dynamic Torque Capacity Nm (lb/ft)	228 (168)	317 (233)
Release ratio	High	High
Assembly Weight inc. Driven Plate (Kg)	1.90	1.90
Assembly Inertia inc. Driven Plate (Kgm²)	0.0062	0.0062
Release Load New ø38 Bearing (kN)	2.3	2.9
Release Load New ø44 Bearing (kN)	2.6	3.2
Release Load New ø52 Bearing (kN)	2.9	3.5
Step flywheel part numbers shown. For Pot flywheel replace “SR” with “PR”. Other hub configurations are available.		



Applications

General Rally use.

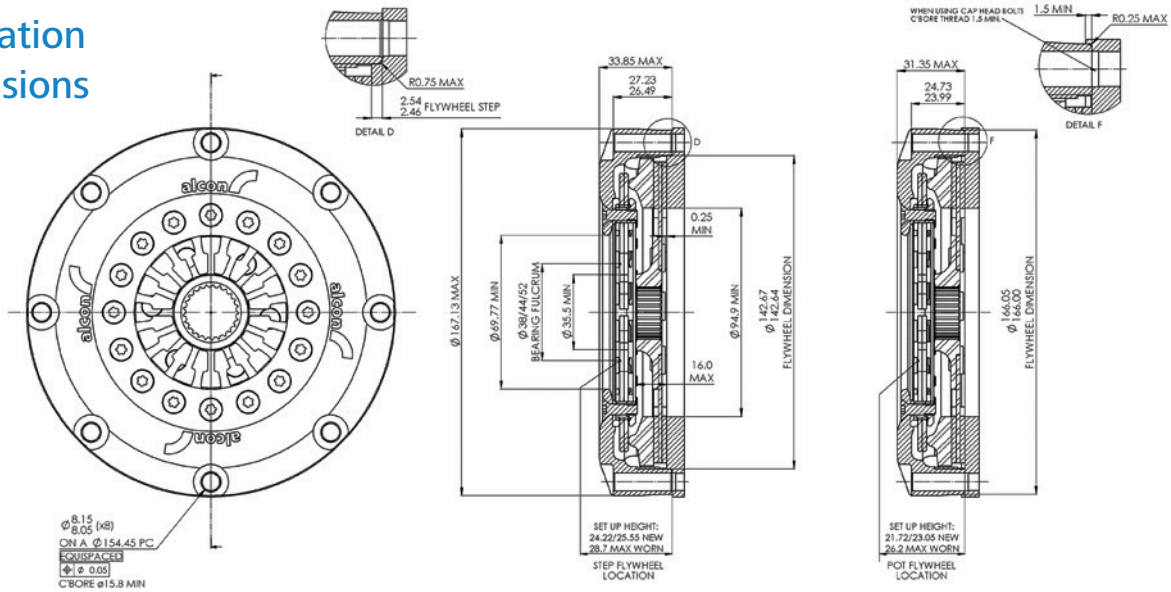
Replacement parts

Part Number	KKR1401HORSR01	KKR1401HDGSR01
Pressure Plate (High Ratio)	KPS140L6H450	KPS140L6H450
Pressure Plate Thickness (mm)	11.5	11.5
Pressure Plate Fulcrum Dia (mm)	Ø117	Ø117

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable plated finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ products.
- Step and Pot flywheel mounting options available.

Installation dimensions

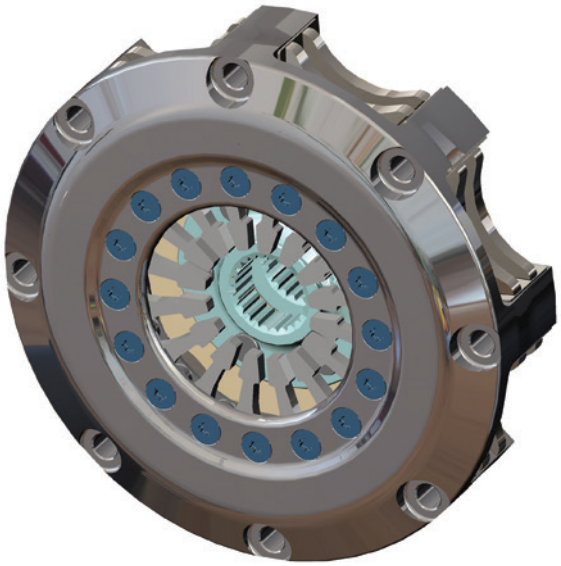


motorsport rally range **KKR1402**

ø140 (5.5”) Twin plate rally clutch

Specifications

Part Number	KKS1402HORSR01	KKS1402HDGSR01
Dynamic Torque Capacity Nm (lb/ft)	456 (336)	634 (466)
Release ratio	High	High
Assembly Weight inc. Driven Plate (Kg)	2.60	2.60
Assembly Inertia inc. Driven Plate (Kgm²)	0.0085	0.0085
Release Load New ø38 Bearing (kN)	2.3	2.9
Release Load New ø44 Bearing (kN)	2.6	3.2
Release Load New ø52 Bearing (kN)	2.9	3.5
Step flywheel part numbers shown. For Pot flywheel replace “SR” with “PR”.		



Applications

General Rally use.

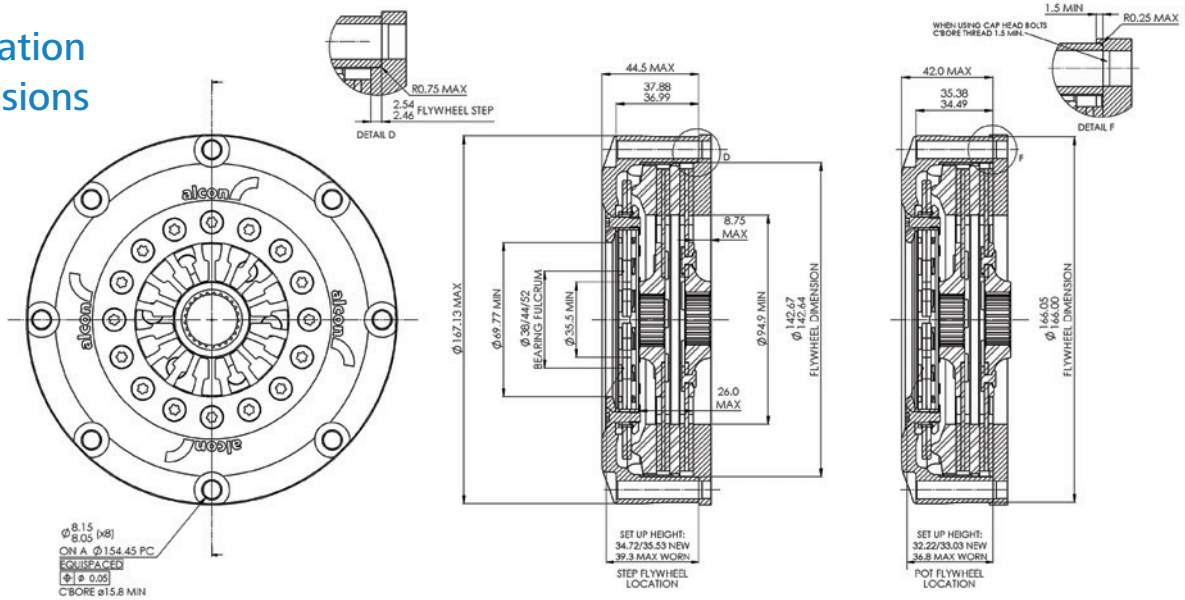
Replacement parts

Part Number	KKS1402HORSR01	KKS1402HDGSR01
Pressure Plate (High Ratio)	KPS140L08H450	KPS140L08H450
Pressure Plate Thickness (mm)	11.5	11.5
Pressure Plate Fulcrum Dia (mm)	Ø117	Ø117
Floater plate	KPS140L08FX02	KPS140L08FX02

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable plated finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers products.
- Step and Pot flywheel mounting options available.

Installation dimensions

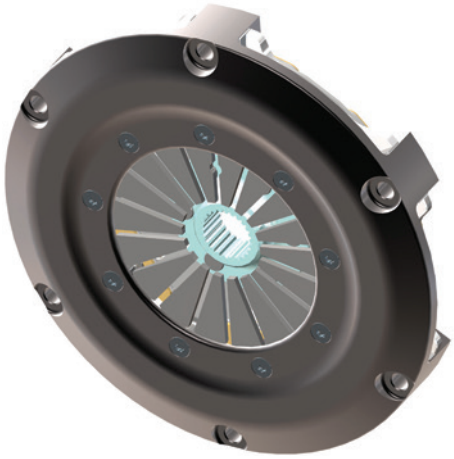


motorsport rally range **KKR1841**

ø184 (7.25”) Single plate rally clutch

Specifications

Part Number	Dynamic Torque Capacity Nm (lb/ft)	Release ratio	Assembly Weight inc. Driven Plate (Kg)	Assembly Inertia inc. Driven Plate (Kgm²)	Release Load New ø44 Bearing (kN)	Release Load New ø52 Bearing (kN)
KKR1841HDGSR01	334 (246)	High	2.89	0.0168	3.2	3.4
KKR1841HSGSR01	277 (204)	High	2.89	0.0168	2.6	2.8
KKR1841HORSR01	220 (162)	High	2.89	0.0168	2.1	2.25
KKR1841UDGSR01	440 (324)	Ultra	2.89	0.0168	3.2	3.4
KKR1841USGSR01	365 (369)	Ultra	2.89	0.0168	2.6	2.8
KKR1841UORSR01	290 (213)	Ultra	2.89	0.0168	2.1	2.25
Step flywheel part numbers shown. For Pot flywheel replace “SR” with “PR”. Other hub configurations are available.						



Applications

General Race, Rally and Hill Climb use.

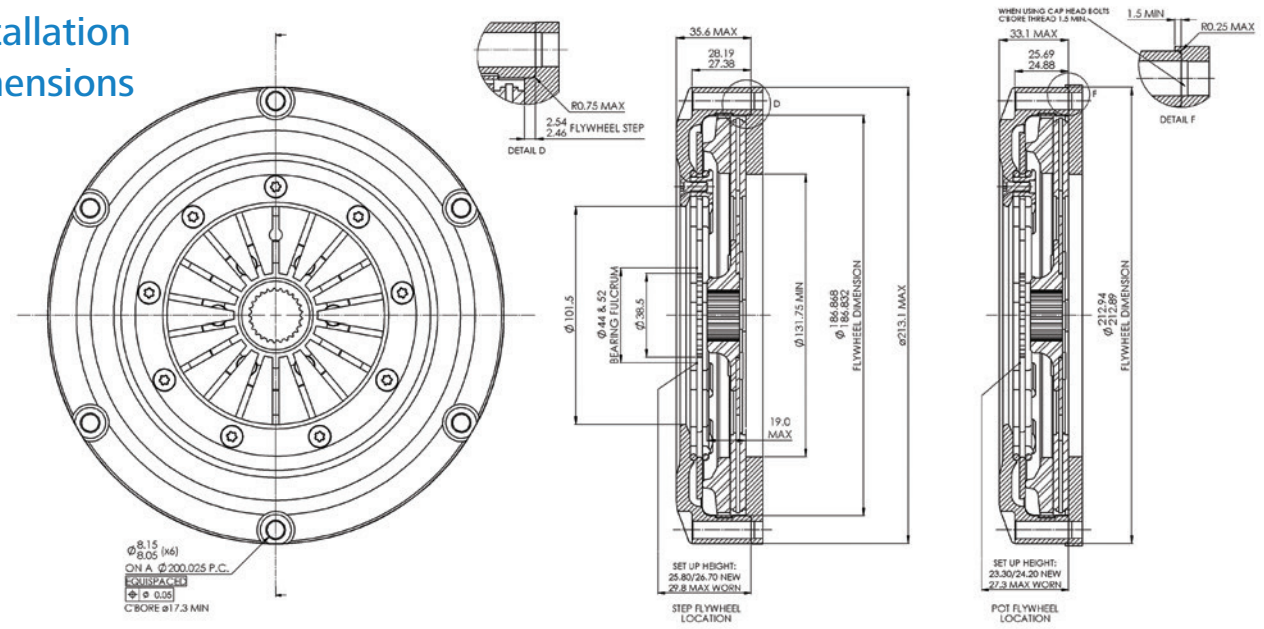
Replacement parts

Part Number	Pressure Plate (High Ratio)	Pressure Plate (Ultra High Ratio)	Pressure Plate Thickness (mm)	Pressure Plate Fulcrum Dia (mm)
KKR1841HDGSR01	KPS184L6H511	N/A	13	ø157
KKR1841HSGSR01	KPS184L6H511		13	ø157
KKR1841HORSR01	KPS184L6H511		13	ø157
KKR1841UDGSR01	N/A	KPS184L6U511	13	ø152
KKR1841USGSR01		KPS184L6U511	13	ø152
KKR1841UORSR01		KPS184L6U511	13	ø152

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable hard anodised finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ products.
- Step and Pot flywheel mounting options available.

Installation dimensions



motorsport rally range **KKR1842**

ø184 (7.25”) Twin plate rally clutch

Specifications

Part Number	Dynamic Torque Capacity Nm (lb/ft)	Release ratio	Assembly Weight inc. Driven Plate (Kg)	Assembly Inertia inc. Driven Plate (Kgm²)	Release Load New ø44 Bearing (kN)	Release Load New ø52 Bearing (kN)
KKR1842HDGSR01	668 (492)	High	3.90	0.0225	3.2	3.4
KKR1842HSGSR01	554 (407)	High	3.90	0.0225	2.6	2.8
KKR1842HORSR01	440 (324)	High	3.90	0.0225	2.1	2.25
KKR1842UDGSR01	880 (649)	Ultra	3.90	0.0225	3.2	3.4
KKR1842USGSR01	730 (537)	Ultra	3.90	0.0225	2.6	2.8
KKR1842UORSR01	580 (427)	Ultra	3.90	0.0225	2.1	2.25
Step flywheel part numbers shown. For Pot flywheel replace “SR” with “PR”.						

Applications

General Race, Rally and Hill Climb use.

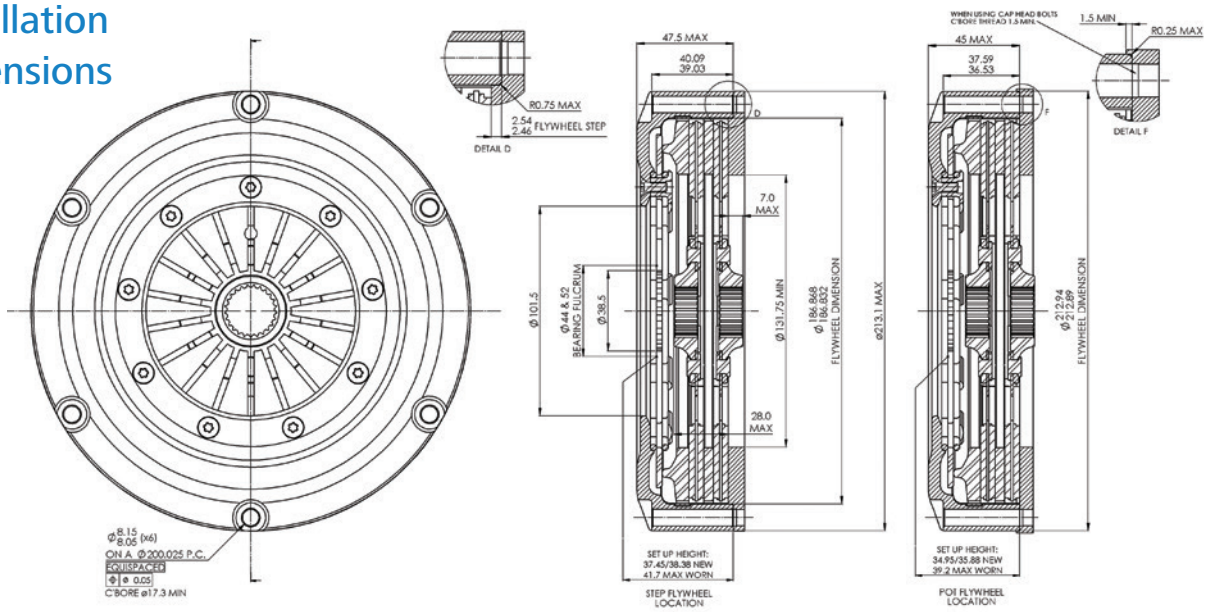
Replacement parts

Part Number	Pressure Plate (High Ratio)	Pressure Plate (Ultra High Ratio)	Pressure Plate Thickness (mm)	Pressure Plate Fulcrum Dia (mm)	Floater Plates
KKR1842HDGSR01	KPS184L6H511	N/A	13	ø157	KPS184L6F180
KKR1842HSGSR01	KPS184L6H511		13	ø157	KPS184L6F180
KKR1842HORSR01	KPS184L6H511		13	ø157	KPS184L6F180
KKR1842UDGSR01	N/A	KPS184L6U511	13	ø152	KPS184L6F180
KKR1842USGSR01		KPS184L6U511	13	ø152	KPS184L6F180
KKR1842UORSR01		KPS184L6U511	13	ø152	KPS184L6F180

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable hard anodised finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ products.
- Step and Pot flywheel mounting options available.

Installation dimensions



motorsport rally range **KKR1842**

ø184 (7.25”) Twin plate rally clutch (Low height for S2000 applications)

Specifications

Part Number	KKR1842HORPR02	KKR1842HDGPR02
Dynamic Torque Capacity Nm (lb/ft)	520 (383)	786 (579)
Release ratio	High	High
Assembly Weight inc. Driven Plate (Kg)	3.75	3.75
Assembly Inertia inc. Driven Plate (Kgm²)	0.0220	0.0220
Release Load New ø44 Bearing (kN)	2.1	3.2
Release Load New ø52 Bearing (kN)	2.25	3.4
Inertia and weight figures based on a 6 paddle driven plates.		

Applications

S2000 Applications.

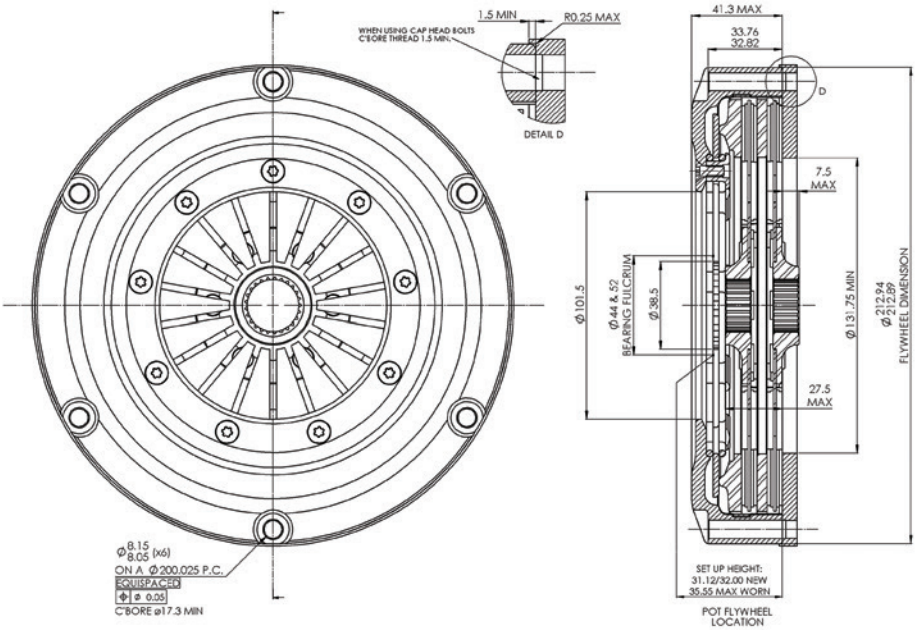
Replacement parts

Part Number	KKR1842HORPR02	KKR1842HDGPR02
Pressure Plate (High Ratio)	KPS184L6H403	KPS184L6H403
Pressure Plate Thickness (mm)	10.25	10.25
Pressure Plate Fulcrum Dia (mm)	Ø157	Ø117
Floater plates	KPS184L6F180	KPS184L6F180

Key features and benefits

- Low height design using 6.8mm thick 6 pad driven plates.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable hard anodised finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ product.
- Pot flywheel mounting.

Installation dimensions



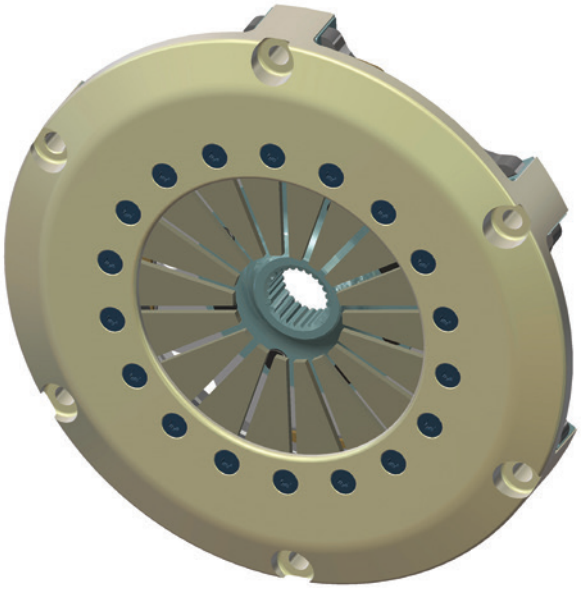
Ø200 (7.87”) Single plate rally clutch

Specifications

Part Number	KKR2001-UTGSR01	KKR2001-UDGSR01	KKR2001-HDGSR01
Dynamic Torque Capacity Nm (lb/ft)	457 (337)	412 (304)	370 (273)
Release ratio	Ultra	Ultra	High
Assembly Weight inc. Driven Plate (Kg)	3.60	3.60	3.60
Assembly Inertia inc. Driven Plate (Kgm²)	0.0025	0.0025	0.0025
Release Load New ø52 Bearing (kN)	2.8	2.6	2.6

Replacement parts

Part Number	KKR2001-UTGSR01	KKR2001-UDGSR01	KKR2001-HDGSR01
Pressure Plate (High Ratio)	N/A	N/A	KPS-200L6H647
Pressure Plate (Ultra High Ratio)	KPS-200L6U647	KPS-200L6U647	N/A
Pressure Plate Thickness (mm)	16.5	16.5	16.5
Pressure Plate Fulcrum Dia (mm)	Ø174	Ø174	Ø178



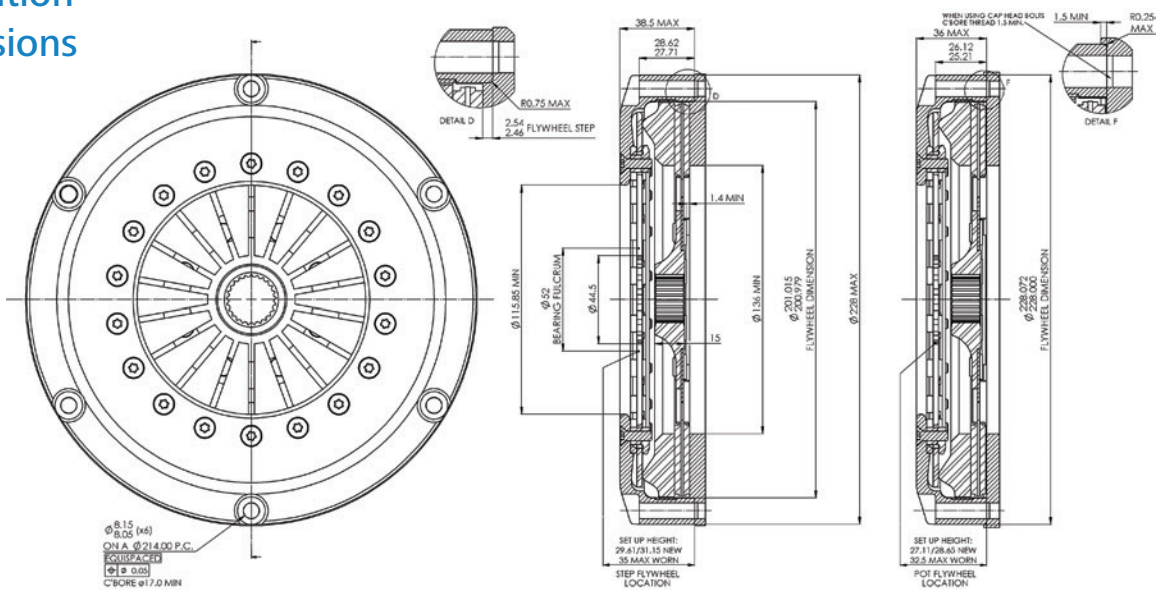
Applications

General Race and Rally use.

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness billet cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable hard anodised finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ product.
- Step and Pot flywheel mounting options available.

Installation dimensions



motorsport rally range **KKR2002**

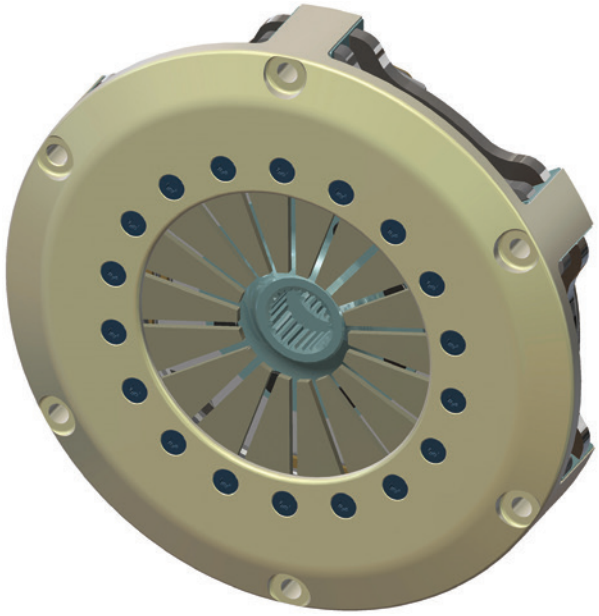
Ø200 (7.87”) Twin plate rally clutch

Specifications

Part Number	KKR2002-UTGSR01	KKR2002-UDGSR01	KKR2002-HDGSR01
Dynamic Torque Capacity Nm (lb/ft)	915 (674)	824 (608)	740 (546)
Release ratio	Ultra	Ultra	High
Assembly Weight inc. Plate (Kg)	4.60	4.60	4.60
Assembly Inertia inc. Plate (Kgm²)	0.036	0.036	0.036
Release Load New ø52 Bearing (kN)	2.8	2.6	2.6

Replacement parts

Part Number	KKR2002-UTGSR01	KKR2002-UDGSR01	KKR2002-HDGSR01
Pressure Plate (High Ratio)	N/A	N/A	KPS-200L6H535
Pressure Plate (Ultra High Ratio)	KPS-200L6S535	KP-200L6S535	N/A
Pressure Plate Thickness (mm)	13.6	13.6	13.6
Pressure Plate Fulcrum Dia (mm)	Ø171	Ø171	Ø178
Floater Plates	KPS-200L6F236	KPS-200L6F236	KPS-200L6F236



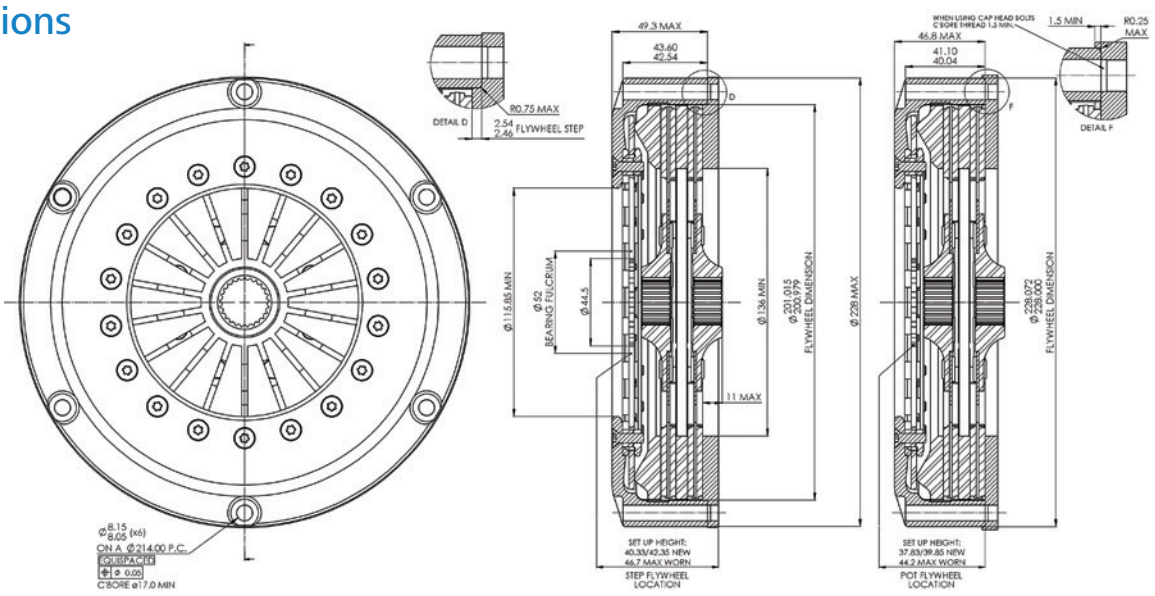
Applications

General Race and Rally use.

Key features and benefits

- Compact design for low weight and inertia.
- High stiffness billet cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable hard anodised finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ product.
- Step and Pot flywheel mounting options available.

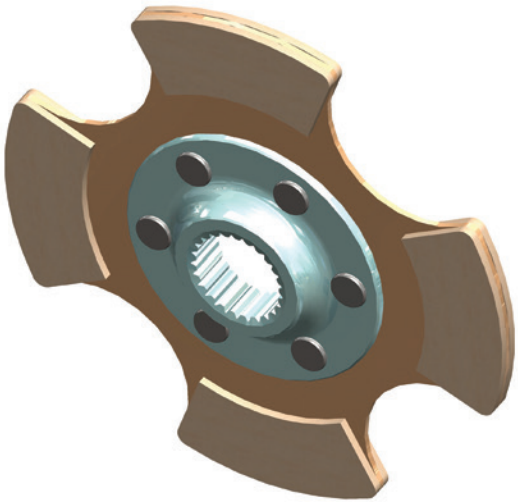
Installation dimensions



ø140 (5.5″) Rally driven plates

Specifications

Spline Size	ø	No. of Teeth	A Type 11.7mm long hub	B Type 9.6mm long hub	New Thickness
21 × 18T	21	18	KDC550FA17X001	KDC550FB17X001	6.0
7/8″ × 20T	22.2	11.5	KDC550FA25X001	KDC550FB25X001	6.0
24.25 × 21T	24.25	21	KDC550FA27X001	KDC550FB27X001	6.0
1″ × 23T	25.4	23	KDC550FA30X001	KDC550FB30X001	6.0
22 × 28T	22	28	KDC550FA95X001	KDC550FB95X001	6.0
B-type and C-type driven plates can be used on the flywheel side of the clutch to provide increased hub to crank bolt clearance.					



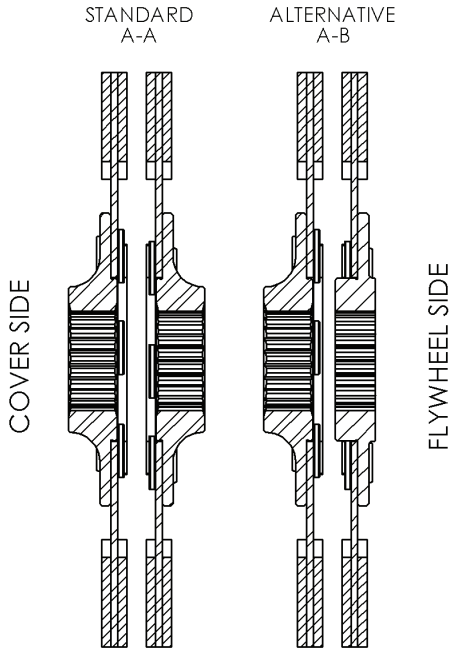
Applications

General Rally use.

Key features and benefits

- Optimised design.
- Optimised hub length for low inertia with minimum hub wear.
- Cerametallic friction material for high energy capacity and increased wear rate.
- Interchangeable with other manufacturers' product.
- Various hub configurations available to provide increased hub to crank bolt clearance.
- 6mm plate thickness.

Hub types



motorsport rally range **KDC720**

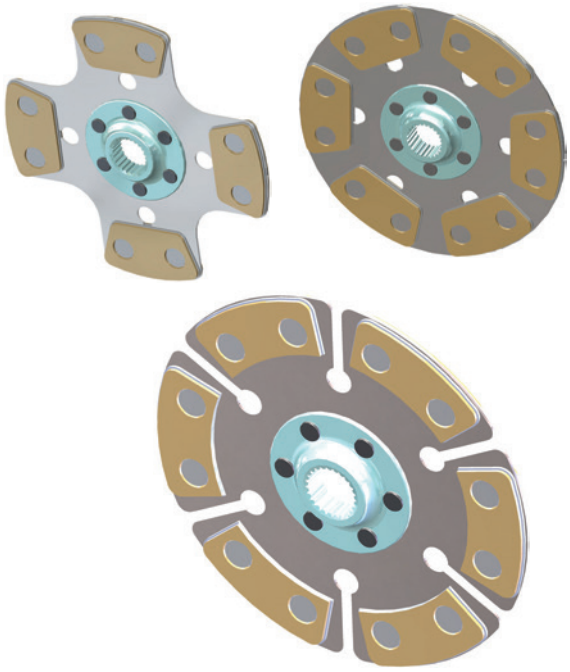
ø184 (7.25”) Rally driven plates

Specifications

Spline Size	Ø	No. of Teeth	4 Pad - A Type 11.7mm long hub	6 Pad 15.0mm long hub	New Thickness
1.125" × 10T	28.58	10	KDC720406X010	-	7.2
29 × 10T	29	10	KDC720410X010	KDC720610X010	7.2
25 × 14T	25	14	-	KDC720612X010	7.2
21 × 18T	21	18	KDC720417X010	KDC720617X010	7.2
0.875” × 20T	22.2	20	KDC720425X010	KDC720625X010	7.2
24.25 × 21T	24.25	21	KDC720427X010	KDC720627X010	7.2
1.0” × 22T	25.4	22	KDC720429X010	KDC720629X010	7.2
1.0” × 23T	25.4	23	KDC720430X010	KDC720630X010	7.2
20.5 × 24T	20.5	24	-	KDC720632X010	7.2
1.0” × 24T	25.4	24	KDC720433X010	KDC720633X010	7.2
25.8 × 24T	25.8	24	-	KDC720686X010	7.2
22 × 26T	22	26	KDC720435X010	KDC720635X010	7.2
1 5/32” × 26T	29.36	26	-	KDC720636X010	7.2

Driven Plates for low height cover S2000 applications

Spline Size	Ø	No. of Teeth	6 Pad - A Type 11.7mm long hub	6 Pad - A Type 9.6mm long hub	New Thickness
1.0” 23T	25.4	23	KDC720630X006	KDC720630X007	6.8
25.8 × 24T	25.8	24	KDC720686X002	-	6.8



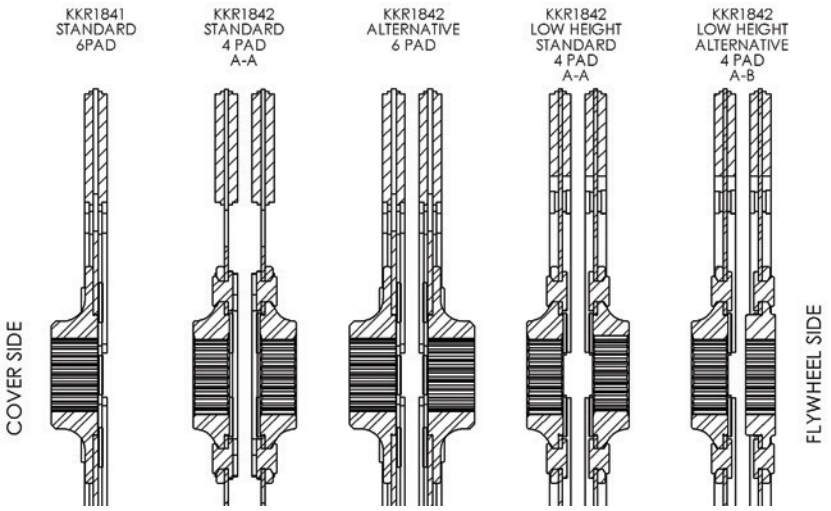
Applications

General Rally and Circuit use.

Key features and benefits

- Optimised design.
- Optimised hub length for low inertia with minimum hub wear.
- Cerametallic friction material for high energy capacity and increased wear rate.
- Interchangeable with other manufacturers’ product.
- Various hub configurations available to provide increased hub to crank bolt clearance.
- 4 and 6 pad options available.

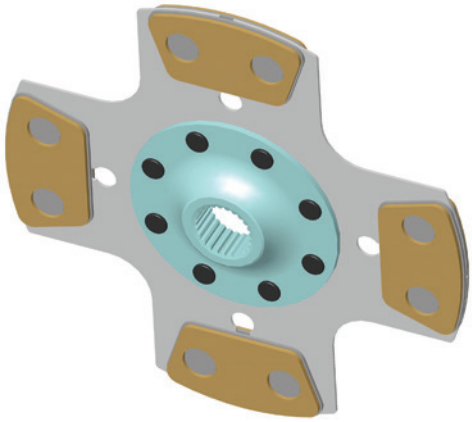
Installation dimensions



Ø200 (7.87”) Rally driven plates

Driven Plates

Spline Size	Ø	No. of Teeth	Standard 15.0mm long hub	Alternative 12.0mm long hub	New Thickness
29 × 10T	29	10	KDC780410X001	-	7.6
25 × 14T	25	14	KDC780412X001	-	7.6
21 × 18T	21	18	KDC780417X005	-	7.6
0.875" × 20T	22.2	20	KDC780425X005	-	7.6
24.25 × 21T	24.25	21	KDC780427X004	-	7.6
29 × 21T	29	21	KDC780428X001	-	7.6
1.0" × 22T	25.4	22	KDC780429X002	-	7.6
1.0" × 23T	25.4	23	KDC780430X002	KDC780430X004	7.6
20.5 × 24T	20.5	24	KDC780432X002	-	7.6
24.25 × 24T	24.25	24	KDC780450X002	KDC780450X001	7.6
1.0" × 24T	25.4	24	KDC780433X001	-	7.6
25.8 × 24T	25.8	24	KDC780486X002	-	7.6
22 × 26T	22	26	KDC780435X002	-	7.6
22 × 28T	22	28	KDC780495X001	-	7.6



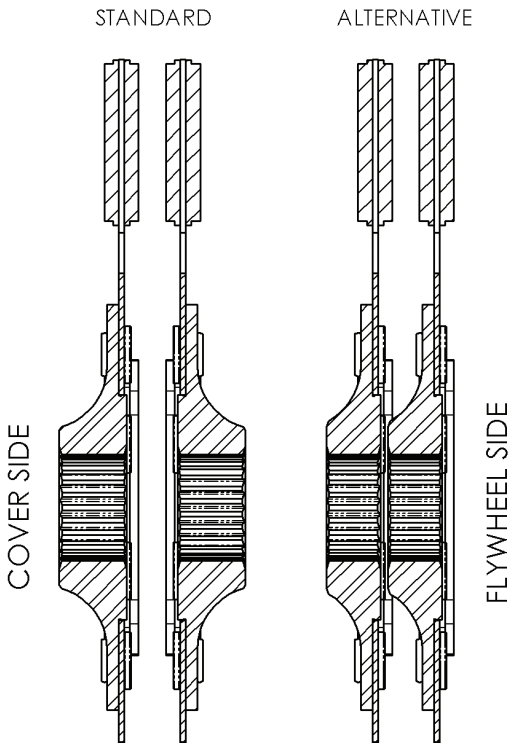
Applications

General Rally and Circuit use.

Key features and benefits

- Optimised design.
- Optimised hub length for low inertia with minimum hub wear.
- Cerametallic friction material for high energy capacity and increased wear rate.
- Interchangeable with other manufacturers’ product.
- Various hub configurations available to provide increased hub to crank bolt clearance.
- 7.6mm plate thickness.

Installation dimensions



heavy duty sintered range **KKSH1841**

ø184 (7.25”) Single plate heavy duty race clutch

Specifications

Disc thickness	Dynamic Torque Capacity (Nm)	Release ratio	Assembly Weight inc. Driven Plate (Kg)	Assembly Inertia inc. Driven Plate (Kgm²)	Release Load New ø44 Bearing (kN)	Release Load New ø52 Bearing (kN)
KKSH1841-HDGSR01	334	High	2.65	0.0149	3.2	3.4
KKSH1841-HSGSR01	277	High	2.65	0.0149	2.6	2.8
KKSH1841-HORSR01	220	High	2.65	0.0149	2.1	2.25
KKSH1841-UDGSR01	440	Ultra	2.65	0.0149	3.2	3.4
KKSH1841-USGSR01	365	Ultra	2.65	0.0149	2.6	2.8
KKSH1841-UORSR01	290	Ultra	2.65	0.0149	2.1	2.25

Applications

Heavy Duty Circuit Racing.

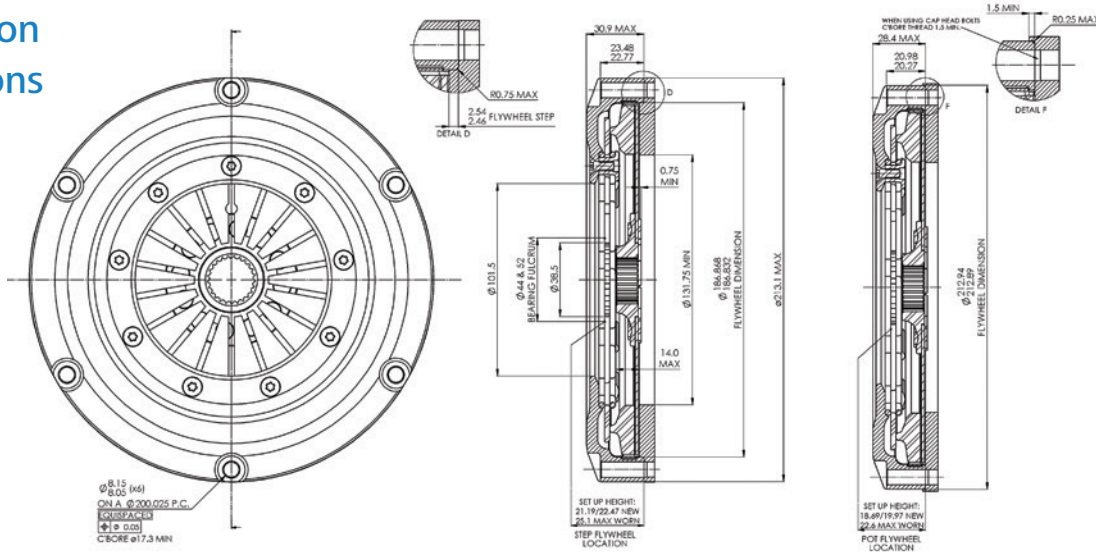
Key features and benefits

- Increased pressure plate mass for increased thermal capacity in heavy duty applications.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable hard anodised finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ product.
- Step and Pot flywheel mounting options available.

Replacement parts

Part Number	Pressure Plate (High Ratio)	Pressure Plate (Ultra High Ratio)	Pressure Plate Thickness (mm)	Pressure Plate Fulcrum Dia (mm)
KKSH1841HDGSR01	KPS184L6H5102	N/A	13	ø157
KKSH1841HSGSR01	KPS184L6H5102		13	ø157
KKSH1841HORSR01	KPS184L6H5102		13	ø157
KKSH1841UDGSR01	N/A	KPS184L6U5102	13	ø152
KKSH1841USGSR01		KPS184L6U5102	13	ø152
KKSH1841UORSR01		KPS184L6U5102	13	ø152

Installation dimensions



heavy duty sintered range **KKSH1842**

ø184 (7.25”) Twin plate heavy duty race clutch

Specifications

Part Number	Dynamic Torque Capacity (Nm)	Release ratio	Assembly Weight inc. Driven Plates (Kg)	Assembly Inertia inc. Driven Plates (Kgm²)	Release Load New ø44 Bearing (kN)	Release Load New ø52 Bearing (kN)
KKSH1842-HDGSR01	668	High	3.65	0.0223	3.2	3.4
KKSH1842-HSGSR01	554	High	3.65	0.0223	2.6	2.8
KKSH1842-HORSR01	440	High	3.65	0.0223	2.1	2.25
KKSH1842-UDGSR01	880	Ultra	3.65	0.0223	3.2	3.4
KKSH1842-USGSR01	730	Ultra	3.65	0.0223	2.6	2.8
KKSH1842-UORSR01	580	Ultra	3.65	0.0223	2.1	2.25

Applications

Heavy Duty Rally and Hill Climb.

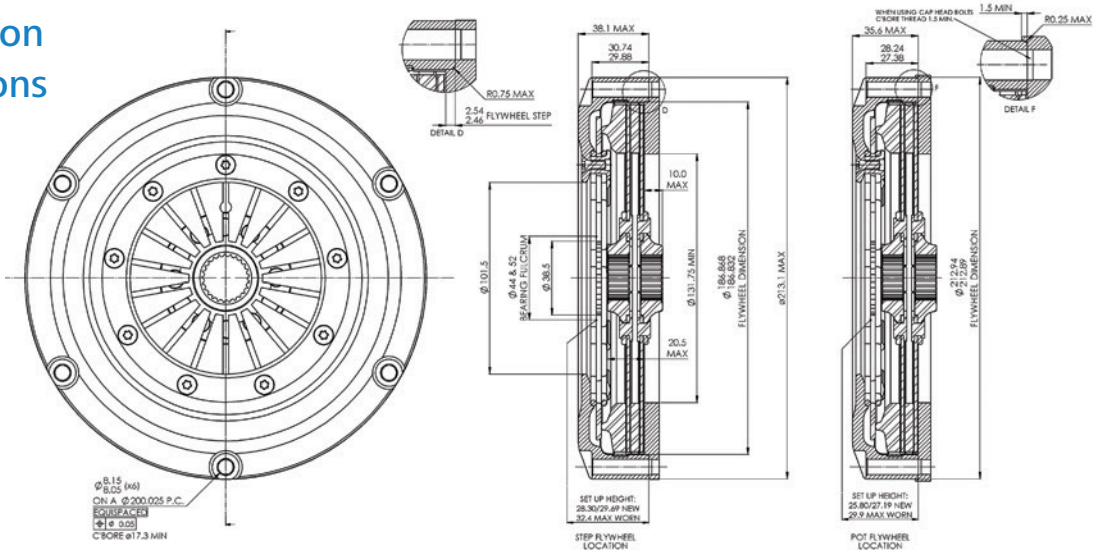
Key features and benefits

- Increased pressure plate mass for increased thermal capacity in heavy duty applications.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable hard anodised finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ product.
- Step and Pot flywheel mounting options available.

Replacement parts

Part Number	Pressure Plate (High Ratio)	Pressure Plate (Ultra High Ratio)	Pressure Plate Thickness (mm)	Pressure Plate Fulcrum Dia (mm)	Floater Plates
KKSH1842-HDGSR01	KPS184L6H5102	N/A	13	ø157	KPS184L6FX002
KKSH1842-HSGSR01	KPS184L6H5102		13	ø157	KPS184L6FX002
KKSH1842-HORSR01	KPS184L6H5102		13	ø157	KPS184L6FX002
KKSH1842-UDGSR01	N/A	KPS184L6U5102	13	ø152	KPS184L6FX002
KKSH1842-USGSR01		KPS184L6U5102	13	ø152	KPS184L6FX002
KKSH1842-UORSR01		KPS184L6U5102	13	ø152	KPS184L6FX002

Installation dimensions

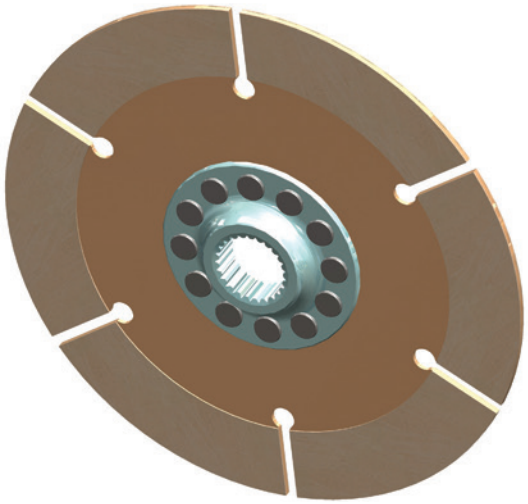


heavy duty sintered range **KDSH720**

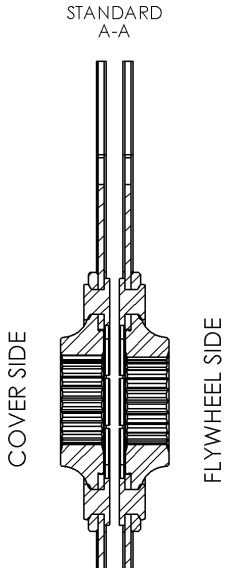
ø184 (7.25”) Heavy duty race driven plates

Specifications

Spline Size	Ø	No. of Teeth	11.7mm long hub	New Thickness
1 1/8" x 10T	28.58	10	KDSH720FA06X001	2.63
29 x 10T	29	10	KDSH720FA10X001	2.63
1.0" x 22T	25.4	22	KDSH720FA29X001	2.63
1.0" x 23T	25.4	23	KDSH720FA30X001	2.63
25.8 x 24T	25.8	24	KDSH720FA86X001	2.63
22 x 26T	22	26	KDSH720FA35X001	2.63



Hub configurations



Applications

Heavy Duty Race use.

Key features and benefits

- Optimised design with 12 rivet hub
- Optimised hub length for low inertia with minimum hub wear.
- Sintered friction material for reduced inertia and lower cover height.
- Interchangeable with other manufacturers’ product.
- 2.63mm plate thickness.

heavy duty rally range **KKRH1841**

ø184 (7.25”) Single plate heavy duty rally clutch

Specifications

Disc thickness	Dynamic Torque Capacity (Nm)	Release ratio	Assembly Weight inc. Driven Plate (Kg)	Assembly Inertia inc. Driven Plate (Kgm²)	Release Load New ø44 Bearing (kN)	Release Load New ø52 Bearing (kN)
KKRH1841-HDGSR01	334	High	3.02	0.0175	3.2	3.4
KKRH1841-HSGSR01	277	High	3.02	0.0175	2.6	2.8
KKRH1841-HORSR01	220	High	3.02	0.0175	2.1	2.25
KKRH1841-UDGSR01	440	Ultra	3.02	0.0175	3.2	3.4
KKRH1841-USGSR01	365	Ultra	3.02	0.0175	2.6	2.8
KKRH1841-UORSR01	290	Ultra	3.02	0.0175	2.1	2.25

Applications

Heavy Duty Race, Rally, and Hill Climb.

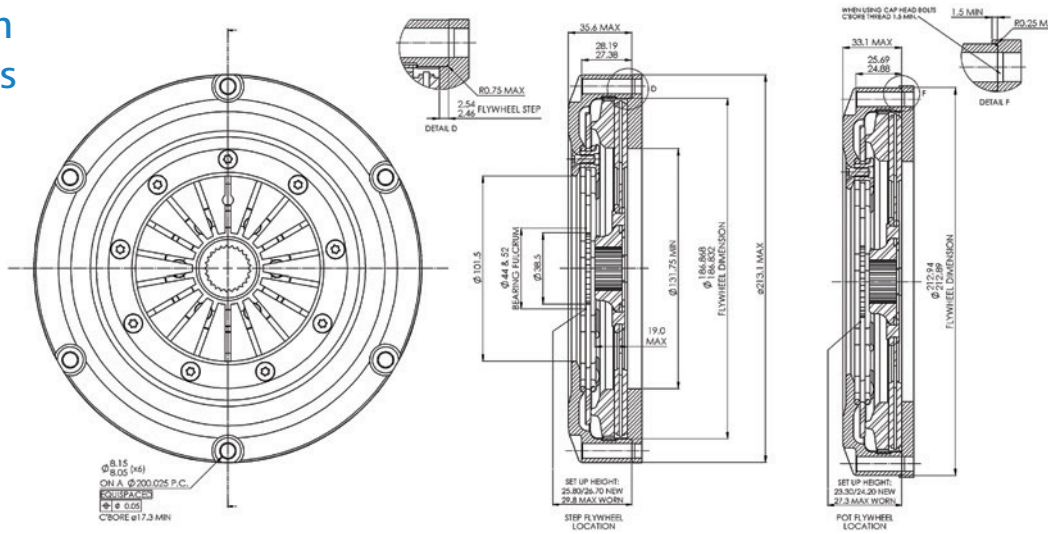
Key features and benefits

- Increased pressure plate mass for increased thermal capacity in heavy duty applications.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable hard anodised finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ product.
- Step and Pot flywheel mounting options available.

Replacement parts

Part Number	Pressure Plate (High Ratio)	Pressure Plate (Ultra High Ratio)	Pressure Plate Thickness (mm)	Pressure Plate Fulcrum Dia (mm)
KKRH1841HDGSR01	KPS184L6H5102	N/A	13	ø157
KKRH1841HSGSR01	KPS184L6H5102		13	ø157
KKRH1841HORSR01	KPS184L6H5102		13	ø157
KKRH1841UDGSR01	N/A	KPS184L6U5102	13	ø152
KKRH1841USGSR01		KPS184L6U5102	13	ø152
KKRH1841UORSR01		KPS184L6U5102	13	ø152

Installation dimensions

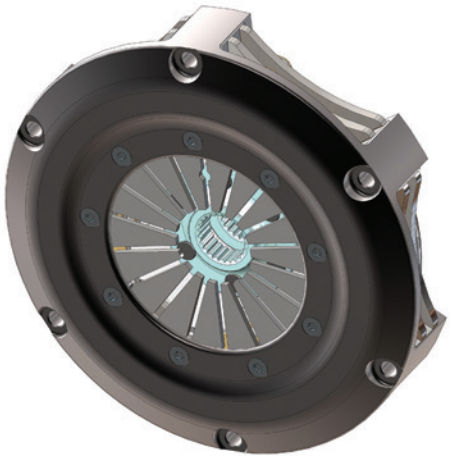


heavy duty rally range **KKRH1842**

ø184 (7.25”) Twin plate heavy duty rally clutch

Specifications

Part Number	Dynamic Torque Capacity (Nm)	Release ratio	Assembly Weight inc. Driven Plates (Kg)	Assembly Inertia inc. Driven Plates (Kgm²)	Release Load New ø44 Bearing (kN)	Release Load New ø52 Bearing (kN)
KKRH1842-HDGSR01	668	High	4.54	0.0259	3.2	3.4
KKRH1842-HSGSR01	554	High	4.54	0.0259	2.6	2.8
KKRH1842-HORSR01	440	High	4.54	0.0259	2.1	2.25
KKRH1842-UDGSR01	880	Ultra	4.54	0.0259	3.2	3.4
KKRH1842-USGSR01	730	Ultra	4.54	0.0259	2.6	2.8
KKRH1842-UORSR01	580	Ultra	4.54	0.0259	2.1	2.25



Applications

Heavy Duty Rally and Hill Climb.

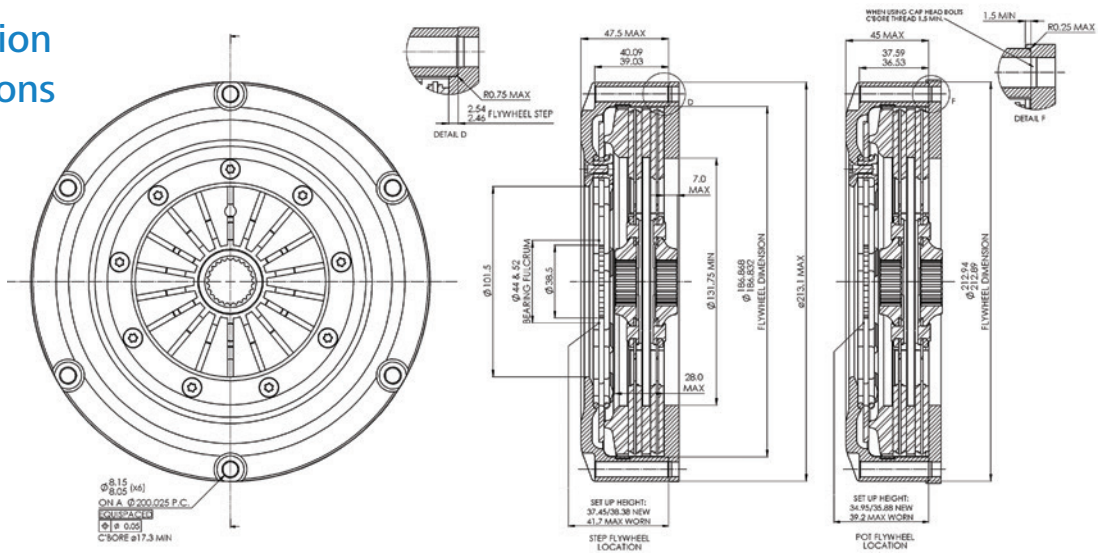
Key features and benefits

- Increased pressure plate mass for increased thermal capacity in heavy duty applications.
- High stiffness cover design for improved start line control.
- Open lug type design for improved cooling and dust removal.
- Durable hard anodised finish.
- Stainless steel wear plates fitted to cover legs.
- Interchangeable with other manufacturers’ product.
- Step and Pot flywheel mounting options available.

Replacement parts

Part Number	Pressure Plate (High Ratio)	Pressure Plate (Ultra High Ratio)	Pressure Plate Thickness (mm)	Pressure Plate Fulcrum Dia (mm)	Floater Plates
KKRH1842-HDGSR01	KPS184-L6H5102	N/A	13	ø157	KPS184-L6FX002
KKRH1842-HSGSR01	KPS184-L6H5102		13	ø157	KPS184-L6FX002
KKRH1842-HORSR01	KPS184-L6H5102		13	ø157	KPS184-L6FX002
KKRH1842-UDGSR01	N/A	KPS184-L6U5102	13	ø152	KPS184-L6FX002
KKRH1842-USGSR01		KPS184-L6U5102	13	ø152	KPS184-L6FX002
KKRH1842-UORSR01		KPS184-L6U5102	13	ø152	KPS184-L6FX002

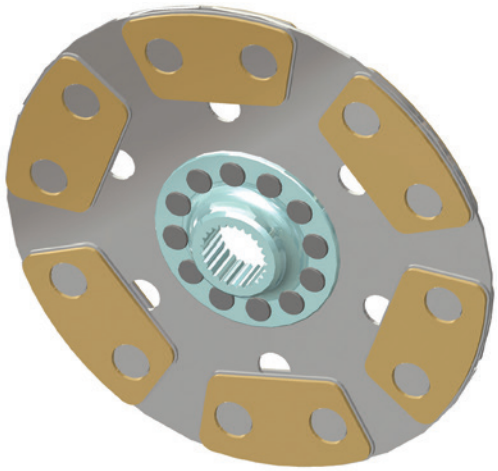
Installation dimensions



ø184 (7.25”) Heavy duty rally driven plates

Specifications

Spline Size	Ø	No. of Teeth	11.7mm long hub	15.0mm long hub	New Thickness
29 x 10T	29	10	-	KDCH720-610X001	7.2
25 x 14T	25	14	-	KDCH720-612X001	7.2
1.0" x 22T	25.4	22	-	KDCH720-629X001	7.2
1.0" x 23T	25.4	23	-	KDCH720-630X001	7.2
25.8 x 24T	25.8	24	-	KDCH720-686X001	7.2
22 x 26T	22	26	-	KDCH720-635X001	7.2
29 x 26T	29	26	KDCH720-685X001	-	7.2
1 5/32" x 26T	29.36	26	KDCH720-636X002	KDCH720-636X001	7.2



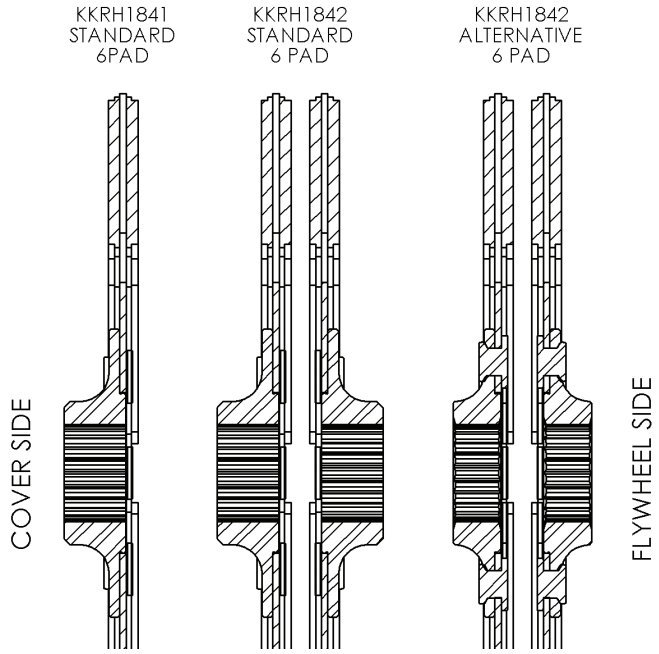
Applications

Heavy Duty Rally and Circuit use.

Key features and benefits

- Optimised design with 12 rivet hub.
- Optimised hub length for low inertia with minimum hub wear.
- Cerametallic friction material for high energy capacity and increased wear rate.
- Interchangeable with other manufacturers’ product.
- Various hub configurations available to provide increased hub to crank bolt clearance.
- 6 pad to maximise thermal capacity and wear in heavy duty applications.

Hub configurations



aftermarket introduction

Brake kits

We use our extensive knowledge of specialist and performance braking solutions in all of our applications, including aftermarket brake kits.

Our kits allow drivers to experience exceptional braking, suitable for fast road and track use. We produce a range of kits for different applications, from Advantage Extreme to the top-of-the-range Superkits. Each is available for a variety of performance road car - see the following listings for more information.

In depth testing is a key factor in the development of our products; our brake kits have been aggressively tested in a variation of conditions in both road and track scenarios to ensure they meet the constant high stress of track days, sprints and fast road driving.

Advantage Extreme kits

Our Advantage Extreme brake kits are specifically engineered to give exceptional braking performance both on the road and on the track. Perfect for those who want that extra bit of braking performance from their car, we provide a full upgrade kit which includes everything needed to fit it to the car.

Superkits

The pinnacle of aftermarket brake upgrades, our Superkits are designed for those who need a little extra braking power and performance on the track. Our superkits provide exceptional performance combined with consistency and durability you can rely on, corner after corner, stop after stop. For more information, or to order, contact a sales representative.

Getting the best from your Alcon brake conversion

Your new Alcon brake kit is derived from the brakes that Alcon supply to top motorsport teams throughout the world. The best professional race and rally drivers have to take care of their brakes to maintain optimum performance, and provided the following care points are observed, you too will maintain your brakes in peak condition and will continue to enjoy the very highest level of road braking performance.

Bedding In

The life and performance of both pads and discs are reliant upon correct bedding. Always ensure that with new pads or discs, the bedding procedure detailed in the installation instructions is adhered to. Failure to do so could result in reduced disc and pad life, sub-standard performance or vibration.

Brake Fade

Your brake kit uses a friction material that will out-perform conventional road car pads. Nevertheless, all friction materials, whether for road or race, have an upper limit of operation beyond which performance will deteriorate. If, under extreme use, you experience a degree of brake fade you will need to 'protect the brake' by backing off in order to allow the brakes to cool and regain friction performance.

Brake Life

The friction material in your brake kit has been selected to offer the best compromise between stopping power and wear rate of pads and discs. However, in using the extra performance of the brake, it is likely that you will experience a higher rate of disc and pad wear than is typical of original equipment brakes. This effect will be magnified under very hard use although it is unlikely that you will need to change pads after 100 miles as is sometimes required on race and rally cars!

Brake Noise

The combination of performance pad compound and grooves on the disc face gives excellent 'bite' and resistance to 'pad glazing'. It may also give rise to some slight brake noise. In common with most disc brakes, some droning may be experienced after a period of hard use.

Heat Soak

After heavy use, do not rest your foot on the brake pedal while the vehicle is stationary. This practice will cause heat to 'soak' from the disc to the caliper and so to the brake fluid. In extreme cases the fluid may boil, leading to very poor braking performance. In addition, maintaining contact between pads and discs when stationary can cause pad material to adhere to the disc face and give rise to vibration. It is good practice to always use the handbrake rather than the footbrake when the vehicle is stationary.

Inspection

Brake pads and discs should be examined regularly for wear and condition. Pads with less than 2mm of friction material anywhere over the friction surface must be replaced. If a disc shows any signs of cracking, which may occur when the brakes have been subjected to heavy usage, it must be replaced. Furthermore, discs must be replaced when either the total thickness has reduced to the minimum indicated on the external mounting face, or when any of the grooves across either inner or outer face have been worn away. Remember to bed in new pads or discs according to the procedure in the Installation Instructions.

Cleaning

As discs and pads wear during use, a metallic dust is created, which adheres to other car parts such as calipers, wheels and bodywork. If allowed to remain for any period of time, this material can become difficult to remove, especially on components that are subject to heat, such as wheels and calipers. All affected components should be washed regularly with warm water and mild detergent. If a specialist wheel cleaning product is to be used, extreme caution is advised as some products are aggressive to plated surfaces and paint finishes. Any brake fluid spilt on painted surfaces, including calipers, should be immediately and thoroughly removed with clean water, so as to prevent damage to the paint.

Servicing

Please refer to the brake kit installation instructions for full details of service and maintenance procedures.

N.B. This brake upgrade kit is intended for road use. If used on a racetrack or in competition, the user does so entirely at his or her own risk, and Alcon accepts no liability whatsoever for any consequences of such use.

advantage extreme

Alcon's Advantage Extreme brake kits are specifically engineered to give you exceptional braking performance.

What's in the box?

The Advantage Extreme kit is supplied in two boxes, one for each hand, and includes all the parts that you will need:

- Special alloy disc and bell assembly.
- Monobloc 4 or 6 piston caliper.
- Low noise, fade resistant pads.
- Brackets and fixings.
- High performance brake fluid.

Discs

Advantage Extreme discs have been engineered to produce optimum bite, thermal stability, and durability in an exceptionally high strength to low weight design. This has been achieved by combining a special Alcon-developed iron alloy disc with an aerospace specification alloy bell.

Other disc benefits

- Unique crescent grooves on friction faces provide the bite usually associated with drilled discs without the attendant durability problems.
- Directional curved cooling vanes for optimum cooling performance.
- Alcon's floating disc system (as used in the majority of applications) has been designed to allow thermal expansion of the disc throughout its life while minimising the tendency to judder.

Pads

The low noise pads offer strong cold performance for start up and city driving and are specially formulated for excellent resistance to fade at elevated temperatures. This makes them perfect for those wanting performance on both track and road.

Calipers

Advantage Extreme calipers are gravity die cast for monobloc constructions using aluminium alloy for optimum strength and weight.

Other caliper benefits

- Monobloc 4 or 6 piston design for high stiffness (firm pedal) with low weight.
- Piston bore sizes are staggered to ensure even pad wear.
- Pin-mounted pads provide low threshold pressure and low noise.

Advantage Extreme brake kits are available for a range of vehicle applications - please see following listings.

Important: Alcon kits may vary. Refer to the instructions supplied with the kit carefully before fitment. Carbon Ceramic kit instruction differ from iron.

Alcon Advantage Extreme brake kits / Super kits are designed to replace the original brake calipers and discs. However, vehicle production tolerances may exceed those that the kit will accommodate, and the points below must be carefully observed during installation to ensure that the correct clearances are maintained. The brake kit must be fitted by a suitably qualified mechanic.

Remove the original caliper and disc

- Raise the vehicle on a suitable lift or stands and remove the wheels.
- Clamp the flexible brake hose to reduce brake fluid loss and disconnect the hose from the caliper. Disconnect any pad wear indicator wires and remove the caliper.
- Remove the brake disc.

Fit the new caliper and disc

- Ensure that the hub flange is completely flat and clean. Note that any 'bruising' or out of flatness will cause brake vibration. If necessary, prepare the hub face to remove any high spots prior to fitting the brake disc. Fit the disc assembly to the hub. The discs are handed and must be fitted to the correct side of the vehicle, with direction of rotation as shown in Figure 1. With the disc assembled to the hub, check that there is a minimum of 5mm clearance between the disc inner face and the lower suspension/ steering joint.
- Unless special longer bolts are provided in the kit, use the original bolts and washers to loosely bolt the mounting bracket to the upright. Locate the caliper over the disc and fit the caliper retaining bolts. Do not tighten at this stage. The caliper must be orientated so that the disc rotates past the small piston first, and with bleed screws uppermost.
- To prevent overheating, radial clearance between the disc and caliper must not be less than 2.5mm in all directions. When the pads are fitted, the top edge of the pads should be approximately 0.8mm below the disc outside diameter and the disc must be central in the caliper within +/- 0.5mm. Check that the clearance between the outer diameter of the bell and the inner radius of the pad back-plate is at least 1.5mm.

  Use the 0.5mm shims provided to lift the caliper on the bracket or to adjust the bracket position until the caliper is correctly positioned. Fit an equal quantity of shims to each end of the bracket as required.
- Fit the road wheel to check there is a minimum of 2.5mm clearance between the wheel and caliper in all directions.
- Do not make any modifications to the caliper. Alcon accepts no liability whatsoever for the consequences of using a caliper that has been modified without its express written approval.
- When the caliper/bracket assembly has been positioned correctly and clearances have been checked, remove and clean the bracket to upright mounting bolts. Apply thread locking compound to the threads, fit the bracket to the upright and tighten the bolts to the vehicle manufacturers' specified torque.
- Remove the caliper retaining bolts and apply thread locking compound to the threads. Fit each bolts with the washer provided and tighten to 108Nm
- Check that new pads move freely in the caliper. With the pistons pushed back into the bores, there should be a minimum clearance of:

  0.25mm between the piston end and pad backplate

  0.4mm between end of the pad and the caliper
- Remove the original hose and replace with the braided hose supplied. Connect the hose to the caliper and, ensuring it is not twisted, connect it to the vehicle, including the original fastening clip. Check that the brake line length allows for all combinations of steering lock and suspension movement and that the hose does not come into contact with any suspension component, the wheel or the tyre in any position.
- Tie-back the pad wear indicator wires.

Figure 1.

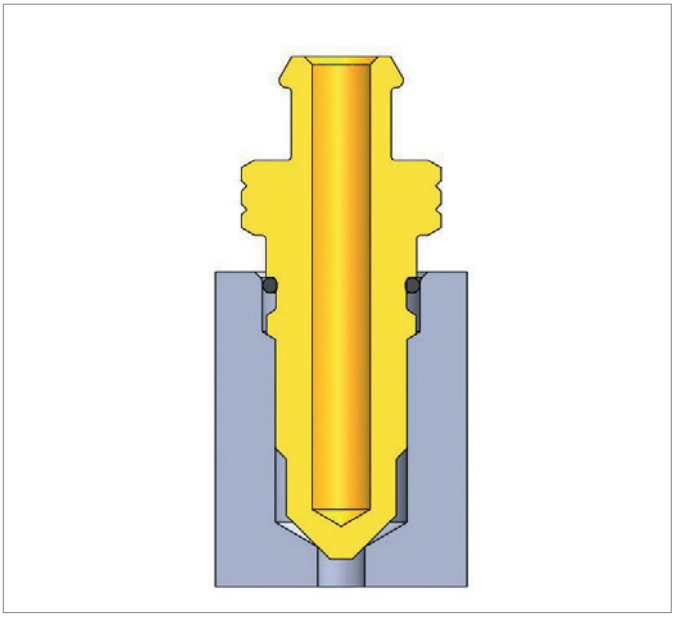


Figure 2.

Bleeding instructions

Bleed the brakes in accordance with the vehicle manufacturer's instructions. Completely flush the system using the new Motul fluid supplied in the kit. The caliper bleed screws must be tightened to 18Nm (cold). To prevent damage to the painted caliper, remove any excess brake fluid from caliper immediately with clean cold water, particularly in the area around the bleed screw thread and in the end of each bleed screw. If any fluid remains in the centre hole of the bleed screw, remove it using a clean dry tissue (see Figure 2) then rinse with clean cold water again. Check the complete hydraulic system for leaks before driving the vehicle.

- When the brake system has been sufficiently bled and a firm brake pedal has been achieved, replace the road wheels.
- The brakes should now be checked for correct operation by driving the vehicle, making a few light brake applications from low speed in a safe location. Stopping performance of a newly fitted brake kit will be low initially, as all friction materials require a period of bedding in before optimum performance is achieved.

Bedding procedure

- Correct bedding in of new brake discs and/ or pads achieves two aims;
  - The mating surfaces conform to each other.
  - The friction surfaces are conditioned for efficient friction and wear.
- The procedure required to reach these aims varies with vehicles and pad compounds. This Procedure is intended to be a general guide to suit most applications.
- Carry out a series of 32 brake snubs from 80km/h to 20km/h, allow approximately 45 seconds between each brake apply, use the pressure series (Figure 3) on the following page; (for reference "light" is the type of brake apply you carry out when parking at your house – about 0.15-0.25g deceleration "Very heavy" is almost activating ABS – about 0.7 -0.9g deceleration.) Do not activate ABS during bedding.

Snub No.	1	2	3	4	5	6	7	8	9
Apply	Light	Heavy	Light	Normal	Normal	Very heavy	Light	Heavy	Normal

Snub No.	10	11	12	13	14	15	16	17	18
Apply	Very heavy	Light	Heavy	Light	Normal	Very heavy	Very heavy	Heavy	Very heavy

Snub No.	19	20	21	22	23	24	25	26	27
Apply	Normal	Normal	Very heavy	Light	Normal	Very heavy	Heavy	Light	Very heavy

Snub No.	28	29	30	31	32
Apply	Normal	Normal	Very heavy	Normal	Very heavy

Figure 3.

Inspection after Bedding

After the brakes have cooled down, inspect the discs for correct bedding. There should be;

- Full contact of the pad across the disc face.
- The disc should have a layer of pad material attached (black or charcoal in colour).
- The layer of pad material should be even all around the disc (no splotches or spotting).
- Evidence of heating on the disc, the roots of the disc grooves and the un rubbed section of disc below the pads should be straw or blue in colour.

After Bedding

- Avoid heavy braking for the first 100 miles of use.
- Always cool the brakes after heavy use, before parking.
- Do not sit stationary with the brakes applied when they are hot (use the park brake).

Servicing and maintenance instructions

- Pads should be examined regularly for wear and condition. Replace pads when less than 2mm of friction material remains anywhere over the surface. When fitting new pads, thoroughly clean the pad location faces in the caliper, removing any debris and brake dust with brake cleaner and a stiff brush. The protruding pistons must be wiped clean before they are pushed back into the bores.
- Discs must be replaced when the total thickness has worn below the minimum indicated on the disc or when any of the face grooves across either inner or outer face have worn away. If a disc shows any sign of cracking, which may occur after heavy usage, it must be replaced.
- Remember to bed-in new pads and discs as described on the previous page.
- Replacement of caliper seals is recommended after the brake system has been subjected to high temperature, as may be generated in circuit driving or long mountain descents. Remove pistons by gentle application of line pressure. To prevent any of the pistons being dislodged from the bore, fit a temporary shim (worn out pads are ideal) into the pad aperture on both sides of the caliper. When all pistons protrude from the bores by at least 12mm, disconnect the hose, remove the caliper from the vehicle and remove pistons by hand or using a piston removal tool, available from Alcon. Take care to catch the brake fluid as the pistons are removed. So as not to damage seal grooves, use a brass 'spoon' to remove seals. Clean bores and pistons thoroughly with a clean cloth and brake fluid. Pistons with scratches or damage on the outside diameter must be replaced. With clean hands to prevent contamination of parts, lubricate seals, bores and pistons with clean brake fluid before re-fitting. Ensure no foreign matter enters the open bores.
- Re-fit the caliper and bleed as described above.

advantage extreme part numbering **GUIDE**

F	97	ZG	02	-	19	F7	E
1	2	3	4		5	6	7

1. Axle

F: Front
R: Rear

2. Caliper type

98: 4 Pot mono
97: 6 Pot mono
36: 4 Pot bolted

3. Piston Diameter

A: 28.6/28.6
B: 31.8/31.8
F: 34.9/41.3
H: 38.1/41.3
ZG: 30.2/34.9/38.1
X: Other
Y: 27.0/31.8/38.1

4. Disc size

01: Ø343x32 (Floating)
02: Ø365x32 (Floating)
03: Ø343x28 (Fixed)
04: Ø350x28 (Fixed)
05: Ø330x25 (Fixed)
06: Ø328x28 (Floating)
07: Ø343x25 (Fixed)
08: Ø343x32 (Fixed)

5. Vehicle identification

01: BMW E46 M3
02: Subaru Impreza WRX
03: Nissan 350Z
04: Audi S4
05: Porsche 996
06: BMW E90
07: Mitsubishi EVO 8&9
08: Nissan GTR R34
09: VW Golf 4, Audi S3, Seat Cupra R 10: Audi TT (VW Golf 4 Platform)
11: Honda Accord CL7
12: Subaru Impreza STI
14: Audi TT (VW Golf 4 Platform)
15: VW Golf 5
16: BMW Mini
17: Vauxhall Astra VXR
18: Honda Civic Type R (FN2 Euro Spec) 19: Audi A4 B6/B7
20: Honda Civic Type R (FD2 JDM Spec) 21: Porsche Cayman
22: Subaru Impreza STI (MY09)
23: Mitsubishi EVO 10

6. Pad material (from RC2101)

S2: OBTEC CC-75 (OBS)
S3: OBTEC HP-25 (OBS)
F4: Ferodo DS2500
P6: PAGID RS9-2
S4: OBTEC CO-23 (OBS)
F7: Ferodo DS Performance

7. Alcon version

A
B
C
D
E

Applications list

Part numbers and handing

Vehicle	Disc size	Brake kit No.	Hose/Pipe	Bracket Kit	Caliper (silver) Black Alcon logo	Pads	
BMW E46 M3 18" Oe Wheel	Ø365×32	F97ZG02-01F7E	MHA3430X468	BSK4497X1001	CAR9751ZG78HRLT/RT	PNF4497X562S.4	
BMW E46 M3 Rear	Ø343×28	R98B03-01F7E	MHA3430X521	BSK4498X1001	CAR9856B45HRLT/RT	PNF4498X821S.4	
BMW E90	Ø365×32	F98H02-06F7E	MHA3430X712	BSK4498X1000	CAR9850H24HRLT/RT	PNF4498X821S.4	
BMW E90	Ø365×32	F97Y02-06F7E	MHA3430X712	BSK4497X1018	CAR9751Y63HRLT/RT	PNF4497X562S.4	
BMW E90 Rear	Ø343×28	R98B03-06F7E	MHA3430X711	BSK4498X1015	CAR9856B45HRLL/RL	PNF4498X821S.4	
BMW E90 Rear (E90/E92 - 320 & 325)	Ø343×28	R98B03-26F7E	MHA3430X711	BSK4498X1015	CAR9856B45HRLL/RL	PNF4498X821S.4	
BMW E90	Ø365×32	F98H02-06P6E	MHA3430X712	BSK4498X1000	CAR9850H24HRLT/RT	PNP4498X606S.4	
BMW E90	Ø365×32	F97Y02-06P6E	MHA3430X712	BSK4497X1018	CAR9751Y63HRLT/RT	PNP4497X551S.4	
BMW E90 Rear	Ø343×28	R98B03-06P6E	MHA3430X711	BSK4498X1015	CAR9856B45HRLL/RL	PNP4498X606S.4	
BMW E90 Rear (E90/E92 - 320 & 325)	Ø343×28	R98B03-26P6E	MHA3430X711	BSK4498X1015	CAR9856B45HRLL/RL	PNP4498X606S.4	
Subaru Impreza Wrx	Ø343×32	F98H01-02F7E	MHA3430X449	BSK4498X1013	CAR9850H24HRLT/RT	PNF4498X821S.4	
Subaru Impreza Wrx	Ø343×32	F97ZG01-22F7E	MHA3430X449	BSK4497X1021	CAR9751ZG56HRLT/RT	PNF4497X562S.4	
Subaru Impreza Wrx	Ø365×32	F97ZG02-22F7E	MHA3430X449	BSK4497X1022	CAR9751ZG56HRLT/RT	PNF4497X562S.4	
Subaru Impreza Wrx Rear	Ø343×25	R36X07-02F7D	MHA3430X674	N/A	CAL3659X04HSLT/RT	PNF4436X516S.4	
Subaru Impreza Sti (My05,06,07)	Ø343×32	F97ZG01-22F7E	MHA3430X449	BSK4497X1021	CAR9751ZG56HRLT/RT	PNF4497X562S.4	
Subaru Impreza Sti (My05,06,07)	Ø365×32	F97ZG02-22F7E	MHA3430X449	BSK4497X1022	CAR9751ZG56HRLT/RT	PNF4497X562S.4	
Subaru Impreza Sti (My05,06,07) Rear	Ø343×25	R36X07-12F7D	MHA3430X674	N/A	CAL3659X04HSLT/RT	PNF4436X516S.4	
Subaru Impreza Sti (My08,09)	Ø343×32	F97ZG01-22F7E	MHA3430X449	BSK4497X1021	CAR9751ZG56HRLT/RT	PNF4497X562S.4	
Subaru Impreza Sti (My08,09)	Ø365×32	F97ZG02-22F7E	MHA3430X449	BSK4497X1022	CAR9751ZG56HRLT/RT	PNF4497X562S.4	
Subaru Impreza Sti (My08,09) Rear	Ø343×25	R36A07-22F7D	MHA3430X731	BSK4436X734	CAR3659A26HSLT/RT	PNF4436X516S.4	
Mitsubishi Evo 8 & 9	Ø343×32	F97Y01-07F7E	MHA3430X560	BSK4497X1002	CAR9751Y63HRLL/RL	PNF4497X562S.4	
Mitsubishi Evo 8 & 9	Ø365×32	F97Y02-07F7E	MHA3430X560	BSK4497X1003	CAR9751Y63HRLL/RL	PNF4497X562S.4	
Mitsubishi Evo 8 & 9 Rear	Ø330×25	R36X05-07F7D	MHA3430X653	BSK4436X730	CAR3659X28HSLT/RT	PNF4436X516S.4	
Mitsubishi Evo 10	Ø365×32	F97ZG02-23F7E	MHA3430X739	BAA4497X713	CAR9751ZG56HRLL/RL	PNF4497X831S.4	
Mitsubishi Evo 10 Rear	Ø343×28	R36A03-23F7D	MHA3430X740	BAA4436X735	CAR3659A27HSLT/RT	PNF4436X516S.4	
Nissan Skyline Gtr R34	Ø343×32	F97ZG01-08F7E	PSC4473X658L/R	BSK4497X1004	CAR9751ZG56HRLL/RL	PNF4497X562S.4	
Nissan Skyline Gtr R34	Ø365×32	F97ZG02-08F7E	PSC4473X658L/R	BSK4497X1005	CAR9751ZG56HRLL/RL	PNF4497X562S.4	

	Disc	Bell assy	Disc assy	Disc assy bolt kit	Seal service kits (EWB)	Anti rattle clip
	DIV2175X576C24L/R	BAA2129X1002	DIA2175X1022C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X612
	DIV2175X521C24L/R	N/A	DIA2175X072C24L/R	BBK0621X001.12	CSK3232EW601	SSA4498X521
	DIV2175X576C24L/R	BAA2129X1000	DIA2175X1017C24L/R	BBK0625X006.10	CSK3841EW601	SSA4498X522
	DIV2175X576C24L/R	BAA2129X1000	DIA2175X1017C24L/R	BBK0625X006.10	CSK273238EW601	SSA4497X623
	DIV2175X521C24L/R	N/A	DIA2175X1015C24L/R	BBK0621X001.12	CSK303538EW601	SSA4498X521
	DIV2175X521C24L/R	N/A	DIA2175X1028C24L/R	BBK0621X001.12	CSK3232EW601	SSA4498X521
	DIV2175X576C24L/R	BAA2129X1000	DIA2175X1017C24L/R	BBK0625X006.10	CSK3841EW601	SSA4498X522
	DIV2175X576C24L/R	BAA2129X1000	DIA2175X1017C24L/R	BBK0625X006.10	CSK273238EW601	SSA4497X623
	DIV2175X521C24L/R	N/A	DIA2175X1015C24L/R	BBK0621X001.12	CSK303538EW601	SSA4498X521
	DIV2175X521C24L/R	N/A	DIA2175X1028C24L/R	BBK0621X001.12	CSK303538EW601	SSA4498X521
	DIV2175X557C24L/R	BAA2129X1020	DIA2175X1011C24L/R	BBK0625X006.10	CSK3841EW601	SSA4498X522
	DIV2175X557C24L/R	BAA2129X1012	DIA2175X1005C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X623
	DIV2175X576C24L/R	BAA2129X1013	DIA2175X1019C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X623
	DIV2175X607C24L/R	N/A	DIA2175X1014C24L/R	BBK0621X001.12	CSK2525EW751	SSA4436X688
	DIV2175X557C24L/R	BAA2129X1012	DIA2175X1005C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X623
	DIV2175X576C24L/R	BAA2129X1013	DIA2175X1019C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X623
	DIV2175X607C24L/R	N/A	DIA2175X1010C24L/R	BBK0621X001.12	CSK2525EW751	SSA4436X688
	DIV2175X557C24L/R	BAA2129X1012	DIA2175X1005C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X623
	DIV2175X576C24L/R	BAA2129X1013	DIA2175X1019C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X623
	DIV2175X607C24L/R	N/A	DIA2175X1021C24L/R	BBK0621X001.12	CSK2929EW751	SSA4436X688
	DIV2175X557C24L/R	BAA2129X1005	DIA2175X1001C24L/R	BBK0625X006.10	CSK273238EW601	SSA4497X623
	DIV2175X576C24L/R	BAA2129X1006	DIA2175X1026C24L/R	BBK0625X006.10	CSK273238EW601	SSA4497X623
	DIV2197X006C24L/R	N/A	DIA2197X006C24L/R	BBK0621X001.12	CSK2525EW751	SSA4436X688
	DIV2175X636C24L/R	BAA2129X1103	DIA2175X111C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X623
	DIV2175X521C24L/R	N/A	DIA2175X123C24L/R	BBK0621X001.12	CSK2929EW751	SSA4436X681
	DIV2175X557C24L/R	BAA2129X1007	DIA2175X1002C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X623
	DIV2175X576C24L/R	BAA2129X1008	DIA2175X1031C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X623

Applications list

Part numbers and handing

Vehicle	Disc size	Brake kit No.	Hose/Pipe	Bracket Kit	Caliper (silver) Black Alcon logo	Pads	
Nissan Skyline Gtr R34 Rear	Ø350×28	R98B04-08F7E	MHA3430X876	BSK4498X1018	CAR9856B45HRLL/RL	PNF4498X821S.4	
Nissan 350Z	Ø365×32	F97ZG02-03F7E	PSC4473X658L/R	BSK4497X1006	CAR9751ZG56HRLL/RL	PNF4497X562S.4	
Nissan 350Z Rear	Ø350×28	R98B04-03F7E	MHA3430X876	BSK4498X1005	CAR9856B45HRLL/RL	PNF4498X821S.4	
VW Golf 4, Audi A3, Seat Cupra R	Ø343×32	F98H01-09F7E	MHA3430X473	BSK4498X1006	CAR9850H24HRLL/RL	PNF4498X821S.4	
VW Golf 5	Ø343×32	F98H01-15F7E	MHA3430X486	BSK4498X1009	CAR9850H24HRLL/RL	PNF4498X821S.4	
Audi Tt (Vw Golf 5 Platform)	Ø365×32	F97Y02-14F7E	MHA3430X758	BSK4497X1009	CAR9751Y63HRLL/RL	PNF4497X562S.4	
Honda Accord Cl7	Ø343×32	F98H01-11F7E	MHA3430X643	BSK4498X1010	CAR9850H24HRLL/RL	PNF4498X821S.4	
Honda Civic Type R (Fn2 Euro Spec)	Ø343×32	F97Y01-18F7E	MHA3430X679	BSK4497X1012	CAR9751Y63HRLL/RL	PNF4497X562S.4	
Honda Civic Type R (Fd2 Jdm Spec)	Ø343×32	F97Y01-20F7E	MHA3430X729	BSK4497X1017	CAR9751Y63HRLL/RL	PNF4497X562S.4	
Honda Civic Type R (Fd2 Jdm Spec)	Ø343×32	F97Y01-20P6E	MHA3430X729	BSK4497X1017	CAR9751Y63HRLL/RL	PNP4497X551S.4	
BMW Mini One	Ø328×28	F98H06-16F7E	MHA3430X478	BSK4498X1011	CAR9856H45HRLL/RL	PNF4498X821S.4	
Vauxhall Astra Vxr	Ø343×32	F98H01-17F7E	MHA3430X490	BSK4498X1012	CAR9850H24HRLL/RL	PNF4498X821S.4	
Audi A4 B6/B7	Ø343×32	F98H01-19F7E	MHA3430X475	BSK4498X1009L/R	CAR9850H24RLT/RT	PNF4498X821S.4	
Audi A4 B6/B7	Ø365×32	F97ZG02-19F7E	MHA3430X475	BSK4497X1009L/R	CAR9751ZG56HRLT/RT	PNF4497X562S.4	
Audi A4 B8	Ø343×32	F98H01-24F7E	MHA3430X773	BSK4498X1009	CAR9850H24HRLT/RT	PNF4498X821S.4	
Audi A4 B8	Ø343×32	F97Y01-24F7E	MHA3430X773	BSK4497X1024	CAR9751Y63HRLT/RT	PNF4497X562S.4	
Audi A4 B8	Ø365×32	F97Y02-24F7E	MHA3430X773	BSK4497X1009	CAR9751Y63HRLT/RT	PNF4497X562S.4	
Audi A4 B8	Ø365×32	F97Y02-24P6E	MHA3430X773	BSK4497X1009	CAR9751Y63HRLT/RT	PNP4497X551S.4	
Corvette C6	Ø365×32	F97Y02-27F7E	MHA3430X855	BSK4497X1027	CAR9751Y63HRLT/RT	PNF4497X562S.4	
Corvette C6 (Rear)	Ø343×32	R98B08-27F7D	MHA3430X856	BSK4498X1022	CAR9850B25HRLL/RL	PNF4498X821S.4	
Subaru Brz, Toyota Ft86	Ø343×32	F98H01-28F7E	MHA3430X932	BSK4498X1013	CAR9850H24HRLL/RL	PNF4498X821S.4	
Subaru Brz, Toyota Ft86	Ø343×32	F97ZG01-28F7E	MHA3430X932	BSK4497X1021	CAR9751ZG56HRLL/RL	PNF4497X562S.4	
Subaru Brz, Toyota Ft86	Ø365×32	F97ZG02-28F7E	MHA3430X932	BSK4497X1022	CAR9751ZG56HRLL/RL	PNF4497X562S.4	
Subaru Brz, Toyota Ft86 (Rear)	Ø343×25	R36A07-28F7D	MHA3430X933	BSK4436X734	CAR3659A26HSLT/RT	PNF4436X516S.4	
Mercedes W204c	Ø365×32	F97ZG02-29F7E	MHA3430X476	BSK4497X1028	CAR9751ZG56HRLT/RT	PNF4497X831S.4	
Mercedes W204c (Rear)	Ø343×25	R36A07-29F7D	MHA3430X935	BSK4436X741	CAR3659A26HSLT/RT	PNF4436X516S.4	
BMW E81/E82	Ø343×32	F98H01-30F7E	MHA3430X712	BSK4498X1025	CAR9850H24HRLL/RL	PNF4498X821S.4	
Ford Focus Rs	Ø365×32	F97Y02-31F7E	MHA3430X814	BSK4497X1025	CAR9751Y73HRLL/RL	PNF4497X831S.4	

	Disc	Bell assy	Disc assy	Disc assy bolt kit	Seal service kits (EWB)	Anti rattle clip
	DIV2175X463C24L/R	N/A	DIA2175X077C24L/R	BBK0621X001.12	CSK303538EW601	SSA4497X623
	DIV2175X576C24L/R	BAA2129X1009	DIA2175X1032C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X623
	DIV2175X463C24L/R	N/A	DIA2175X077C24L/R	BBK0621X001.12	CSK303538EW601	SSA4497X623
	DIV2175X557C24L/R	BAA2129X1010	DIA2175X1003C24L/R	BBK0625X006.10	CSK3841EW601	SSA4498X522
	DIV2175X557C24L/R	BAA2129X1016	DIA2175X1007C24L/R	BBK0625X006.10	CSK3841EW601	SSA4498X522
	DIV2175X576C24L/R	BAA2129X1015	DIA2175X1025C24L/R	BBK0625X006.10	CSK273238EW601	SSA4497X623
	DIV2175X557C24L/R	BAA2129X1017	DIA2175X1008C24L/R	BBK0625X006.10	CSK3841EW601	SSA4498X522
	DIV2175X557C24L/R	BAA2129X1021	DIA2175X1012C24L/R	BBK0625X006.10	CSK273238EW601	SSA4497X623
	DIV2175X557C24L/R	BAA2129X1014	DIA2175X1006C24L/R	BBK0625X006.10	CSK273238EW601	SSA4497X623
	DIV2175X557C24L/R	BAA2129X1014	DIA2175X1006C24L/R	BBK0625X006.10	CSK273238EW601	SSA4497X623
	DIV2197X007C24L/R	BAA2129X1018	DIA2197X008C24L/R	BBK0625X006.10	CSK3841EW601	SSA4498X521
	DIV2175X557C24L/R	BAA2129X1019	DIA2175X1009C24L/R	BBK0625X006.10	N/A	N/A
	DIV2175X557C24L/R	BAA2129X1023	DIA2175X1013C24L/R	BBK0625X006.10	N/A	N/A
	DIV2175X576C24L/R	BAA2129X1024	DIA2175X1018C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X623
	DIV2175X557C24L/R	BAA2129X1031	DIA2175X1029C24L/R	BBK0625X006.10	CSK3841EW601	SSA4498X522
	DIV2175X557C24L/R	BAA2129X1031	DIA2175X1029C24L/R	BBK0625X006.10	CSK273238EW601	SSA4497X623
	DIV2175X576C24L/R	BAA2129X1032	DIA2175X1030C24L/R	BBK0625X006.10	CSK273238EW601	SSA4497X623
	DIV2175X576C24L/R	BAA2129X1032	DIA2175X1030C24L/R	BBK0625X006.10	CSK273238EW601	SSA4497X623
	DIV2175X576C24L/R	BAA2129X1039	DIA2175X1038C24L/R	BBK0625X006.10	CSK273238EW601	SSA4497X623
	DIV2146X708C24L/R	N/A	DIA2146X1001C24L/R	BBK0621X001.12	CSK3232EW601	SSA4498X522
	DIV2175X557C24L/R	BAA2129X1020	DIA2175X1011C24L/R	BBK0625X006.10	CSK3841EW601	SSA4498X522
	DIV2175X557C24L/R	BAA2129X1012	DIA2175X1005C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X623
	DIV2175X576C24L/R	BAA2129X1013	DIA2175X1019C24L/R	BBK0625X006.10	CSK303538EW601	SSA4497X623
	DIV2175X607C24L/R	N/A	DIA2175X1021C24L/R	BBK0621X001.12	CSK2929EW751	SSA4436X681
	DIV2175X768C24L/R	N/A	DIA2175X1042C24L/R	TBA	CSK303538EW601	SSA4497X623
	DIV2175X607C24L/R	N/A	DIA2175X1043C24L/R	TBA	CSK2929EW751	SSA4436X681
	DIV2175X791C24L/R	N/A	DIA2175X1046C24L/R	TBA	CSK3841EW601	SSA4498X522
	DIV2175X768C24L/R	N/A	DIA2175X1049C24L/R	TBA	CSK273238EW601	SSA4497X623

advantage extreme **race**

The background

While Alcon's Advantage Extreme brake kits offer exceptional braking performance for the fast road and track driver, sometimes our customers need that little bit extra. That's why we have developed our Advantage Extreme Race disc and bell upgrades. We currently have upgrades available for a selection of popular Advantage Extreme kits.

What does it consist of?

The race upgrade consists of a fully floating disc and bell assembly, allowing for greater thermal expansion and thus less chance of disc cracking or warping when subjected to regular heavy track use. The existing disc can be swapped like-forlike with these upgrades.

Who's it aimed at?

This upgrade is perfect for customers who are a little more 'enthusiastic' on the track and so need that added durability. The upgrade is designed for use with customers' existing Advantage Extreme caliper and mounting kit. The applications it is currently available for are listed opposite.

Part numbers and handing

Application	Part Number	Size	Base Kit	Disc	Bell	Bobbin Kit
BMW E46 M3	DIA2175X175S36L/R	Ø365×257×32	F97ZG02-01F7E	DIV2175X627S36L/R	BAD2129X1411	BBK3625X001.12
VW GOLF 5 / 6 / 7	DIA2175X176S36L/R	Ø365×257×32	F98H02-25P6E	DIV2175X627S36L/R	BAD2129X1412	BBK3625X001.12
Audi TT	DIA2175X176S36L/R	Ø365×257×32	F97Y02-14F7E	DIV2175X627S36L/R	BAD2129X1412	BBK3625X001.12
BMW E90 Non M3	DIA2175X177S36L/R	Ø365×257×32	F97Y02-06F7E	DIV2175X627S36L/R	BAD2129X1413	BBK3625X001.12
Subaru STI	DIA2175X178S36L/R	Ø365×257×32	F97ZG02-22F7E	DIV2175X627S36L/R	BAD2129X1414	BBK3625X001.12
EVO 7 / 8 / 9	DIA2175X179S36L/R	Ø365×257×32	F97Y02-07F7E	DIV2175X627S36L/R	BAD2129X1415	BBK3625X001.12

superkits

Designed to give you the ultimate braking performance, Superkits are the pinnacle of our aftermarket brake kits.

Owners of performance road cars often find that, under extreme conditions such as those achieveable at the track, the limits of the standard OE brakes can be exceeded, sometimes resulting in a substantial deterioration brake performance. Alcon's Superkits have been designed specifically to stand up to the rigours of the track, both in durability and performance.

Discs

The Alcon Superkit brake discs offer significant improvements in available brake torque, while still being lighter than the OE assemblies and so reducing inertia. The discs also offer increased thermal capacity over the OE setup and the crescent groove pattern allows for improved gas release, increased initial bite and improved durability. Alcon's floating disc system (as used in the majority of applications) has been designed to allow thermal expansion of the disc throughout its life while minimising the tendency to judder.

Calipers

Made from aluminium billet, the calipers have been designed to improve overall system efficiency whilst maintaining the original balance and OE actuation. The increased pad area and volume offers better temperature management and improved brake efficiency while the pistons have been positioned to offer the most even pad wear.

Part numbers and handing

Part Number	Description	Front Calliper	Rear Calliper	Front disc Ø	Rear disc Ø	Groove Pattern	Pads
BKC1759ZG01	Brake Kit Fr & Rr Nissan GTR R35	6 Pot Mono	6 Pot Mono	400 × 36	385 × 30	C	PAGID RS9-2
BKC1759ZG03	Brake Kit Fr & Rr Nissan GTR R35 Fully Floating	6 Pot Mono	6 Pot Mono	400 × 36	385 × 30	S	PAGID RS29
BKC1759ZG05	Brake Kit Fr & Rr Nissan GTR R35	6 Pot Mono	6 Pot Mono	400 × 36	385 × 30	C	PAGID RS29
BKC8759D08	Brake Kit Fr & Rr Nissan 370Z	6 Pot Mono	6 Pot Mono	400 × 36	385 × 30	C	PAGID RS9-2
BKC1759ZG04	Brake Kit Fr & Rr Porsche 997 Turbo	6 Pot Mono	6 Pot Mono	390 × 34	385 × 33	C	PAGID RS9-2
BKC8759D07	Brake Kit Fr & Rr BMW E90 M3	6 Pot Mono	4 Pot Mono	384 ×34	370 × 30	C	PAGID RS9-2
BKC8759D09	Brake Kit Fr & Rr BMW E90/92 335I Non M3	6 Pot Mono	4 Pot Mono	384 × 34	370 × 30	C	PAGID RS9-2
BKC8759D11	Brake Kit Fr & Rr BMW E60 M5	N/A	N/A	390 × 36	380 × 32	C	PAGID RS9-2
BKC8759D12	Brake Kit Fr & Rr BMW E90 M3, BMW 1M	6 Pot Mono	4 Pot Mono	384 × 34	370 × 30	C	PAGID RS29
BKC8759D31	Brake Kit Fr & Rr BMWE90/92 Non M3	6 Pot Mono	4 Pot Mono	384 × 34	370 × 30	C	PAGID RS29
BKF1759ZG13	BMW 550I Iron Disc Superkit	6 Pot Mono	N/A	394 × 36	N/A	C	PAGID RS9-2
BKF1759ZG02	Audi RS6 Front Superkit	6 Pot Mono	N/A	400 × 36	N/A	C	PAGID RS9-2

armoured introduction

A key area of our business is that of specialist brakes and clutches for armoured vehicles. Performance and durability, often in uncompromising surroundings, are pre-requisites for armoured vehicle braking solutions and something that Alcon prides itself on being able to offer.

Whether for peace keeping United Nations, or for private use, Alcon provides unrivalled levels of safety for its occupants the world over.

Applications

From armoured SUVs to MOD-spec military combat vehicles, our brake solutions are available for a number of applications. They are designed and built to the highest specification, developed to withstand the perils of this line of work while providing excellent braking performance.

Bespoke engineering

Alcon is able to provide bespoke engineering systems from order to production intent parts within a 12 week lead-time, providing tailored performance braking systems to our customers' exact requirements. In-house testing capabilities provide additional peace of mind.

Our customers, including the UN, have come to expect and rely upon our discretion, performance and reliability, and this is what makes us the first choice in armoured braking solutions.

Alcon have designed tried and tested packages using its extensive Motorsport and Performance OEM experience for a variety of vehicle platforms but have the capability to consider other requirements as and when our customers require.

defence introduction

With 25 years of experience engineering brakes and clutches for specialist vehicles, including F1 and World Rally cars, armoured protection vehicles and prestige performance cars, Alcon is now establishing a presence in the defence sector, where it is applying its rapid engineering skills in support of the UK MOD's Urgent Operational Requirements. Since 2009, our Research and Development team has been working on creating the best brakes for defence vehicles.

Alcon in action

A good example is the partnership between Alcon and Ricardo's Defence Systems and Technologies Group on the Snatch Vixen and WMIK upgrade programmes. In both cases the addition of armour protection, onboard power and payload enhancement raises gross vehicle weight by as much as 34% – from 3.5 to 4.7 tonnes.

During testing Ricardo established that a brake upgrade would be required in order to achieve acceptable caliper burst strength and braking torque/pedal effort. Ricardo approached Alcon in early October 2008 asking for support to define a solution, an opportunity that we seized.

Alcon's engineering team immediately ran calculations on the vehicle data and established that a new cast SG iron caliper design would be required to meet performance targets in a very restricted installation envelope.

A proposal for both prototype and production solutions was put forward and accepted by the end of that month, and prototype production was started immediately, with first supply being made just 4 weeks later.

Following the successful conclusion of on-vehicle prototype testing in January 2009 the go-ahead was given for full production parts. Over the ensuing couple of months the Alcon team worked under strict time compression to finalise the design and associated quality plans.

Alcon's rapid response suppliers manufactured and commissioned new casting tools, cast first off samples of the new caliper body, and completed machining trials. All other parts were either procured or scheduled through Alcon's own manufacturing facility.

In March 2009, a mere 8 weeks after receipt of the purchase order, Alcon delivered the first batch of production calipers for the Snatch Vixen and R-WMIK programmes.

Branching out

Since then Alcon has added to its range of cast iron calipers and brake discs with a larger six-piston specification and several other variants still at the design stage – all configured especially for the rigours of defence applications.

If you would like to discuss how Alcon may be able to support your vehicle programme with rapidly engineered brake or clutch solutions please contact our Sales Team.

OEM sector introduction

There's no better testament to quality than long-standing relationships with manufacturers of some of the best cars in the world. Alcon's expertise is highly sought after, which is why we have a prominent position within the performance OEM sector.

Alcon supplies braking solutions to some of the world's top car manufacturers, including Audi, Bentley, Brabus and Jaguar Land Rover. Not only that, our products are found in some of the most extreme applications such as the 900bhp/tonne Ariel Atom 500 and the 225mph Noble M600.

At Alcon we know exactly what our customers require because we demand the same, and more, of the performance cars we drive, race and engineer for world renowned drivers and racing teams. But don't just take our word for it. Our credibility in the OEM sector is synonymous with world class standards equal to Ford Q1 and Audi A-rated supplier performance.

Brakes

Our expertise has made Alcon a prominent supplier to the performance OEM sector, supplying top quality brake kits to some of the most prestigious marques in the world.

Our 30 years of motorsport knowledge means we can create products to any OEM requirement and specification.

Alcon's expertise is not just seen in our products, though; our service is second-to-none too. Our team of engineers can work to a range of requirements and specifications, offering unrivalled technical support at every step of the way.

What's more, our rigorous testing and quality control will leave you safe in the knowledge that your project is in the right hands.

Clutches

We're committed to putting all of our expertise behind everything we do, and this doesn't stop with our OEM clutches. With over 30 years' experience, you know that you're getting your OEM clutches from a quality company – a company that knows how to create quality products. With our extensive knowledge behind you, you can be sure that your OEM clutches will be both reliable and durable.

In addition to traditional power train clutches, Alcon have a proven track record in the design and manufacture of driveline dampers and IC engine to e-motor disconnect clutches as found on modern hybrid supercars.

We can create clutches to almost any specification – just get in touch to talk through your requirements and get the ball rolling.

specialist introduction

The world is changing. We're getting more and more eco-conscious, and so are our cars. At Alcon we recognise the importance of keeping up with technological advancements. In fact, we make them. That's why we're proud to be providing brake and clutch solutions for electric performance cars, low-carbon taxis, and electric motorsport applications, amongst other specialist solutions. No project is too niche so get in touch and see how we can help.

Brakes

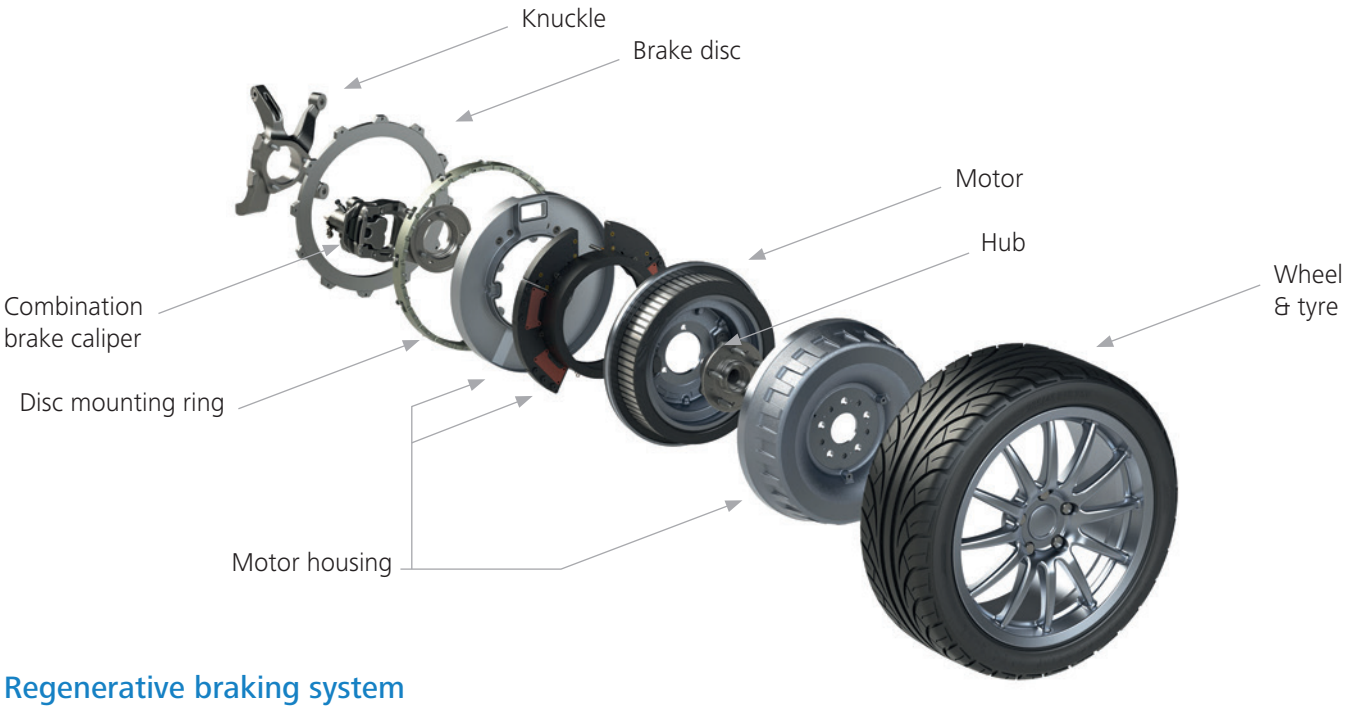
Over the years our expertise has lead us through some very unconventional projects. From low carbon taxis in London to the FIA Formula E championship, we are proud to have been able to supply specialist brake solutions for any need. Where light weight zero drag is a priority, Alcon have the solution. No application is too niche for us – if you need brakes, then get in touch.

Clutches

Our products are known for their quality. That's why, when customers have some very specific requirements, they come to us. We're experts at providing specialist solutions, whether that's a high performance road car, or a hybrid concept car.

Our team of engineers are always on hand to work on new concepts and applications, and can consider any requirement. If you're working on a specialist project, then get in touch and see what Alcon can do for you.

Alcon are clutch and driveline damper specialists for the new breed of hybrid Hypercars.



Regenerative braking system